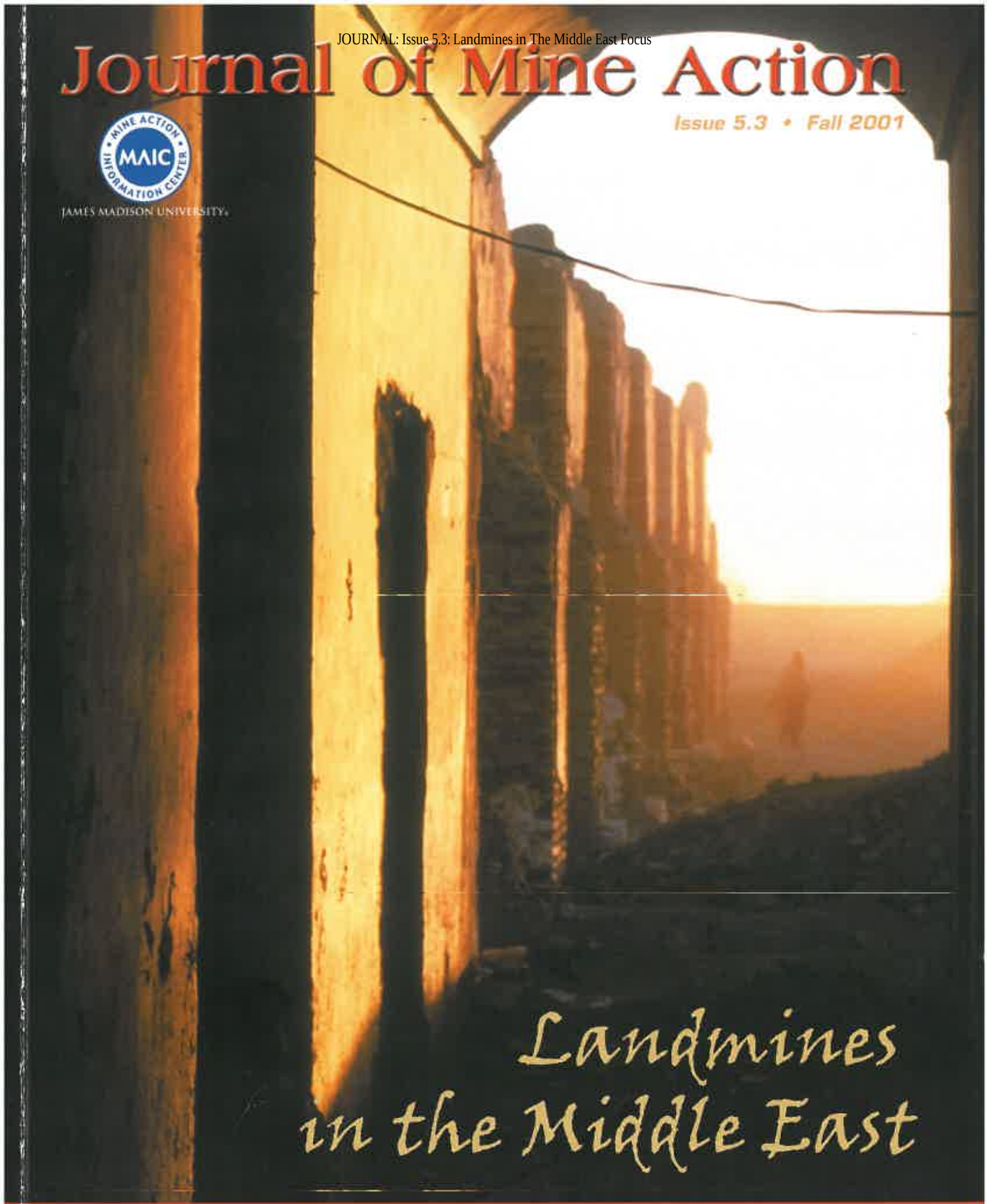
Journal of Mine Action

Issue 5.3 • Fall 2001

MINE ACTION INFORMATION CENTER
MAIC
JAMES MADISON UNIVERSITY



Landmines in the Middle East

Special Report Afghanistan

contents

Focus

Feature

The Journal would like to thank Mr. Oren Schein for all his help in supplying photos.

Feature

Notes from the Field

Editorial

The Journal of Mine Action
The Mine Action Information Center
at James Madison University
Fall 2001 Issue 5.3
ISSN: 1533-9440

The Journal of Mine Action is an official publication of the Mine Action Information Center at James Madison University. It is published three times a year. The Mine Action Information Center is a clearinghouse for information on landmine-related issues and topics and is sponsored by a contract from the Department of Defense. For additional information, please call MAIC at (540) 568-2718. E-mail: maic@jmu.edu or visit the website at http://maic.jmu.edu.

Upcoming Issues

Version 6.1	Feb. 2002	Global Mine Action Centers
Version 6.2	June 2002	Landmines in Africa
Version 6.3	Oct. 2002	Victim & Survivor Assistance
Version 7.1	Feb. 2003	Manual Demining and Personal Safety
Version 7.2	June 2003	Landmines in Europe and The Caucasus
Version 7.3	Oct. 2003	Mechanically Assisted Demining

Submissions and queries regarding *The Journal of Mine Action* should be submitted to the editor at:
Mine Action Information Center
James Madison University
One Court Square, MSC 8504, Harrisonburg, Virginia 22807
Tel: (540) 568-2503 - E-mail: busemx@jmu.edu

Requests for issues and/or calls for papers of *The Journal of Mine Action* should be directed to the editor.

The Journal of Mine Action reserves the right to alter articles for readability or space considerations. Every effort will be made to maintain the integrity and meaning of the text.

Views expressed in *The Journal of Mine Action* are those of the authors and do not necessarily reflect the views of the Mine Action Information Center, James Madison University, or the U.S. Department of Defense.

Editorial Board
Dennis Barlow
Margaret S. Busé
Joe Lokey

Editor
Margaret S. Busé

Editorial Assistants
Nicole Kreger
Jenny Lange
Mary Ruberry
JJ Scott
Susie Sprinkel
Sarah Taylor

Senior Graphic Designer
Emily Smith

Assistant Graphic Designers
Herb Plimpton
Katie Marrson

Administrative Support
Christine Barsody
Carolyn Firkin

Design Consultant
Paul Groff,
Color Graphics Corp.

Contributors
Mohamed Ahmed
Houbouba Anon
Steven Barmazel
Paddy Blagden
Darin Busé
Tim Carstairs
Matt Craig
Laurence Desvignes
Aharon Etengoff
Suzanne L. Fiederlein
Thomas Houlahan
Robert Keeley
Tim Kennedy
Tim Lardner
Dr. Michael F. Litzelman
Aisha Saeed Nayla
Her Majesty Queen Noor
Wayne D. Perry
Major José Saucedo
Oren Schlein
Stacy L. Smith
Steve Soucek
Professor Gerald Steinberg
Major Darrell Strother
Qadeem Khan Tariq
James Trevelyan
Harald A. Wie
Daniel H. Wolf

Cover Photo
Oren Schlein

*Translation provided by Christoph Rethore, *Madison Linguistic Services*

Combating Subterranean Terror

HM Queen Noor makes a plea to rid the world of landmines and the destruction they inflict on civilians and their communities.

by Her Majesty Queen Noor of Jordan

Over the past 25 years, driving past Jordan Valley mine fields fenced off by barbed wire, visiting with landmine victims, or tallying the grim statistics, I have grieved for the children and adults in the Middle East routinely maimed or killed by these weapons of mass destruction in slow motion. Our region has been called the landmine heartland of the world, with an estimated 50 million mines scarring the earth from Morocco to Afghanistan. Beyond the physical and psychological torture of those who have been injured, or lost loved ones, is the further punishment of land made desolate, lost to productive use, held hostage by the menace of landmines. About 10 percent of Jordan's population lives in areas unable to be worked or planted or traversed because of this subterranean terror.

Landmines impact a range of issues, including peace and conflict resolution, the environment, arms control, economic development, human rights and health. Those of us who campaign to ban landmines are waging a battle not to win a war but to win an enduring peace. War-torn societies can never be rebuilt if people continue to fear for their lives with every step they take. I believe our cause is just and right, and that the tide of history and world opinion is on our side.

Landmines are increasingly seen as a moral issue for religious communities in the Middle East. In 1998, my late husband His Majesty King Hussein and I convened a conference in Amman to offer an opportunity for religious leaders, landmine survivors, doctors and rehabilitation specialists alike to consider how to stem the mass suffering inflicted by landmines. At this the First Middle East Conference on Landmine Injury and Rehabilitation, sponsored by the Landmine Survivors Network and governments of Norway and Canada, religious leaders raised their voices to condemn the manufacture and use of mines as being contrary to the teachings of the Bible and the Koran. Among others, Shiite leader Abdel Majid Al-Khoi said that "the use of landmines is a crime and an evil" and that the clauses of the Mine Ban Treaty should be viewed as "religious rights." Sunni leader Sheikh Eiz Aldin Al Khatib Al Timemi concurred, "Landmines are against Islam, and therefore must be prohibited, and their production ceased." From a Christian perspective, Monsignor Ra'uf Najjar said, "Man has been attacking the lives of his brethren by planting landmines, thus committing evils against them."

Unfortunately, these higher ideals do not seem to reach those who wage war. Because they are cheap and easily obtained, landmines are frequently used by informal militias and guerillas in local conflicts. These groups are more likely to turn mines against civilians, and less likely to keep records of where they have been planted. Mines are often placed in rural areas explicitly to shatter the morale and integrity of family, clan, tribe and village. Land shifts, rain falls, winds blow the sand, and the mines shift and move and roll as well. There is no tracking them. Maybe cruelest of all, even in areas where people crave peace, these insidious leftovers make rebuilding communities and trust nearly impossible. They are reminders of the past conflict and a threat to future progress.

The skirmishes and battles may end, but the mines remain. How ironic, that with brand new, billion-dollar weapons on every arms dealer's wish list, there is still no high-tech solution for safely removing a $3.00 mine from the ground. The most reliable technique remains a courageous deminer lying on his stomach, prodding the earth with a stick.

More and more military leaders are admitting that landmines are simply not militarily decisive. In 1995, the International Committee of the Red Cross and the Red Crescent commissioned a military study of the effectiveness of landmines. Examining 26 conflicts since 1940, the study found that antipersonnel mines played no significant role in the outcome of any of them. More than 50 high-ranking military figures from 20 countries have endorsed the study's conclusion: that the appalling suffering and waste caused by landmines far outweighs their military utility. I too am convinced. My own two sons serve in the Jordanian Army. I would not speak out against landmines if I thought banning them would put them in greater danger. I want them, as well as all Jordanians, kept safe from this military litter.

142 countries, including Jordan, have joined the historic 1997 Mine Ban Treaty. This remarkable arms control agreement also provides a detailed humanitarian framework which pledges governments to ban the weapon, destroy stockpiles, demine infected land and provide relief to victims. Our goal is to raise awareness about the cruel and senseless devastation wrought by landmines in every corner of the globe. If more people become aware more governments will join the Treaty. Universal acceptance is my objective.

And so, our challenge remains: What to do? How do we address the subterranean cancer eating our land and picking off our citizens, one by one? How do we reach out to the 51 non-ban countries and convince them to destroy their stockpiles of antipersonnel mines?

First, we must build awareness and support for the Mine Ban Treaty. Jordan was one of the first Middle Eastern States to join the Treaty in 1998. King Hussein despised the landmine scourge on our country and in 1993 set a goal to demine the Jordan Valley by the year 2000. Sadly, he did not live to see this goal realized. The Valley is still not completely cleared, but heroic Jordanian deminers from the Royal Corps of Engineers are making fast progress. We will soon clear the Jordan Valley of some 220,000 antipersonnel and anti-tank mines. Our most holy ground will no longer be desecrated by mines, and pilgrims who wish to walk in the paths of the prophets can do so in safety near the Baptism site of Jesus and other landscapes sacred to the world's major religions. It is my hope that one day we will have a holy land entirely free of landmines and conflict. We are proud to say that Jordan has led the way for the rest of our region, and currently, we are in full compliance with all the terms of, and the timetable set by, the Mine Ban Treaty.

Secondly, we must give aid to the victims; or rather, the survivors, of landmines. The Ban Treaty is the first international treaty with a provision urging states to provide meaningful assistance to the victims, including rehabilitation and opportunities for social and economic reintegration. This will help rebuild our wounded communities. In Jordan, we have established the first amputee support network in the Middle East—a model of survivors helping survivors reclaim their lives. In my travels to mined countries, I have witnessed the courage of survivors, whether African, American, Arab, European or Asian, who have refused to be bowed by this weapon. I have met disabled mothers who work incessantly to care for their families. I've seen amputees who have been trained in computers, agriculture, motor repair, chicken-raising or carpentry, who can continue to make a living and support their families. We owe it to them to do all we can to make their lives whole in a way their broken bodies can no longer be.

I cannot sit with every survivor and try to ease their suffering. But I can remember them, and I can refuse to look away from their reality. Together, civil society and governments can help improve the conditions to help survivors reclaim lives and land.

"We must create peace. We need a sense of security in our private and national lives. We need hope for our children; we need trust with our neighbors; we need opportunities for our development and faith in the moral conscience of the world and in our own destiny." -King Hussein

And so we pursue those countries in our region and in the world that have not joined the global movement to ban landmines. We provide aid to the victims, and we vow to remember those who have died. No one deserves to suffer for conflicts long past. We strive for peace, for community, and for a firm commitment to ensure security and well-being among all our citizens. I can think of no greater gift to the future than to make a giant step toward peace by rendering safe the steps of everyone on the planet. Now is the time to end the curse of landmines, forever. ■

Biography

Her Majesty Queen Noor is Patron and Honorary Chair of Landmine Survivors Network, Advisor to the International Campaign to Ban Landmines, a member of the Advisory Boards of Adopt a Minefield and Marshall Legacy Institute, and a Patron of the Mineseeker Foundation. To learn more about Her Majesty's landmine-related work and read past statements on the issue, please visit the Internet at: www.landminesurvivors.org/heritage/queennoor.php

**All photos courtesy of Her Majesty Queen Noor.*

(L-R) HM Queen Noor makes an historic visit to Bethany, the recently demined baptismal site of Jesus on the Jordan River.
HM Queen Noor consoles a landmine survivor at the First Middle East Conference on Landmine Injury and Rehabilitation, Amman, July 1998.

HM Queen Noor with deminers from the Jordanian Royal Corps of Engineers.

The United States Central Command's Role in the Middle East

The U.S. CENTCOM humanitarian mine action program provides a successful interaction between U.S. military trainers, the host country, the indigenous community and Non-Governmental Organizations while ridding the host country of landmines. Their train-the-trainer approach insures that there is an indigenous demining operation in place before U.S. forces exit the country.

by Margaret S. Busé, *Editor*

There are 25 countries in the United States Central Command (CENTCOM) area of responsibility. Fourteen of these countries are considered mine affected. CENTCOM has demining programs in Egypt, Djibouti, Ethiopia, Eritea, Jordan, Yemen and Oman. The distance between CENTCOM headquarters at MacDill AFB in Tampa, Florida and the countries in their region poses a challenge in the development and management of training programs. Long-range planning through comprehensive demining plans outlining the Department of Defense (DOD) and host nation requirements is one of the significant ways CENTCOM successfully manages its programs.

The Mission

The process for a country initiating a demining program is straightforward. For military demining assistance, there needs to be coordination between multiple players such as the Department of State, Department of Defense, Country teams, U.S. military trainers host nations and component commands.

A country-training program is managed using a 24-month time line, though a comand representative said that they have "cut down the time frame quite a bit." The process starts when a host nation formally requests assistance through the U.S Embassy. The formal request goes to the State Department and is reviewed by the US Government Interagency Subgroup for Humanitarian Mine Action to ensure the requesting country:

- Has a stable government currently in place.
- Is not currently planting landmines or has insurgent groups who are using them.
- Is capable of sustaining the program once properly trained.

The mission of all the regional commands is to conduct humanitarian demining training operations within the area of responsibility. This is carried out by executing Department of Defense demining programs in the host country, coordinating the U.S. participation and conducting assessments for humanitarian programs and mine action technologies. The mission of the regional commands' demining programs links directly to the U.S. national security strategy of promoting prosperity in the host nation, enhancing security and stability and promoting democracy.

The Program

The train-the-trainer programs, which are tailored to the specific needs of the host nation, have been successful for CENTCOM and the host nations. This success is based upon the host nation taking "ownership" of the demining operation. "They know this is a program that they will have to sustain. They need an infrastructure that will be able to maintain the program. We are not infinite and we can't promise to be. We are there to help them set up an indigenous program with the goal of becoming a mine safe nation," states Peggie Murray, CENTCOM Humanitarian Assistance / Demining Branch Chief.

CENTCOM also promotes the involvement of NGOs and private voluntary organizations to supplement their efforts and that provides a win-win situation for all involved. Tim Kennedy of CENTCOM mentions a recent effort saying, "When we arrived in Egypt, we coordinated with the UNDP, several donor nations, and the US Country Team to prevent a duplication of effort in the area." Peggie Murray adds, "It is also important that the military works with the host country and donor organizations so that programs are not left without completion when we leave. We also encourage the host nations to pursue donor money so that their mine action programs can be sustained." By involving the host nation and the available agencies in-country, CENTCOM provides a holistic approach to the demining efforts with an outstanding engagement opportunity for the U.S. Special Operations Forces who carry out humanitarian demining operations for the U.S.

While CENTCOM does not use a "one size fits all" plan to their demining operations, they approach mine action in four phases:

PHASE 1 SURVEY AND PLANNING

PHASE 2 INFRASTRUCTURE DEVELOPMENT

PHASE 3 TRAINING

PHASE 4 SUSTAINMENT

The survey and planning phase includes assessment, Status of Forces agreements and the allocation of resources. During infrastructure development, equipment is purchased, facilities renovated, U.S. Special Operations Forces (SOF) are trained, manpower requirements within the host nation are identified and all involved are prepared for demining training.

It is during the train-the-trainer phase that the training of the indigenous population is conducted by U.S. SOF. U.S. soldiers' availability for the operation is one of the humanitarian demining program's biggest challenges. "This is a great mission for Special Forces. They have the training and language skills and it gives us a chance to interact positively with another culture," states Dr. Al Childress.

The sustainment phase includes technical support team visits, providing re-training as necessary and encouraging donor support for continued success of the program. Since 1994, CENTCOM has trained approximately 530 trainers in seven countries to UN International standards and has donated over $5 million (U.S.) of equipment. This is in addition to The Department of State donations.

Humanitarian assistance efforts throughout the CENTCOM Area of Operations can be expected to increase. "Our situation right now is we are getting ready to support the UN in humanitarian assistance. Our future goals will not change. The majority of all efforts will be humanitarian. We will continue to respond to humanitarian situations regardless of September 11th. I don't expect the programs to end. The military has a valuable contribution to the demining world and I don't see that changing-it may increase. Throughout the government you will see a large increase in humanitarian efforts. You will see the military working side by side with nations," says Peggie Murray.

CENTCOM is encouraging countries to request U.S. humanitarian demining support. The humanitarian demining program is viewed as the one of the best opportunities to help people help themselves, develop long-term relationships, save life and limb and promote a mine-safe world. The humanitarian demining program is and will continue to be a primary tool for military-to-military and military-to-civilian engagement. ■

"The program also fosters good will and trust among all the people involved. It gives the U.S. Military a chance to show through example-how we work and how we function. We are not there imposing democracy, but exposing it through our endeavors." *Peggie Murray, CENTCOM Humanitarian Assistance Branch Chief*

Contact Information

CENTCOM
MacDill Air Force Base, Florida, USA
33621-5101
Tel: (813) 827-6652

The Impact of Landmines on Socio-Economic Development in Southern Lebanon

Twenty-two years of conflict have left a significant number of unfenced and unmarked mine fields in southern Lebanon, requiring strong coordination between various organizations in order to meet emergency demands.

by Mohamed Abdulkadir Ahmed, M.Sc., *MACC*

Background on the Mine/UXO Problem

The Israeli Defense Forces (IDF) and their de-facto forces (DFF) laid a significant number of landmines throughout the 22-year occupation of southern Lebanon. The majority of these mined areas remains unfenced and unmarked. It is estimated that approximately 150,000 landmines are currently emplaced in Lebanon, excluding the liberated areas. The Lebanese Army has indicated that there are other mine fields and dangerous areas present in Lebanon. In addition to the number of mines indicated, the known quantity of mines in the liberated area is almost 70,000 AP and AT mines in 191 mine fields. This does not include information on suspected mined or dangerous areas, booby-trapped border mine fields and other DFF-laid mine fields.

Booby-traps and improvised explosive devices currently present a high threat to the population of several localities in southern Lebanon. Two hundred eighty-eight of these devices requiring immediate clearance have been identified and recorded in the United Nations Interim Force in Lebanon Area of Operations (UNIFIL AO). With the vast quantities of UXO littering the area and a residual landmine threat from earlier conflicts, the scope of the problem is significant. Mine fields lie along the entire length of the international border, booby-traps exist along the former Israeli Controlled Area (ICA), and inland mine fields run along major road networks of the towns Bent Jbeil, Baraachit and Al Qantarah and through Lithani River beyond UNIFIL AO. This information does not include suspected or dangerous areas.

Following the withdrawal of IDF from southern Lebanon in May 2000, a number of deaths and serious accidents occurred in the former ICA. So far, the total number of deaths in southern Lebanon is 16, with 94 seriously injured. Recognizing the serious humanitarian nature of the problem and determined to further strengthen their mine action capacity, the Lebanese authorities asked the United Nations for support.[2] In November 1998, after consulting with other UN agencies and the government of Lebanon (GoL), the United Nations Mine Action Service (UNMAS) offered a multidisciplinary inter-agency mission to assess UN assistance needs. This mission took place from 1 February to 5 February 1999. A further mission assessment was conducted by UNMAS from 26 May to 1 June 2000[3], and at the request of UNIFIL, the Mine Action Coordination Cell (MACC) was established within UNIFIL in July 2000. The project is managed by the United Nations Office of Project Services (UNOPS) through a Military Operations Area (MOA) with UNMAS.

(R-L) M35 in FINBATT AO. Farming activities along border mine field. Antipersonnel Mines AP-no. 4. *c/o UNMACC*

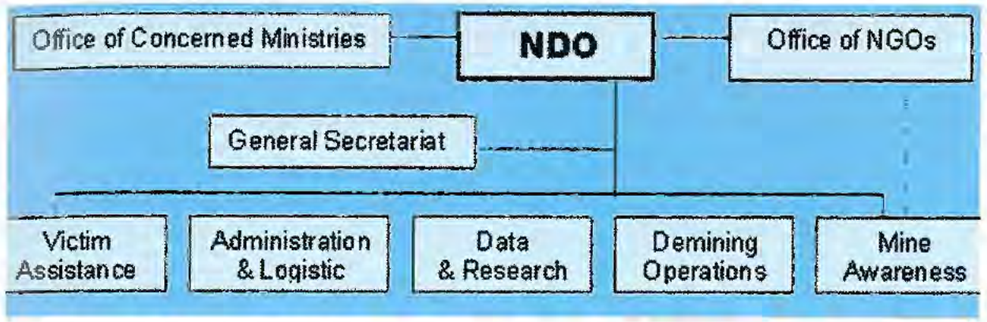


Figure 1: Structure of the National Demining Office. *c/o Mohammed Abdulkadir Ahmed*

The impact of the landmine problem in southern Lebanon also includes issues of internally displaced people, basic services and socio-economic development.[4] After the conflict, all humanitarian and development assistance efforts were hampered by the threat of mines, resulting in a lack of rehabilitation and resettlement areas, a lack of land for agriculture, an increase in costs of development, a deterrent to tourism and, of course, a devastating impact on people. Experience has shown that an integrated approach to a landmine/UXO and social rehabilitation problem in an affected country is necessary to achieve maximum efficiency, to reduce risk, and to achieve increased security. Additionally, an integrated response could address the problems of mine/UXO surveying, marking and clearance; terrain verification; and mine awareness in a coherent and coordinated manner.[5]

Organization of Mines/UXO Clearance in Lebanon: The National Demining Office (NDO)

Since Lebanon has a limited national mine action capacity, mine clearance is a slow process. The resources of the country are scarce and the social pressure is very high. The National Demining Office (NDO) of Lebanon was created in 1998 as the only body within the Lebanese Armed Forces legally responsible for coordinating mine action and physically undertaking demining operations in Lebanon.[6] The NDO, staffed by military officers as shown in Figure 1 above, was established with the assistance of the U.S. government.[7]

Mine awareness activities in Lebanon are primarily implemented through NDO with Landmine Resources Center (LMRC), World Rehabilitation Fund (WRF), United Nations International Children's Emergency Fund (UNICEF), United Nations Education, Scientific and Cultural Organization (UNESCO), Save the Children (Sweden) and the Lebanese Red Cross, with the support of International Committee of Red Cross (ICRC). The MACC conducts mine awareness training to the United Nations Truce Supervisory Organization/Lebanese Observer Group (UNTSO/OGL) Team deployed in UNIFIL AO along the border and to the civilian staff of UNIFIL.

Since 1990, the Engineering Brigade of the Lebanese Army has conducted mine clearance addressing humanitarian and rehabilitation needs, especially in the northern areas of the Lithani River.[8] The army has cleared some 315 mined areas of the 834 they have identified. They have destroyed approximately 4,000 anti-tank mines and 20,000 antipersonnel mines. They have also destroyed some 40,000 UXO and Improvised Explosive Devices (IED).[9]

The Role of the UNIFIL in Mines/UXO Clearance

UN Resolutions 425, 426 and 511 do not give sufficient guidance to authorize UNIFIL to undertake Humanitarian Demining in the AO. So far, UNIFIL's concern in demining activities has been purely operational in areas where its troops had to be located. As at the end of September 2001, 4,365 mines/UXO of all natures had been neutralized.

Emergency demining undertaken by UNIFIL is usually requested from the local population and involves the clearance of mine fields and clusters to extricate victims or mines/UXO that are clearly identifiable and pose an immediate threat. However, due to the legal implications of accidents in cleared areas, mine clearance in populated areas should be classified as humanitarian demining and therefore

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 3

Table 1: Mine fields and incidents occurred in each UNIFIL AO. *c/o UN MACC IMSMA Database, Tyre, Lebanon: September 2001.*

UNIFIL AO	No. of minefields	Size area (m^2)	Injuries	Deaths	Total
FIJIBATT AO	43	1783979	5	2	7
NEPBATT AO	20	777968	7	0	7
IRISHBATT AO	54	2993251	21	3	24
GHANBATT AO	14	1543583	5	2	7
FINBATT AO	78	4674483	2	0	2
INDBATT AO	86	4186479	8	1	9
Total	295	15948561m^2	48	8	56

conducted by accredited humanitarian mine-clearing NGOs and agencies capable of meeting the International Standards for Humanitarian Mine Clearance Operations.

The UN Security Council Resolution 1337, paragraph 10 allows UNIFIL to expand and undertake emergency demining activities in southern Lebanon. UNIFIL, with an increased capacity (particularly including mechanical mine clearance equipment) could better contribute to clearance efforts within its Area of Operations by carrying out emergency tasks, including mine field marking and fencing, in addition to clearance tasks. This would be implemented through a partnership between the UNIFIL-Ukrainian Engineer Battalion and specialized NGOs.

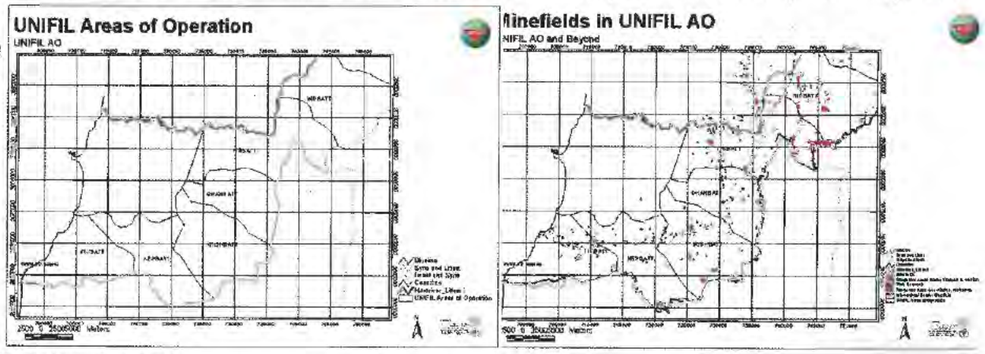
The MACC in Naqoura, UNIFIL HQ and Tyre have created an appreciable database for known and suspected mine fields, booby-trapped areas, areas cleared of mines, and recent incidents as shown in Table 1 above. Map 1 below represents the UNIFIL areas of operation subdivided into six battalions: Fijibatt AO, Nepbatt AO, Irishbatt AO, Ghanbatt AO, Finbatt AO and Indbatt AO, with a total strength of 4,500 troops to be reduced to 3,600. The reduction of troops will reflect on the whole activities of UNIFIL, reducing the areas of operation to three: Fijibatt AO, Ghanbatt AO and Indbatt AO. The proposed UNIFIL reduction and deployment will be effective at the end of October 2001 when Irish and Finnish will complete their departure.

The United Arab Emirates Support for Demining Southern Lebanon

The United Arab Emirates (UAE) confirmed their intention to contribute $50 million (U.S.) in mine action support to southern Lebanon.

The UN strategy highlighted in the "International High Level Workshop for Demining Lebanon – Beginning with the Southern, 21–22 May 2001" is designed to assist the government, and in particular the NDO, to build on the capacity that has so far been established, utilizing means already available to the UN system within Lebanon. This will entail the coordination of support provided by various UN agencies (UNDP, UNIFIL, UNMAS, UNOPS, MACC, UNICEF, UNESCO, WHO and UNOCHA) under the guidance of the Personal Representative of the United Nations Secretary General (PRSG), the UN Resident Coordinator and the FC of UNIFIL. Under this strategy and with the financial support of UAE and other donor communities, the demining goals could be realistically achieved in the short term to accelerate mine action on the ground and to enhance the national capacity for a sustainable response in the short and long terms.

The MACC, which has been established as part of the UNIFIL since June 2000, is playing a key role in coordinating activities, gathering and disseminating information and prioritizing within the UNIFIL AO. It is important to sustain this mine action coordination capacity in the South in order to assist the NDO in additional demining activities. In particular, the MACC will facilitate cooperation and implementation of joint operations with UNIFIL, the Lebanese Army and other partners.



(R-L) Map 1: UNIFIL Areas of Operation
Map 2: Mine fields and Incidents in UNIFIL AO *c/o UNMACC*

The ongoing exchange of information and collaboration between MACC and NDO will closely examine areas of operation between UAE and the Lebanese government. From this perspective, Map 1 on the previous page shows the proposed zones of operation where NGOs and commercial companies could work and where, for security reasons, the NDO will focus.

The Role of UNMACC and IMSMA

A critical first step for any mine action response is establishing an effective mechanism for coordinating various activities of the host government, aid agencies, various international and local NGOs and bilateral aid missions. UNMACC's role is to coordinate UNIFIL's operational demining activities, to liaise with all actors involved in mine action in southern Lebanon and to gather, collate and input information from the UNIFIL AO into the IMSMA database, working closely with the NDO. Also, MACC has recently opened an office in Tyre that is accessible to all mine action programs. It will maintain a central mine/UXO database and will function as the focal point for all mine/UXO-related activities in southern Lebanon.

Planning and Implementation

The absence of sufficient information on the landmine situation in Lebanon is putting logical constraints on the overall planning and management activities required in the humanitarian demining process. Planning a humanitarian demining action requires the development of a common understanding of the concept. Prioritization and strategic decisions for mine action and operations should be based on reliable information. This requires coordination, harmonization and integration of information systems. In Lebanon, the lack of coordination in humanitarian demining operations is explained by the lack of institutional capacity and resources necessary in decision-making.

Under the umbrella of the United Nations International Standards for Humanitarian Mine Clearance Operations, agreement could be reached on the required referenced data and reference information that satisfy the needs of humanitarian demining programs. Interoperability between the stakeholders in Lebanon could be achieved if they define and adopt the same approach and standard. The use of IMSMA-GIS development would ensure the availability of consistent and reliable information for strategic decision-making, achievement of interoperability among information systems for humanitarian demining operations and the best use of quality control and standards.

Standardized surveys will help identify priorities through ranking criteria and weighting systems. They will also identify the type of impact: humanitarian (risk, incident/accident data, behavioral change before and after), political (peace consolidation in the area and integration of isolated areas), social (settlement, shelter, water, health and education) and economic (agriculture, rural livelihoods, infrastructure, trade, industry and mining). These findings could provide useful input to the Five Years Development Plan of the Lebanese Government for Southern Lebanon, speeding up its implementation in the affected areas.

Level One Impact Survey, Technical Survey and Impact Factor/Score Variables in UNIFIL AO's Mine-Affected Communities

The Level One Impact Survey of Lebanon is part of the international community's effort with EU funding to obtain standardized core baseline data on mine contamination, thus setting priorities for intervention. It is likely to be undertaken throughout Lebanon by Mines Advisory Group (MAG) in close cooperation with NDO and other national agencies. The Survey Action Center (SAC) will technically assist the Level One Impact Survey by collecting all relevant data required to support a follow-up on mine action activities in the areas of technical survey, clearance, mine awareness education and victim assistance. It will provide data for the development of clear priorities, improved planning and resource allocation. The survey will be certified by the United Nations and used for development of the IMSMA. Assessment of the completed report will give national authorities, as well as donors, a tool to support well-designed projects that serve the greatest socio-economic needs of the population.

(R-L) Finbatt demining activities near border mine fields. Raisu at work. Ukraine Battalion demining activities. *c/o UNMACC*

So far, the Level One Impact Survey (for all of Lebanon) and the Technical Survey planned for UNIFIL AO in order to undertake emergency demining activities are still in policy-preparatory phase. In the absence of the Level One Impact Survey, MACC has started using various documents to prioritize its own impact factor variables. This will provide an approximation of the degree of impact on communities, based primarily on victims' data, presence of mines and data from field reconnaissance.

Scoring and classifying mine-affected communities according to the severity of impacts are a central element of the Level One Impact Survey. The score is indifferent to the number and size of mined areas and community needs. The pattern of mine fields, dangerous areas and booby-trapped zones follows the former ICA security zones, making it easily identifiable. The methodology reflects the elements of factors-scoring mechanism and variables normally used to set responses to the country conditions within the guidelines that the SWG and SAC have set in the interest of international consistency. The variables indicate a primary presence of mines/UXO (10 total) and mine victims in the last 24 months.

For this study, acquiring data is an ongoing effort. From the sources listed and the MACC IMSMA-GIS database, analyses were derived by buffering the "livelihood space," correlating socio-economic activity and geographic space of contaminated areas by town using GIS, correlating incidents to mine fields/dangerous areas and agricultural and grazing land, as well as identifying types of water sources from UNIFIL AO digital maps and ArcLEB Data. The "livelihood space" is advised and explored by SAC. The peculiarity of southern Lebanon makes this space a 500m x a 1000m radius circle around town centers, 200m on both sides of main roads excluding other roads. Types of factors/blockages to be considered in UNIFIL AO are: farmland and pasture, water (wadi and small rivers), housing, roads and other infrastructures (religious sites and outdoor areas around small rivers).

The MACC approach to envisaged clearance activities without the Level One Impact Survey or Technical Survey is to prepare task folders containing all available records with maps detailing all necessary GIS themes for each high-impact mine-affected community. In the immediate future, tasking the Ukraine Battalion for survey and marking operations is possible. Such an event involves MACC's coordination through meetings and fieldwork in order to achieve coherent and consistent data to set priorities.

Linking Landmines to Social Rehabilitation in Southern Lebanon

Issues, Constraints and Opportunities

The liberation of southern Lebanon has provided an historic opportunity to further strengthen the national reconciliation and to build a broad national consensus on a political, developmental and livelihood rehabilitation agenda. The integrated development program for the liberated areas in southern Lebanon coordinates with the Council of Ministers' decision No. 2/79, dated 23 May 2000. The plan sets the framework for identifying the needs of liberated areas and defining necessary steps for sustainable livelihoods. However, in its key summary budget, Mine Action Assistance is the last category ("C") in terms of priority with only one percent of the planned budget, while it is one of the major backbones for the category "A: Basic Services and Socio-economic Development," which accounts for 88 percent of the total budget.[10]

The economic and development policies that have taken place in Lebanon since its independence in 1943 have focused on Beirut as a major economic center.[11] This led to unequal growth and aggravated social tensions along sectarian lines. In addition, the situation became more traumatic for the South during the IDF occupation. The 22 years of Israeli occupation produced internally displaced people and a massive rural-urban migration to the North, aggravating and increasing previous inequalities. The dramatic change in demographic characteristics of the current population poses challenges for developmental planning. The level of the population is estimated at approximately one-third of pre-occupation levels.[12] When one considers that the displaced population is likely to return to the area in the near future, the scope and potential impact of the landmine problem worsens.

The endurance of the country through unbalanced economic development and political instability has led to a new configuration in the post-war period. The requirements for balanced development are essential elements for national reconciliation.[13] Overall, distributional equity cannot be given a lower priority than economic growth in the process of peace consolidation in Lebanon. The failure of mainstream planning is fully highlighted by past experiences, and no state is capable of satisfying its own people's legitimate needs. Therefore, the challenge for Lebanese policy-makers, intellectuals and planners is to capture the historical event of southern Lebanon's liberation and to recover the political community as a central guiding vision for social reconstruction in the South.[14]

■ The mine-affected community of Bayt-Yahun. *c/o UNMACC*

Conclusions and Recommendations

The significant presence of landmines and UXO from years of conflict and occupation continues to cause slow economic development and infrastructure rehabilitation in Lebanon. The proliferation of landmines in southern Lebanon is the outcome of the IDF and de-facto forces. This presence of mines/UXO ties up valuable resources, thus blocking development in most post-conflict societies. The social and economic destruction, as well as the human cost of landmines in terms of lives and disabilities, dictates the need for prompt and effective actions against mines. Generating mine action programs in post-war countries poses particular challenges, especially in the Middle East, where the political situation remains fluid and dynamic. The growing need for mine action programs and the difficulty of coordinating effective institutional and technical capacities illustrate the importance of considering appropriate policies in planning and managing demining activities.

The use of IMSMA-GIS in the planning process will help introduce a common language, coordinate demining activities, reduce duplication of effort and information, identify lacking data to improve and support decision-making, and promote the involvement of NDO, UNIFIL, UN MACC, LMRC, MAG and other supporters. This process will also unify methodologies and approaches to demining with comparable output results and equitable distribution of humanitarian services and rehabilitation of infrastructure. In the meantime, MACC has prioritized communities to assist in developing immediate work plans for clearing mines, subject to the expected outcome of Impact/Technical Survey/Field Reconnaissance.

Mine action in southern Lebanon should be part of a wider mine action plan for Lebanon supported by international assistance. The scope of the landmine problem in southern Lebanon calls for strong coordination mechanisms. While the NDO has a clear mandate to organize all mine action activities throughout Lebanon, it may not be prepared to meet the emergency requirements of the South. Political considerations may impact the deployment of the Lebanese Army in the South and therefore, the work of the NDO in the area. The role of MACC in this case will be vital for coordinating between NDO, UNIFIL, UN agencies, NGOs and international donor communities. ■

References

1. Council of Ministers, *Establishment of the National Demining Office in Lebanon*, Beirut, Lebanon; 15 April 1998.
2. Friedmann, John (1987) "Planning in the Public Domain: From Knowledge to Action." Princeton University Press. Princeton, New Jersey.
3. Labaki, Boutros "Development Policy in Lebanon. Between Past and Future," *Beirut Review*, No. 6, Beirut; Fall 1993, p. 97–111.
4. Lana, Capran, "Army Steps up mine clearing but needs to raise awareness," *Daily Star*; 12 July 2000.
5. Mona, Harb El-Kak (2000) "Towards a Regionally Balanced Development" in: *UNDP Conference on Linking Economic Growth and Social Development in Lebanon* 11–13 January 2000. Beirut, Lebanon.
6. National Demining Office (NDO). *Brief Presented to NGO Conference*, Beirut: Lebanon; 29 September 2000.
7. The Lebanese Republic, Council for Development and Reconstruction. *Integrated 5-Year Development Plan for The Liberated Areas in South Lebanon and Neighboring Regions*, Beirut: Lebanon; 2000.
8. UNDP. *A Study of Socio-economic Approaches to Mine Action*, conducted by the Geneva International Centre for Humanitarian Demining (GICHD); Draft of 1 February 2001.
9. UNDP-CDR. *Socio-economic Rehabilitation Programme for Southern Lebanon: Initial Programme Brief*. Beirut: Lebanon.
10. UNDP-Ministry of Social Affairs. *The South: A Story of Hardship: The Socio-economic characteristics of the liberated regions. The National Programme for Improving the Living Conditions of the Poor*. Beirut: Lebanon; October 2000, p.2.
11. UN Mines Action Service (UNMAS). *Mine Action Coordination in South Lebanon Initial Project Description*, Naqoura: Lebanon; 29 June 2000.
12. UN Mines Action Service (UNMAS). *Joint Assessment Mission Report*, Lebanon: 1999, Annex A.
13. UN Mines Action Service (UNMAS). *UN International Standard for Humanitarian Mine Clearance Operations*; 1997, 1ST Version.
14. Friedman John (1987) *"Planning in the Public Domain: From Knowledge to Action."* Princeton University Press.

Contact Information

Mohamed Abdulkadir Ahmed
Mine Action Coordination Cell (MACC)
Naqoura and Tyre, Lebanon
Tel: 961-7-349276/961-1-827124
Fax: 961-1-827569
E-mail: mohmaeda@unopsmail.org

Published by JMU Scholarly Commons, 2001

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

Red Cross/Red Crescent Mine Action Involvement in the Middle East

The Middle East is an area significantly impacted by landmines, and there is a great need for the spread of mine awareness in mine-affected countries. The Red Cross and Red Crescent are hard at work in the region, attempting to raise mine awareness among the citizens of these nations.

■ Orthopedic Center

by Laurence Desvignes, *ICRC*

Lebanon

Background

Over decades of conflict, thousands of antipersonnel landmines were laid in the soil of Lebanon where, together with untold quantities of UXO, they continue to pose a grave threat to people's lives and health. This threat has always been of serious concern to the International Committee of the Red Cross (ICRC) and the local authorities, and steps have been taken since 1998 to deal with the problem. However, only since Israel's withdrawal from southern Lebanon, which it occupied for 22 years, has this deadly legacy of war attracted widespread public attention, both in Lebanon and abroad.

The formerly occupied territory is one of the most badly contaminated areas in the country. One week after the withdrawal of Israeli forces, seven mine/UXO accidents occurred in which five people were killed. A further 13 were injured, four of whom had to have amputations. This alarming news prompted national and international organizations and agencies to step up their mine/UXO-related activities, a process in which the Lebanese Red Cross (LRC) was involved from the start. Since June 2000, the ICRC has been helping to build up the LRC's capacity by training its staff and producing mine awareness materials.

The main danger for society comes from anti-personnel mines and UXO, especially cluster-bomb submunitions, though the threat posed by anti-tank mines, roadside bombs and booby-traps should not be underestimated. The most severely affected areas are those along the former front lines along the border with Israel and in and around former military positions. Parts of the Bekaa valley, Mount Lebanon and some areas in northern Lebanon are contaminated as well.

Both adults and children have been seen walking in and around military installations, sightseeing and collecting "souvenirs." Since many of these people come from outside the formerly occupied territory and since other parts of Lebanon are contaminated as well, the ICRC/LRC mine awareness program must be implemented throughout the whole country.

ICRC/LRC Awareness-Raising Program

In the summer of 2000, the ICRC trained 12 mine awareness instructors. Their role is to train LRC activists in turn. The 12 came from all over the country, but mainly (seven of them) from the severely affected south: Zahrani, Nabatiye, Sidon, Marjiyoun/Hasbaiya, Tyre and Bent-Jbail. Others came from Machghara (in the western Bekaa Valley), Alay (Mount Lebanon), Zahle/Baalbek (in the northern Bekaa Valley), Batroun (in northern Lebanon) and Beirut.

■ (Left) Workers inspect materials in a Palestinian Red Crescent ambulance.

■ (Right) A delegation of the ICRC gathering information from the Bedouins near Taybeh.

Activities Past and Present

During the "emergency phase," the period following the Israeli withdrawal in 2000, brochures, stickers and posters were distributed on the roads leading south. It is estimated that around 200,000 people were reached in this way.

Material was prepared for presentations to school children, as was a training curriculum for use in workshops to be organized for various groups. A poster and a leaflet for children were printed in large numbers and distributed. Mine awareness sessions were organized in summer camps, reaching a total of 1,000 children. LRC mine/UXO-awareness instructors also made 125 presentations to over 5,800 adults.

In 2001, the LRC organized a training workshop for 15 mine/UXO-awareness activists from the Faculty of Public Health at the Lebanese University.

Future Plans

The ICRC and the LRC are promoting an integrated community-based approach to the problem, in which raising mine/UXO awareness is linked to survey/marking/clearance operations and humanitarian work in general. In that regard, the ICRC and the LRC are building cooperation with mine-clearance agencies, such as the Swiss Federation for Mine Clearance, which should, in the future, detect and clear mines and UXO in affected areas. At the same time, ways are being sought to link the communities concerned with humanitarian organizations in such a way that the communities' subsistence needs are met by the humanitarian community, thus eliminating the motivation for risk-taking behavior.

However, such an approach requires that mine awareness instructors focus on adults and that information be exchanged between the instructors and the affected communities (the instructors drawing attention to the danger and supplying information on clearance, while the affected communities inform them about factors such as economic conditions that may aggravate the problem). Much remains to be done to develop this aspect of the ICRC-supported program.

Additionally, a puppet-theatre play is planned for the children in the affected areas. The play will be recorded on video for use during other presentations to children.

Southern Iraq

A survey was carried out in southern Iraq in the summer of 2001 to assess the mine/UXO threat and determine the need to raise awareness. The mission identified the main problem as cluster bombs and other UXO dropped during the Second Gulf War. Many shepherds, including children, are being injured or killed since they do not always know about the danger or do not take the necessary precautions.

In order to respond to immediate needs and mobilize both the local authorities and the population regarding the dangers posed by UXO and cluster bombs, the ICRC organized four mine/UXO-awareness days in three of the affected southern governorates in April 2001.

Constituting the first steps in a comprehensive mine/UXO-awareness program, each day consisted of two plays, a lecture by civil defense personnel on the various types of mines and UXO, first-aid training by the Iraqi Red Crescent Society, a presentation of ICRC limb-fitting and rehabilitation work in Iraq, videos on the mine/UXO problem, accounts by victim and speeches from the local authorities. Some 1,700 people attended these events.

The involvement of the respective governors, as well as of the officials from the civil defense organization, the education and health departments, the police and the Iraqi Red Crescent was crucial for the success of these events and for the mobilization of the authorities regarding the UXO issue.

The civil defense organization is also involved in clearance and awareness-raising activities, though on a limited scale since it lacks equipment and technical support. The ICRC has asked the authorities for permission to launch a comprehensive UXO-awareness program in southern Iraq. It is strongly committed to developing the activity in close cooperation with the authorities, the Iraqi Red Crescent and other relevant partners, including the civil defense organization.

https://commons.lib.jmu.edu/cisr-journal/vol5/iss3/1

Jordan

A mission was conducted in Jordan in summer 2001 to determine whether mine awareness activities should be initiated and/or supported by the delegation and how this should be done. The Royal Corps of Engineers of the Jordan Armed Forces organized two one-day field trips to some of the affected areas, demining operations and cleared areas in the Jordan Valley. A series of meetings were also held in Amman, mainly with members of the National Demining and Rehabilitation Committee (NDC), the Jordan Red Crescent, the Landmine Survivors Network (LSN), the Civil Defense and UNICEF.

Data collection

Data on mine/UXO casualties has been gathered by various bodies (medical facilities, the LSN, etc.), but not on a systematic basis. As a result, there is no comprehensive figure on the number of casualties in Jordan. Thus, it is crucial to organize a data collection system so that the extent of the problem can be assessed and mine-related activities can be better targeted.

Mine/UXO Awareness Activities

The Jordan Armed Forces and the Civil Defense have carried out mine awareness activities on an ad hoc basis with some coordination between them, but there is no specific training program in this area. Moreover, the approach taken and the messages delivered have not been adapted to the various target groups (children, farmers, shepherds, city dwellers, etc.) and geographical areas (Jordan Valley, Syrian border, northern and southern parts of the Israeli border) involved.

According to the results of the ICRC assessment mission, mine awareness activities should be developed on a limited scale according to the needs of affected communities. Possible ICRC involvement in mine/UXO awareness activities would take the form of support for the Jordan Red Crescent network; however, the decision regarding ICRC involvement will depend on the situation in the region next year and on the project proposal being prepared by the Jordan Red Crescent.

The basic principles for ICRC support would be as follows:

- Data on mine/UXO casualties would be gathered at the national level by the NDC together with other organizations including the Jordan Red Crescent. As it has done elsewhere, the ICRC could assist in providing the needed training and in promoting the use of the Information Management System for Mine Action (IMSMA) standard form (to be adapted to local needs).
- An assessment would be made of perceptions, attitudes and risky behavior in affected communities in order to determine more precisely what messages should be delivered to what target groups, and where the message should be delivered. The ICRC could also assist in conducting the assessment.
- Once staff mem-bers of the Jordan Red Crescent and other organizations have been trained, the idea would be Basra, orthopedic centerto initiate local mine awareness projects according to the needs of affected communities (e.g., billboards for shepherds, plays for children, leaflets or posters specifically designed for certain areas, etc.).
- Support for mine awareness activities of the Jordan Armed Forces and the Civil Defense could also be planned, specifically with regard to the production of materials. However, the type of materials to be produced and the messages to be included would also depend on the results of the assessment (i.e., what message for what target group?).

Conclusion

ICRC is lending its support to a number of Middle Eastern nations with the hopes of increasing mine awareness as much as possible in the region. In addition to its country programs, the ICRC will hold a mine-action workshop in Amman in 2002 for all ICRC and National Society staff members involved in mine/UXO-awareness programs worldwide. ICRC has already made a significant impact on mine-affected countries, and hopefully it will be able to continue making a difference in years to come. ■

■ Basra, orthopedic center

*All photos courtesy of ICRC

Contact Information

Laurence Desvignes
ICRC
19, Avenue de la Paix
Geneva CH1202
Tel: 41 22 730 21 72
Fax: 41 22 730 27 20
E-mail: ldesvignes.GVA@icrc.org
www: http://www.icrc.org

Published by JMU Scholarly Commons, 2001

Strategic Planning in Yemen

The first ever Landmine Impact Survey was completed in Yemen in July 2000 by the Mine Clearance Planning Agency. With the help of Cranfield Mine Action, Yemen has been developing a strategy to maximize the efficiency of its mine action program.

by Tim Lardner, *Deputy Director, Cranfield Mine Action* and Matt Craig, *Technical Director, Landair International*

Introduction

The Landmine Impact Survey (LIS), previously referred to as the Level One Impact Survey (LOIS), is a key process in the analysis of the impact that landmines have upon the population of a mine-contaminated country. The LIS is the principle component of the Global Landmine Survey Initiative coordinated by the Survey Action Centre (SAC) for the Survey Working Group (SWG).

The first ever LIS was carried out in the Republic of Yemen between July 1999 and July 2000. This survey was conducted by the Afghan-based Mine Clearance Planning Agency (MCPA) on behalf of the Yemen National Demining Committee (NDC) and the United Nations Mine Action Service (UNMAS). The Survey employed a staff of 102 Yemenis for the duration of the project, some of whom were further employed with the NDC following completion of the survey. MCPA fielded four Afghan staff throughout the duration, and UNMAS provided a Quality Assurance Monitor to ensure that the standards required by the UNMAS-chaired Survey Certification Committee were upheld.[1]

All data collected during the impact survey was entered into the Information Management System for Mine Action (IMSMA) database. The volume of data collected during the survey was significant and accurately highlighted the exact impact of landmines throughout the country of Yemen. For example, the survey teams identified 592 mine-affected communities and approximately 1,200 mined areas. The unique characteristics of each community and each mined area were entered into the IMSMA system. Such data included environmental and spatial characteristics, levels of contamination and the precise impact that each mined area was having on each community.

During the process of the impact survey, it became clear that the volume of data collected and stored in IMSMA posed a significant challenge for the management of the mine action program. SAC and the NDC felt that local managers lacked sufficient capacity to use that wealth of data to aid in the development of the program and in informing the ongoing requirement for defensible prioritization of mine-affected communities for clearance.

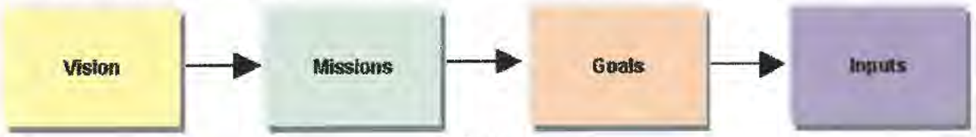
Cranfield Mine Action (CMA) was asked to work with the Yemen impact survey project to develop and implement a strategic planning process for the mine action program. CMA worked closely with SAC in the development of the process, which was essentially divided into two phases, strategic mine action plan and strategic prioritization options.

Strategic Mine Action Plan

The development of a national mine action strategic plan results from a systematic planning process that represents the needs of the national government and the mine-affected communities. In Yemen, this process was achieved through detailed consultation with the key stakeholders, including the national institution responsible for demining, the NDC, as well as the UN agencies involved in the process, which resulted in the development of a five year strategic mine action plan for Yemen.

Strategic Prioritization Options

The second phase involved the development of a range of defensible, credible prioritisation scenarios highlighting the precise hierarchical order of mine-affected communities based upon the impact they suffered. In Yemen, these prioritisation scenarios were developed using a series of workshops involving the key stakeholders and ongoing assessment to ensure harmonization/synchronization of the mine action strategic plan and the Yemen government national development plans. Six prioritization scenarios were initially assessed for the program. During discussion, the principle scenario was agreed as a geographical district-based cluster scenario with



■ **Figure 1** - Strategic planning stages

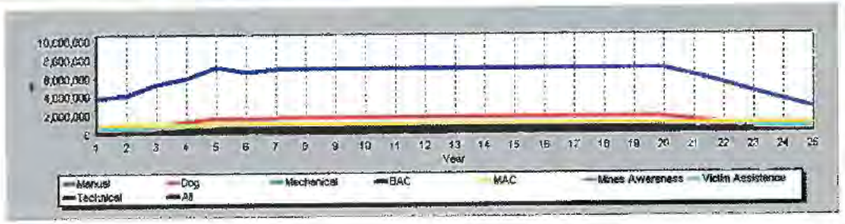


Figure 2- Example of *Pathway* financial analysis graph.

priority allocated to communities with blocked access to precious water resources.

To aid in the strategic planning process, CMA developed a purpose-built software application termed *Pathway* in conjunction with Landair International Ltd., to guide mine action managers through elements of the strategic planning process. The *Pathway* application was designed to provide structured access to the wealth of impact data stored within the IMSMA database, and in conjunction with the program management strategic planning assumptions, was designed to automatically provide the management team with clear, concise analysis and strategic planning recommendations.

The Strategic Planning Process

There is increasing awareness of the importance of strategic planning to success in both the commercial world and the public sector, as well as in voluntary enterprises. This is equally applicable in the humanitarian aid sector, where complex management decisions are routinely taken that affect not just a bottom line, but also life and death issues. Too often in the past, failure in humanitarian aid programs has been considered to be "regrettable but acceptable" in an emergency assistance situation.

Mine action is a complicated science. It is relatively expensive and where done safely and systematically needs competent managers who can prioritize their programs against the competing needs of mine-affected communities, commercial enterprises, the national government's long term objectives for development, and principally, the donors who make the enterprise viable. Often in the past, management planning in mine action programs has been done to satisfy competing short-term demands. Rarely has long-term planning been a feature of mine action. Many of the problems experienced by mine action organizations worldwide can be blamed on this short-term focus.

Strategic planning in mine action requires program design analysis to produce the vision of a sustainable, balanced program to satisfy the needs of the key stakeholders in a particular country. It does not concern itself with short-term planning in the form of national annual works plans. Instead, the strategic plan deals with identifying the long-term aspirations of the national government and other stakeholders. It analyzes how mine action can help make those aspirations a reality within the constraint of likely resource mobilization, while at the same time maximizes the reduction of human suffering from the effects of landmines. It concentrates on project design to create a sustainable mine action capacity, which is then used to inform annual plans.

Strategic Analysis

The primary stage in the development of a national mine action strategic plan is a strategic analysis of the mine action situation at the national level. There are a number of traditional management analysis tools that can aid in this process. These tools include stakeholder, Strengths, Weaknesses, Opportunity & Threats (SWOT) and Political/Legal, Economic, Socio-cultural and Technological (PEST) analysis.

This strategic analysis process needs to be led by the national program director. The aim of this analysis is to clarify what needs to be done by the mine action program to reduce the limiting impact of mine contamination on the national vision for reconstruction and development.

The detailed LIS provides a very clear picture of the impact of mines from the community level all the way up to the national level. The data gathered by the impact survey provides the means to design a mine action program to address the scope of the mine contamination problem in a finite time frame, removing the hindrance placed by mines and UXO on the long-term vision for national sustainable development.

Vision and Assumptions

The strategic analysis for mine action answers these three questions:

- *Where are we now?* What is the current situation with the national mine action program? Does it meet the needs of the stakeholders? What impact is mine contamination having on the national ability to achieve that national vision
- *Where do we want to be?* What end state needs to be achieved to mitigate the effect of mine contamination on the nation's ability to reach the national vision (mine free or impact free?)
- *How do we get there?* What must the shape and size of the national sustainable mine action capacity be in order to get where we want to be?

A strategic analysis cannot be undertaken without making assumptions about the future. These assumptions about the future are termed "Strategic Planning Assumptions." The value of consulting with stakeholders in the development of these planning assumptions cannot be overstated. Assumptions will change during the

life of the program. The strategic plan will therefore need to be revised in line with the dynamic nature of assumptions. The strategic plan should be updated regularly—probably on an annual basis—using the most up-to-date data about planning assumptions gathered as the program progresses.

The strategic analysis in Yemen results in the mine action program "Vision." This may take the form of "A country free from the effects of mines by the year 2025."

Mission and Goals

The next stage in the strategic planning process is to decide what must be done in manageable periods of time in order to achieve the overall "Vision" of the mine action program. A manageable period is usually considered to be five years. Five years is the longest time that assumptions that have to be made regarding any part of the program could be considered valid. It is therefore usual to divide the program into a number of strategic periods of five years and to produce a mission for each of those five-year periods. A particular national mine action strategic plan therefore can be considered a five-year plan that works towards the ultimate achievement of the vision for the mine action program.

It is essential to define what is to be achieved within each five-year period of the national strategic mine action plan. This is often referred to as the "mission." The mission describes what is to be done during the period of the plan in order to achieve a certain end state or states. A mission may be:

"to develop a sustainable mine action programme capable of clearing up to 25km² per year of contaminated land by 2005...."

The description that forms the basis of the mission will depend on the individual prioritization scenario chosen and may be something like:

"to facilitate access to blocked water access and reduce casualties."

Once the mission has been developed, the next stage is to identify the goals that need to be accomplished in order to carry out the mission successfully. Usually there will be approximately 10 to 12 goals, each of which should be broken down into a number of inputs that need to happen in order to achieve the stated goal. An example of a goal could be:

- To carry out clearance of 100 km² by 2005, or
- To develop a fully functional mine action database by 2003.

Goals should be supported by a number of inputs. Each input should be clear and measurable. By monitoring the achievement of inputs, the program can be effectively managed.

Having defined the Vision and Mission, determined the Goals and Inputs and set measurement methods in place to monitor the progress of the program, the remainder of the strategic plan can be developed. This should consist of a number of separate annexes, each containing a focused plan dealing with issues such as:

- Resource mobilization plan
- Training plan
- Logistic support plan
- Public Relations plan
- Information Management plan
- Planning Tools

This strategic planning analysis provides the program requirements. Based on these program requirements, a series of possible "program design" options can be produced for consideration by the planning group in selecting a program design format that best fits the strategic plan.

Program Design

The strategic analysis identifies a number of options for program design. Program design identifies a suitable magnitude and form for the mine action programme in order to achieve the long-term vision and satisfy shorter-term missions.

Program design provides the program requirements in order to meet the overall program Vision. This includes such factors as the number of people to be directly employed in the program (clearance teams, survey teams), the potential for use of dogs and mechanical clearance devices, and whether outside agencies are to be employed to carry out mine action activities. It also considers the required degree of expansion or contraction required by the program in order to achieve its vision.

This analysis identifies a range of program design options. The goal of the process, however, is to result in a program that is both realistic and affordable and that addresses the impact factors relevant to the program. It is important that all factors that impact upon program design are considered, especially where such factors change over the life of the program. Therefore, where a factor that will impact upon the program is unknown or likely to change, an assumption must be made that will allow program design to continue. That is not to say that the assumptions are fixed—they are not. However, when an assumption is found to be

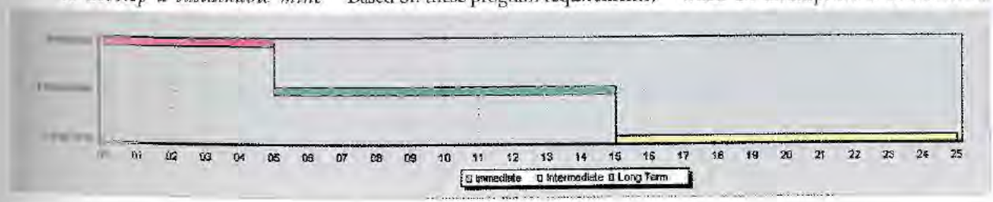


Figure 3 - Example of *Pathway*- prioritized clearance summary.

no longer valid, a revised assumption must be made and the program design reassessed in light of the change. Strategic planning is a dynamic process.

Assumptions are therefore vital to this program design process and should be agreed on by stakeholders in the planning process. Once decided upon, they must be carefully recorded and analyzed on a regular basis as part of the routine management process.

Prioritization

The strategic analysis also identifies a number of prioritization scenarios based on impact. The prioritization stage of the process involves analyzing these prioritization scenarios, identifying the precise hierarchical order of mine-affected communities based upon the impact they have suffered. In Yemen, these prioritisation scenarios were developed using a series of workshops involving the key stakeholders and ongoing assessment to ensure harmonization/synchronization of the mine action strategic plan and the Yemen government national development plans.

Pathway

To aid in this strategic planning process, CMA developed a purpose built software application termed *Pathway* in conjunction with Landair International Ltd., to guide mine action managers through elements of the strategic planning process. The *Pathway* application was designed to provide structured access to the wealth of impact data stored within the IMSMA database and, in conjunction with the program management strategic planning assumptions, was designed to automatically provide the management team with clear, concise analysis and strategic planning recommendations.

The *Pathway* application provides a framework in which the process of strategic program design and prioritization can take place. The application allows those unfamiliar with strategic planning to move through the process, step by step, in order to have a standardized template for strategic planning in mine action at the national level.

The *Pathway* application is structured so as to address three main stages of the strategic planning process: Strategic Assumptions, Program Design and Work Prioritization.

Strategic Assumptions

Pathway guides mine action managers through the process of entering these fundamental strategic planning assumptions, which include the desired program "Vision," annual running costs, clearance rates and program duration.

Program Design

Based on the "Vision" of the mine action program, *Pathway* automatically calculates the required mine action program design, subject to the underlying Strategic Assumptions and the results of the LIS. The results of this analysis are presented in a number of clear ways using graphs, tables, and summary statistics, including the anticipated cost of the program, the required number of survey and clearance teams, and the anticipated areas requiring clearance.

Work Prioritization

Based upon the prioritization scenarios agreed upon by the stakeholders in the initial stage of the process, *Pathway* automatically ranks all communities visited during the LIS process based upon the degree of impact on that community. This provides the mine action managers with the means to rapidly assess where the maximum benefit can be gained from the prioritization of survey, clearance and mine awareness assets.

Based upon the program design and the prioritization scenario selected, *Pathway* automatically calculates and displays the anticipated time required to clear these "Immediate," "Intermediate," and "Long Term" priority areas—essentially High, Medium and Low priority areas.

Summary

As a result of the success of both the LIS and the Strategic Planning Process involving the *Pathway* application, the SWG has now agreed to form a link between the two, and all future LIS carried out using the standard protocols will now include a strategic analysis, the development of a strategic plan, and the provision of a program-specific *Pathway* application to enable the host nation to gain maximum benefit from the data collected during the LIS process. ■

Reference

[1] *Global Landmine Survey – Landmine Impact Survey – Republic of Yemen.* Survey Action Centre, October 2000.

*All graphics provided by the authors.

Contact Information

Tim Lardner
Deputy Director
Cranfield Mine Action
Cranfield University (RMCS)
Swindon, Wilts
SN6 8LA, UK
Tel: +44 1793 785849
Fax: +44 1793 785771
E-mail: T.Lardner@rmcs.cranfield.ac.uk

Matt Craig
Technical Director
Landair International Ltd
Brickworth Lane, Whiteparish
Salisbury, Wilts
SP5 2QE, UK
Tel: +44 1794 884229
Fax: +44 1794 884581
E-mail: matt@landair.co.uk

The Landmines Resource Center for Lebanon

After 15 years of war and 22 years of occupation, Lebanon is littered with landmines. The Landmines Resource Center (LMRC) seeks to improve the situation by collecting, analyzing and disseminating related data.

by Habbouba Aoun, *University of Balamand*

The Landmines Resource Center for Lebanon was established in 1997 at the Faculty of Health Sciences of the University of Balamand. Since 1998, its operations expanded with the help of a grant made available through the World Rehabilitation Fund and the United States Agency for International Development.

The Landmines Resource Center in Lebanon (LMRC) aims at a lasting improvement in the lives of those affected by mines. It advocates prevention, rehabilitation and social reintegration in the context of a comprehensive concept of reconstruction and development. Valuable and important technical interventions such as mine clearance and the provision of prosthetics are provided: however, rebuilding the lives of survivors and of families of those killed by landmines and unexploded ordnance and developing affected societies has to consider the necessity of readjusting the relationship between the individual and the social/cultural and physical environment in order to provide a qualitative and sustainable improvement in living conditions, a prerequisite to sustainable development.

The LMRC works on local capacity building, needs assessment, data gathering and analysis, and dissemination of information, including what relates to international charters and humanitarian laws, mine awareness and victim assistance. In addition, it is actively involved in providing and mobilizing support to the demining and mine action initiatives by the National Demining Office of the Lebanese Army.

The Landmines Resource Center in Lebanon works very closely with:

- Communities and individuals, particularly youngsters and farmers, living in, or concerned with, dangerous areas, minefields or other mine and UXO affected areas:
- Youth (students and scouts)
- Policy and decision-makers in the public and private sectors
- Concerned governmental bodies and non-governmental and community based organizations
- Academic institutions and schools, concerned professionals, practitioners and volunteers
- Survivors (victims) of landmines in Lebanon and their families

LMRC is achieving an incremental (close to comprehensive) understanding of the landmine problem in Lebanon based on scientific national surveys and partnership with concerned counterparts and stakeholders. A 1998—1999 nationwide door-to-door survey of landmine victims in Lebanon and a complementary survey (July 2000) assessing the landmine problem and related burden in the liberated South and West Bekaa permitted solid foundations to such understanding. Benefiting from lessons learned and experiences gained in mine affected countries, the LMRC has been able to contribute to and be proactive in well-structured mine awareness in Lebanon and to provide a strategy for the role of the victims' rehabilitation teams according to varying regional needs and resources. The LMRC has also conducted a series of workshops aimed at building local capacity to analyze and communicate needs and at empowering local communities to become active partners in planning and implementing mine action programs and activities at the country and national levels.

Networking with concerned others at national and international levels has led the Center to be an essential reference for a large number of nationals and internationals, including UN agencies concerned with the landmine problem in Lebanon and the Arab Countries. The Landmines Resource Center is gaining and expanding acceptance and status as a vital entity for the country. Its solid partnership with the community and the Lebanese Army (the National Demining Office) and its mine action strategy has resulted in high organizational performances.

The Landmine Problem in Lebanon

The landmine problem in Lebanon is the result of fifteen years of war (1975—1990) and twenty-two years of occupation (1978—2000). Estimates of the number of landmines, UXO and cluster bombs vary. Until May 2000, the total number of landmines in the country was thought to be 150,000, excluding those in the

Mine Action in Lebanon
Facts Sheet

- Unstructured mine action in Lebanon started in 1996 as a local effort initiated and supported by the World Rehabilitation Fund in partnership with the Ministry of Health and local non-governmental organizations.
- In 1998, the Lebanese government established the National Demining Office at the Lebanese Army (Government decision: April 29, 1998).
- In 1998, the World Rehabilitation Fund (WRF) launched its landmine project covering four pillars of Mine Action: Mine Action Information, Mine Awareness, Victims' Assistance, and Support to Mine Clearance Initiatives of the Lebanese Army.
- Since the beginning of the WRF project, non-governmental organizations and the Landmines Resource Center at the University of Balamand coordinated very well mine related activities in the country in collaboration with the National Demining Office of the Lebanese Army.
- LMRC established a dynamic victims' database that includes detailed information about the landmine victims all over the country and a database about the landmine problem in the South and West Bekaa that includes detailed information about the 196 most severely mine-affected villages in the liberated areas of the South and West Bekaa.
- Surveys conducted by the LMRC showed that:
    - There are 2758 landmine victims in Lebanon including 1168 deaths and 1590 survivors.
    - There are 1375 landmine victims in the South and Nabatieh including 720 deaths and 655 survivors.
    - Fifty percent of the landmine survivors in Lebanon were amputated, seven percent were paralyzed, 18 percent suffered from major injuries in the head and other parts of the body, 18 percent suffered from minor injuries and 7 percent had burns and other injuries.
    - Fifty-six percent of the landmine survivors in Lebanon were injured by a landmine, 37 percent were injured by unexploded ordnance or cluster bomb and seven percent have touched a strange object.
    - Forty-one percent of the landmine survivors in Lebanon were injured while engaged in their daily agricultural activities. 40 percent reported to be injured while crossing demarcation lines or during wartime. Nineteen percent were injured while engaged in recreational activities.
    - The average age of the landmine survivors in Lebanon was 35 years where the majority of the interviewed survivors belonged to the age group (30-40).
    - The majority of the landmine survivors in Lebanon were males (90 percent), 63 percent of them were married and were responsible for at least four dependents.
    - Fifty-seven percent of the landmine survivors in Lebanon were working. The average monthly family income of 56 percent of the survivors is less than 300 US Dollars.
    - Thirty-one percent of the landmine survivors in Lebanon were illiterate or could barely read and write. Twenty-seven percent of them had reached the elementary level of education.
    - One hundred and ninety-six villages in the South and West Bekaa were found to be mine affected. Thirty-seven percent of those villages had access to safe water, eight percent had accessible roads, 51 percent had educational facilities, and 38 percent had at least one health care facility.
    - War and landmines led to a noticed decrease in agricultural production: the decrease in olive and olive oil production was 50 percent, in fruit trees was 78 percent, in protected agriculture was 94 percent and in field agriculture was 80 percent.
    - There are 1388 identified mined areas in Lebanon, of which 1019 are still not cleared.
- Mine awareness education was launched all over the country and mine awareness material were produced (posters, booklets, leaflets, songs,..)
- Local capacity building started in many areas including the North, Mount Lebanon, Bekaa and the South.
- In May 2000, the liberation of the South and West Bekaa took place.
- Starting May 2000, UNICEF became involved in mine action providing support to awareness and related community activities in South Lebanon and West Bekaa.
- Starting June 2000, other UN agencies intervened: UNMAS and UNIFIL established a mine-action-coordination-cell (MACC) in the South; MACC started operating the IMSMA. UNDP assigned a mine advisor to the National Demining office of the Lebanese Army. UNESCO supported some mine awareness activities in the public schools of the liberated South.
- Between May 2000 and May 2001, the demand of communities for mine action increased. Response was limited by scarce funds.
- Between May 2000 and May 2001, many missions and representatives of donor countries visited Lebanon. Donations towards providing the Lebanese Army with necessary demining equipments were made. However, needs in training and equipment are still not met.
- Starting August 2000, Swedish Save the Children started a child-to-child project on mine awareness in Bint Jbeil.
- Starting December 2000, the Mine Advisory Group (MAG) launched a demining project in Nabatieh area. The project was suspended in August 2001.
- A "Level One Impact Survey of Lebanon" sponsored by EU is planned to start before the end of 2001.
- Starting January 2001, the Norwegian People's Aid (NPA) started a victims' assistance program in South and West Bekaa.
- Between May 2000 and May 2001, the National Demining Office of the Lebanese Army and the non-governmental and community-based organizations were trying to plan and implement mine awareness interventions.
- Starting January 2001, local actors in Mine Action including non-governmental and community-based organizations are lacking funds and important programs are frozen.
- The World Rehabilitation Fund is starting an income-generating program to landmine victims in Jezzine, South Lebanon.

[1] Landmine Monitor Report, 1999.
[2] Declaration of the UNIFIL-Ukrainian Contingent to France Press on July 19, 2000
[3] Interview of the United Nations Mine Action Coordination Cell in Naqoura with the Daily Star newspaper (Reporter: Nicholas Blandford) on January 18, 2001
[4] UNDP study of the South, 1999
[5] March 14 and April 18 Committee of the Lebanese Council of Deputies, March 14, 2001
[6] March 14 and April 18 Committee of the Lebanese Council of Deputies, March 14, 2001
[7] March 14 and April 18 Committee of the Lebanese Council of Deputies, March 14, 2001
[8] Interview of the United Nations Mine Action Coordination Cell in Naqoura with the Daily Star newspaper (Reporter: Nicholas Blandford) on January 18, 2001
[9] Community meetings in Houla-Rint Jbeil, Ibl Essaqi- Marjeyou, Kfartebnit-Nabatieh, April 11, 2001
[10] In 1998, USAID was the first donor agency to initiate a program on landmines in Lebanon, at the governmental and non-governmental levels.

occupied zone[1]. However, after the liberation, the UN estimated that the liberated areas in the South and West Bekaa on their own contained 130,000 landmines and UXO within an area of 850 square kilometers[2]. Israel has admitted planting 70,000 landmines and 288 booby-trapped devices; Those are believed to be distributed over 188 mine fields and spread among the villages of the border from Ras Naqoura on the cost to opposite Shebaa in the Mount Hermon foothills[3].

In a survey conducted in July 2000, the LMRC has identified 429 dangerous areas reported by local communities in 196 villages. Parallel to this, the Lebanese Army has reported about 580 dangerous areas in Cazas of Nabatieh, Tyre, Jezzine, Saida, Hasbayya, Bint Jbeil, Marjeyoun and West Bekaa. Recurrent injuries confirm the spread of large numbers of dangerous areas in agricultural lands, pedestrian pathways and backyards. The total number of landmine victims in Lebanon so far is 2758 (1168 deaths), of which 166 (17 killed) have occurred between May 23, 2000 and October 10, 2001.

The socio-economic impact of the landmine problem in Lebanon, and specifically in the South and West Bekaa, is huge. Landmines, cluster bombs, UXO and booby-traps are mainly planted in agricultural areas where agriculture used to be the major source of income for villagers. War, occupation and landmines have decreased oppor-tunities for normal life in the South and increased the exodus of the population. Less than 26 percent of the indigenous population resided in the South during the occupation[4]. Seven percent tried to return and settle after the Liberation but almost all of them have returned to their displacement place of residence at the end of the summer of year 2000[5]. Access to health services, secondary levels of schooling and job opportunities are scarce[6]. The infrastructure has been almost completely demolished[7]. The LMRC Survey of the Landmine Problem in the Liberated South and West Bekaa showed a noticed decrease in agricultural production due to landmines. The unavailability of appropriate and affordable rehabilitation services has been increasing the burden of the landmine problem on affected families.

There are many needs, of which mine clearance is one of the priorities. The valuable and important demining initiatives of the Lebanese Army are appreciated but are not enough so far. UNIFIL operations in mine clearance are military and not humanitarian[8]. Marking and fencing of dangerous areas is very limited and almost non-existent in many areas. Local communities suffer from long administrative procedures that hinder their call for and receipt of immediate help; this situation promotes feelings of despair and hopelessness among those who want to cultivate their land and receive compensation for not being able to use their mined agricultural lands[8]. Families with landmine victims and landmine survivors suffer more due to the need for medical treatment, rehabilitation services, job opportunities and social assistance, all of which are very scarce or not affordable.

Mine awareness education continues to be limited by scarce funds. The World Rehabilitation Fund and the United States Agency for International Development were the first contributors to Mine Action in Lebanon[10]. After the Israeli withdrawal in May 2000, many other donor countries pledged in-kind and monetary support in favor of mine action in general, and mine clearance operations in particular, in the South. Other than the US, these include Australia, Britain, Canada, European Union, France, Germany, Greece, Italy, Norway, Saudi Arabia, Spain, Sweden, Pakistan and Ukraine. About 200 Syrian soldiers, fully equipped, are involved in demining activities with the Lebanese Army. On May 21, 2001, the United Arab Emirates formally announced a $50 million (U.S.) donation to demine South Lebanon. A memorandum of understanding is being developed between the Lebanese and Emirates governments in order to facilitate effective implementation of respective mine action activities. Real work on the ground is expected to start by the end of October 2001. ■

Endnotes

[1] Landmine Monitor Report, 1999.
[2] Declaration of the UNIFIL-Ukrainian Contingent to France Press on July 19, 2000.
[3] Interview of the United Nations Mine Action Coordination Cell in Naqoura with the Daily Star newspaper (Reporter: Nicholas Blandford) on January 18, 2001.
[4] UNDP study of the South, 1999.
[5] March 14 and April 18 Committee of the Lebanese Council of Deputies, March 14, 2001.
[6] March 14 and April 18 Committee of the Lebanese Council of Deputies, March 14, 2001.
[7] March 14 and April 18 Committee of the Lebanese Council of Deputies, March 14, 2001.
[8] Interview of the United Nations Mine Action Coordination Cell in Naqoura with the Daily Star newspaper (Reporter: Nicholas Blandford) on January 18, 2001.
[9] Community meetings in Houla-Bint Jbeil, Ibl Essaqi- Marjeyou, Kfartebnit-Nabatieh, April 11, 2001.
[10] In 1998, USAID was the first donor agency to initiate a program on landmines in Lebanon, at the governmental and non-governmental levels.

Contact Information

Habbouba Aoun
Faculty of Health Sciences
University of Balamand
P.O. Box 166378
Ashrafieh, Beirut 1100 2807
Lebanon
Tel: 961-1-562108/9
Fax: 961-1-562110
E-mail: landmine@Balamand.edu.lb

Humanitarian Mine Action in Northern Iraq

Through sustained efforts, the Mines Advisory Group has made significant progress in the demining of war-torn Northern Iraq. Cooperation with local villagers has been a key to their success.

by Tim Carstairs, *Mines Advisory Group*

History of Mine Laying

There have been three main eras of mine laying in the region over the last 30 years. Throughout the 1960s and 1970s, regular fighting between Iraqi forces and Kurdish mountain fighters, the Peshmerga, gave rise to the extensive use of landmines by the Iraqi army to protect military positions and close footpaths in an attempt to prevent military action by the Peshmerga. The first Gulf War fought between Iran and Iraq during the 1980s was fought over large parts of what is currently known as Iraqi Kurdistan. Large "traditional" mine fields were laid as well as smaller "nuisance" mine fields. The conflict raged back and forth across the strategic bordering areas of Iraqi Kurdistan and Iran. As the conflict ebbed and flowed, mine laying followed a similar pattern. In 1990 and early 1991, Iraq launched the "Anfal" operations against the Kurdish community, driving hundreds of thousands into the mountainous refuge of southeastern Turkey and Iran.

A local Kurd practices mine detection he has learned from the UN. c/o AP

Iraq had already destroyed many Kurdish settlements within 15 km of the border with Iran and relocated much of the population in collective towns lower down on the plains. The "Anfal" campaign saw all remaining Kurdish villages razed to the ground; further quantities of mines were laid in the rubble and remain in order to prohibit re-settlement by the original villagers.

In 1991, the second Gulf War saw Iraqi forces defeated by the "coalition." Simultaneously, the Kurdish north and the Shia south rose up against Iraq. The brutal backlash against the Kurds following the uprising brought about massive movements of refugees to the mountainous areas of Turkey and Iran. Following the conclusion of the second Gulf War in 1991 and the withdrawal of Iraqi forces from the Kurdish area, Kurdish villagers began to return home to rebuild their lives.

Casualties mounted daily from mines and unexploded ordnance (UXO): planting crops, collecting wood, and other normal tasks had become deadly activities. The Mines Advisory Group's (MAG) Data Co-ordination Unit recorded 932 deaths and 1,512 injuries as a result of mine and UXO accidents in 1991 alone.

MAG's Response

MAG's worldwide aims can be summed up in the following brief words: *Clear mines, save lives, and build futures.* In northern Iraq, MAG created the first ever—and until 1996, the only— mine action program in the region.

Following an initial assessment in 1991, MAG started planning and recruitment for a mine action program. With initial funding from the European Community, demining courses at Diana in Erbil governorate and Penjwen in Sulaimanya governorate began in summer 1992 to train an initial 72 local deminers. Difficulties in importing the necessary equipment delayed the first demining operations until April 1993. The first demining started at Rawgan village in Penjwen District (one of the most heavily-mined areas in the world) and in the Diana sub-district of Erbil governorate.

In the same year, MAG began to train local staff in EOD to respond primarily to the tons of ordnance left over from the 1980s war. A mine awareness program was begun in order to help minimize the risks as longer-term clearance was undertaken.

A Long-Term Capacity

Since first arriving in the region, MAG knew that the appropriate response to the mine and UXO problem would be a long-term mission. Thus MAG's policy was to create a local sustainable capacity.

MAG has aimed to enhance the skills and abilities of both its local and expatriate staff to plan, implement, monitor and evaluate. A huge amount of knowledge has passed from MAG expatriate staff to the local staff in the form of on-the-job training and formal training courses within and outside the region (management, technical training, leadership, etc.).

In 1992, all management positions were held by expatriate staff, and as the program expanded, the total number of expatriate staff reached 14 persons in 1995, with about 200 locally-trained deminers.

Today, all management positions except that of the program manager are held by national staff. One expatriate technical adviser provides monitoring and other input. Three hundred fifty deminers are currently operating in the program; some 45 staff members manage and implement mine awareness, data gathering and community liaison activities; over 100 other staff members are involved in planning, supervision and management, mapping, logistics and repairs, administration, transport, security and other support tasks. MAG's operation is managed by a "senior management team" made up of senior local staff and the expatriate program manager. Locally, this management structure works through branch management at each of its operations centres across the region. This transformation has been achieved by MAG's vision of real national ownership and by the hard work, commitment and dedication of all MAG's staff and the firm support of MAG's donors.

It is important to mention the local staff's willingness to accept responsibilities and to prepare themselves for higher levels of responsibility. The role played by the entire MAG expatriate staff in passing on their knowledge has made a great contribution to the development of the necessary capacity and confidence.

The Situation Today

Over the years, MAG has conducted a series of surveys throughout the region and has established a vast database within its Data Coordination Unit. MAG estimates that 760 villages are badly affected by mines, representing over 15 percent of all villages in the region; this amounts to 220 million square meters of land suspected to be mined and consequently remaining unused.

MAG reports 6,250 injuries and 3,450 deaths as a result of mine and UXO explosions. These figures may significantly underestimate the true casualty level due to under-reporting, particularly of the number of deaths in the region. The nature of rural life and the absolute need for grazing of animals dictates that the number of livestock casualties is 10-15 times higher than human casualties, with severe economic consequences.

Lessons Learned

The vast majority of mines were laid during local fighting between the Kurds and the Iraqi army, and during the Iran-Iraq war. They are already 15-20 years old. The age of the mine fields leads to a number of complicating factors and difficulties in conducting demining operations. Most of the mine fields have been badly disrupted; in some cases, local villagers have attempted to clear their land by collecting or disarming visible mines or by removing the mines from the mine field and stockpiling them in another area. In the past, there was also an active trade in salvaged mines and explosives to be used for fishing (this activity has now been banned by the local authorities and the trade has diminished). Mine fields were also disrupted during some of the heavy fighting. Nature also played its part. Many mines were washed down from the hills and mountains to the flat areas, thereby creating "new" mine fields. The action of rain and snow

over the years has also caused some mines to become more deeply buried in the ground, making their detection and destruction more difficult.

An additional difficulty in a number of areas is the mineralized soil types that can affect the ability of metal detectors to effectively and safely detect mines. Further difficulties are caused by the minimum-metal content of some mines found: VAR 40, TS 50, the Type 72, M14 anti-personnel blast mines and VS2.2, VS 1.6 and TC 2.4 anti-tank mines.

MAG has conducted several studies to minimize the effects of these problems. All types of mines in the region were classified according to metal content: high, medium and minimum. A number of trials were undertaken to enable MAG to adjust or re-calibrate detector sensitivity accordingly. In order to address the problems presented by the laterite soil, detector comparison trials are being conducted in Schiebel's ATMID, Guartel's MD8 and the Minelab detector. Further trials are continuing.

Priorities

MAG's Northern Iraq program has developed a set of Standard Operating Procedures that is well matched with international standards for humanitarian mine clearance. All MAG technical staff are trained and monitored to achieve these standards.

Due to the vast number of mine fields in the region, it is necessary to prioritize them so that scarce resources are used in the most effective manner. The prioritization process relies on the availability of high-quality data collected during MAG's various field activities. MAG's prioritization system involves two main assessments. The first is the level of risk as measured by previous casualties (human life and livestock), the proximity of the area to occupied houses and the presence of water sources or other community resources that cause people to frequent the area. The second assessment considers the level of benefits that can be expected to result from clearance. This includes the community's own assessment and ranking of priorities. Factors include the economic uses of land (e.g., for crops and pasture) and the number of families expected to benefit from clearance. This means that community lands are often prioritized over private lands.

Importantly, this process is conducted together with the communities and their leaders to ensure a clear understanding of MAG's capacity and its aims in a given area or village and to ensure that community members recognize the need to "share" resources as fairly as possible according to a commonly agreed prioritization system.

Area Reduction

When mine fields were first demarcated in the mid-90s, the perimeters established were larger than they should have been —no maps were available, and local knowledge was limited and tended to err on the side of greater safety. When MAG re-checks survey results and confirms the initial information, it is sometimes found that some of the land is already in use. Due to accidents to themselves and to animals, villagers have gained a better knowledge of the mined areas and their perimeters. This information is passed on to MAG.

In order to increase productivity without affecting safety, the practice of area reduction has been steadily introduced.

MAG ensures full involvement of local villagers in all stages of the process:

1. *Before Clearance:* If MAG and the villagers agree on the redefined area of the mine field following new information from the villagers and the "guide-men" (local people assigned by the village as having particular knowledge of certain areas of land), area reduction is conducted immediately and markers are placed at the commonly-agreed perimeter and the previous markers are removed.

2. *During Clearance:* Following confirmatory breaches (a minimum of three breaches of at least 10 meters each in breadth) through the mine field, MAG gains further information about the mined area, the types of mines and how they were laid, and the nature of the ground. MAG re-assesses at this stage. The local guide-men are then again involved in deciding which land is to be considered mined and which areas are to be considered mine-free. At this point, other guide-men may be brought in and consulted in order to test the knowledge gained. The guide-men are required to take some of the responsibility together with MAG for the choices made.

3. *As Clearance Continues:* MAG re-assesses the situation continually. For instance, if it appears likely that no more mines are present in an area, further village-level discussion takes place. Again, MAG takes joint responsibility for the decisions made. Responsibility in decisions made on area reduction is taken by MAG's Technical Operations Manager and the appropriate representatives of the community.

There are a number of situations where this type of area reduction is not possible: for example, minimum-metal and blast mines might be buried too deep for detection or are not visible to surface search. Such smaller mines also tend to roll downhill after flooding into areas outside originally-established perimeters. Disruption of mine-laying patterns can also be caused by villagers who might pick up and dispose of surface mines or animals may tread on mines or knock them downhill. In these cases and where possible, MAG's new mechanical device (see after) will save time in safely checking such suspect areas.

Outputs

The program deploys multi-skilled mine action teams to respond in a flexible and comprehensive manner. From MAG's experience, smaller, more flexible teams are more appropriate to the terrain and nature of the taskings in Northern Iraq. The Mine Action Team (MAT) includes demining, demarcation, EOD and community liaison skills to allow the teams to respond to the priorities identified by target villages. MAG's dedicated EOD Teams were incorporated into the MATs now that all large concentrations of UXO have been destroyed following MAG's previous program to eradicate all major stockpiles, ammunition dumps and arms caches.

Since 1992, the following quantifiable outputs have been achieved:

- 5,321,165 square meters of land have been cleared of mines/UXO and officially returned to the communities safely.
- 86,996 mines were destroyed.
- 423,886 items of unexploded ordinance destroyed; this equates to 3,105 tons.
- 350 deminers have been successfully trained and deployed.
- 107,551,867 square meters of land have been demarcated.
- 960,000 people have directly benefited from MAG's clearance, EOD and other emergency tasks. Direct benefit is derived by those who own or use the land that has been handed over as safe to the community.
- From 1999 to date, 1,095,543 m^2 have been reduced and handed over as safe to the community.

The rate of human casualties during the year 2000 has fallen to little more than 10 percent of the 1991 rate. In the year 2000, MAG also successfully introduced a region-wide mine awareness education program for primary school children with the support of the local Ministries of Education and UNICEF. Mine awareness has now been made a part of the school curriculum. MAG has also set up an education system for parts of the male population through the Mullahs. This program is supported by the *Awqaf* (Ministry of Endowments or Religious Affairs).

In 2001, MAG manufactured a "mini-rotovator" in Suleimaniya. This machine is currently under field trials and hopefully will be deployed in area reduction and limited mechanical clearance roles in the coming months. Further plans to examine additional tools and systems (mini-flail systems, rollers, magnets, etc.) will also be assessed during the year.

Given the difficulty of importing such equipment into the region, MAG is working with the Development Technology Workshop (DTW), the UK charity responsible for developing the locally-produced "Tempest" vegetation cutter used today in Cambodia and Thailand, to consider local design and manufacture capacities in this area. MAG and DTW will also examine the potential for the local manufacture of PPE. These developments will further increase the local sustainability and independence of mine action.

Conclusion

Substantial progress has been made in addressing the problem posed by mines and UXO in the region; much still remains to be done. The combination of initiatives and methods from MAG's toolbox of mine action is a fruitful one, and continues to stand the test of the most difficult operating environments.

This has been MAG's longest-running operation, and has been the source of many successes and lessons that have enabled improvements and innovations in many of MAG's other initiatives. MAG is grateful to all its donors—these include the UK (DFID), the governments of the Netherlands and Sweden (SIDA), SPAS (Swedish Peace and Arbitration Society), Laing Family Trusts, Radda Barnen (Sweden) and Trocaire (Ireland). MAG hopes that these donors will continue to support the project into the future. At the same time, MAG is seeking further individual, corporate and institutional donors to help. ■

Contact Information

MAG Northern Iraq Program
Tel: 00873 761 576 191
Fax: 00873 761 576 192
E-mail: magniraq@yahoo.com

Mine Field Breaching in Desert Storm

During the Gulf War, Iraqi troops laid over seven million mines throughout Kuwait, which resulted in a need for advanced techniques allowing American troops to quickly breach landmine-afflicted areas.

MiCLiC detonation. *c/o SSG Warren Causey*

by Thomas Houlahan, Director Military Assessment Program

Introduction

Gulf War analysts and historians have tended to focus either on the air war or on the great maneuvers of the ground war. The mine field breaches, between the two, is usually given short shrift. Every Coalition unit that entered Kuwait on G-Day (24 February 1991) did so only after breaching two major mine fields.

The assault into Kuwait involved five separate breaching operations. Along the coast, Joint Forces Command East (JFC-E) pushed through the mine fields in its sector, then attacked northward to Kuwait City. To the west of JFC-E, the 1st Marine Division smashed through the Saddam Line and headed for Kuwait International Airport. To the west of the 1st Marine Division, the 2nd Marine Division broke through the mine fields, then drove to seize the crossroads at al-Jahra, cutting off Iraqi forces in Kuwait City and southern Kuwait. To the west of the two Marine divisions, Joint Forces Command North (JFC-N) drove northward into western Kuwait before heading east for a link-up with the 2nd Marine Division. This involved two breaches, the easternmost by Saudi forces, the westernmost by Egyptian forces.

The Iraqi Mine Fields

All told, the Iraqi Army laid over seven million landmines in Kuwait. About 3.5 million of these were methodically laid throughout the two mine fields running across southern Kuwait, each varying in depth from 60 to 150 meters. These mine fields ran from the coast to the Wadi al-Batin, a wide, shallow (in most places less than 100 feet deep) valley which ran along the western border of Kuwait.

Around 600,000 of these mines were anti-tank mines, of which there were 10 different types. Anti-tank mines are mostly used to produce "mobility kills" by blowing off tracks, sprockets or road wheels. Crewmen will often be shaken up, but fatalities are relatively rare. The most common anti-tank mines (more than two-thirds) in the mine fields were the Italian Valsella VS 1.6 and VS 2.2 anti-tank mines. The VS 1.6 (1.85 kg of explosive) and 2.2 (2.13 kg of explosive) are both blast mines. Both

Valmera-69 and VS 2.2 mines. *c/o Thomas Houlihan*

are made of plastic and cannot be detected easily. They are also blast-resistant, so they cannot be set off by explosive mine clearing techniques like the launching of Mine Clearing Line Charges or the dropping of fuel-air explosives.

In general, anti-tank mines were protected by antipersonnel mines, of which there were eight different types. The most common anti-personnel mines (again, over two-thirds) in the mine fields were also Italian, the Valmera-69 and the Valsella VS-50. The Valmera-69 is blown 18 inches into the air by a kicker charge after it is stepped on (or is set off by trip wire), then explodes. The 1,200 pre-formed metal fragments it sprays can kill at 25 meters and wound at over 150. Valmera-69s were often placed at the leading edges of mine fields. The VS-50 is a blast mine (negligible fragmentation) and is relatively small (43 grams of explosive as opposed to 420 grams in the Valmera-69's main charge), but it cannot be set off by explosive mine clearing techniques. Typically, three VS-50s (although other antipersonnel mines, including the Valmera-69 were also used) would be placed around each anti-tank mine in a triangle, one between the attacker and the anti-tank mine and one to the AT mine's left and right. This was done to protect the AT mines from dismounted deminers.

The Iraqis faced a distinct disadvantage in terms of terrain. There was virtually no vegetation in which to hide the mines. In addition, in many cases, mines were planted, only to have the sand above them blow away, exposing them for all to see. With the Valmera-69, this was especially problematic. With five pronounced spikes (the activating fuses) on top of the mine, Valmera-69s tended to stick out like a sore thumb. The poor training of Iraq's combat engineers was another problem with the Valmera-69. Each mine comes with a 15-foot trip wire, which was supposed to be deployed and tied to a stake. It was not terribly unusual to see a Valmera-69 trip wire tied to a stake a foot from the mine, with 14 feet of trip wire coiled up uselessly near the stake.

Coalition Breaching Equipment

Mine Clearing Line Charge (MiCLiC)

MiCLiC is a string of 1,750 lbs. of C-4 plastic explosive with an attached 5-inch rocket. The C-4 is pulled across a mine field by the five inch rocket, then it is detonated. The overpressure produced by the detonation sets off most simple pressure mines in the vicinity of the explosion. MiCLiCs are also effective to a limited degree against mines designed to resist explosive mine clearing techniques. If these mines are more or less directly beneath the MiCLiC, they will be obliterated by the explosion. If they are not, the MiCLiC will usually not set them off.

The MiCLiC offered some advantages. The charges could be launched from the edge of the mine field, and from the relative safety of an armored vehicle, so combat engineers did not have to do as much work inside the mine field in an exposed position. The disadvantage was its undependability. Just over half of the MiCLiCs fired by the two Marine divisions functioned properly. For example, there were 55 total MiCLiC launches from Marine Mk-154 launchers. Thirty-three of these launched, achieved a successful lay and were command detonated from inside the vehicle, a 60 percent complete success rate. Fifteen required a combat engineer to exit the vehicle and place a block of TNT with a 30-second time fuse on the line charge to detonate it. On some of these MiCLiCs, the fuses failed, on others, the arrestor cable snapped, its connection to the tank or AAV was severed, and the ability to command detonate was lost. Seven line charges either landed off line or snapped their arrestor cables and flew into the mine field, where combat engineers could not reach them. The Mk-58 launcher, for reasons discussed below, had a lower complete success rate (about 50 percent).

Mk-58

Mk-58 is a trailer containing a single MiCLiC, designed to be pulled behind an armored vehicle. The Mk-58 had a few unique problems. First, it was difficult for a tank commander inside the turret to ensure that the trailer was correctly oriented before firing. The trailer also made it practically impossible for a tank to back out of a lane if it needed to. In addition, the electrical connection with the tank was fragile. In one instance, after a tank turret had swiveled to engage Iraqi machine-gunners on the other side of a mine field, the MiCLiC's firing cable had become caught on the storage rack on the back of the turret and had been ripped out. Cables could also be damaged as a tank negotiated rugged terrain.

Mk-154

Also known as a "Triple Shot Line Charge," the Mk-154 is an Armored Amphibian Vehicle specially equipped to launch three internally stored MiCLiCs.

Track-width mine plow. *c/o U.S. Army Countermine Systems Directorate*

Track-Width Mine Plow (TWMP)

The TWMP is basically a set of two blades, one mounted in front of each fender of a tank. Each blade has six large teeth (tines) on its bottom edge. The tines are designed to burrow beneath buried mines, scoop them up and shove them to either side of the tank. Each blade clears a path three feet, nine inches wide, and can remove mines buried up to a foot deep. There is a chain slung between the two plows, designed to set off tilt-rod-

activated mines between the vehicle's tracks.

Full-Width Mine Rake (FWMR)

The Full-Width Mine Rake is a wedge-shaped frame with 49 thin steel tines that burrow into the ground and push mines to either side of the vehicle, like a mine plow.

Mine Rake. *c/oU.S. Army Countermine Systems Directorate*

The main advantage of the mine rake is that it clears a path for the full width of an Abrams, with about a foot to spare on either side. Mine rakes also stand up exceptionally well to mine explosions. Mine plows and rollers are solid and absorb much of a mine's blast. A mine plow can therefore be put out of action by a single anti-tank mine detonation. Mine rakes allow most of the energy of the blast to pass through the tines, so they can survive multiple blasts. In addition, at only two tons, mine rakes are light, easily transportable, and easy to mount.

The down side of using the mine rake is that it is an exceptionally slow process. Since commanders often cannot afford to have their tanks and armored personnel carriers backed up waiting for the mine rake to finish clearing a lane, it is usually employed only after the vital armor assets have been pushed through the mine field.

The mine rake is one of the great stories of American ingenuity from the war. Though the concept had been studied, the U.S. Armed Forces had no effective full-width mine clearing apparatus at the time of Saddam's invasion of Kuwait. In November 1990, the Army's Countermine Systems Directorate at Ft. Belvoir, Virginia was tasked with producing the equipment. Using computer-aided design and stress assessment programs to develop the structure of the rake, engineers quickly made and field-tested two prototypes. Production began in early December. In January and early February 1991, 59 mine rakes were delivered to the Gulf.

Mine Clearing Roller System *c/o U.S. Army Countermine*

Mine Clearing Roller System (MCRS)

The MCRS consists of two sets of five large, heavy rollers which, like mine plows, are fitted to the front of each of a tank's tracks. However, the MCRS was cumbersome, heavy (the entire system weighs about 20,000 lbs.) and hard to transport. In addition, since they were originally designed for the firmer soil conditions of Europe, its rollers were unsuitable for the softer soil of the desert. Instead of rolling, they often merely skidded, pushing soil in front of them until they bogged down. The 1st Marine division attempted to proof two lanes with the MCRS. Both were unsuccessful, and one missed a mine, which blew apart a track of the tank pushing it, immobilizing the tank and blocking the lane.

Roller Dude

Designed by Marine combat engineers and manufactured by Navy Sea Bees, Roller Dude was essentially a steel pipe filled with concrete. The Marines would have far fewer problems with their Roller Dude than they would with the Mine Clearing Roller System provided by the Army. Roller Dude was lighter (about 8,000 lbs.) than the MCRS, so it worked well in soft soil, and unlike the MCRS, which only clears a path in front of each of the tank's tracks, Roller Dude rolled the area across the entire width of a tank.

Another difference between the two roller systems was that the Marine rollers were towed behind AAVs, not pushed in front of tanks. At first glance, this would appear a dangerous or even ridiculous configuration, since the vehicle had the proofing device behind it instead of in front of it. However, the roller was really only needed to proof the area between the tracks of the plow tanks. The AAV could travel safely in those tracks, because if there had been mines there, they would have been set off by the much heavier tank that preceded it.

Mine Flail

A mine flail is designed to be used against anti-personnel mines only. It essentially beats the ground with steel wedges attached by chains to a rotating axle. One mine flail was used in the 2nd Marine Division breach in an attempt to establish an extra lane after the main lanes had been breached and proofed. The attempt was unsuccessful. The flail set off an anti-tank mine, which destroyed the flail and crippled the armored bulldozer that was using it.

The Breaches

The two Saudi breach forces (JFC-E and the eastern prong of JFC-N) were aided immeasurably by the fact that the Iraqis had not buried the mines in their zones. Saudi engineers were able to clear most of the mines in their breach lanes by hand, and their breaches were largely uneventful.

A certain amount of hand demining was necessary in the 1st Marine Division's zone. The night before G-Day, two light infantry task forces performed the first night mine field infiltration in the history of the U.S. Marine Corps. They picked their way through the first mine field and took up positions between the two mine fields. From these positions, they guarded the division's flanks.

Allied planners had intended to launch a massive B-52 strike on the Iraqi trenchlines on the night before G-Day, but concerns about bombs landing on Marines working in the mine fields—blowing live mines around and chewing up the terrain on which Marine combat engineers would have to work on G-Day—made the conduct of the strike impossible. The raids were shifted northward, to the south of Kuwait City. Due to friendly fire concerns, the Marines had been unwilling to even discuss dropping fuel-air explosives on the mine fields.

For the main breaches, Marines in both divisions used the same technique. A tank would approach the first mine field towing a Mk-58. The tank would halt 70 meters from the beginning of a mine field and launch its charge. The line charge, 100 meters long, would be brought to rest a safe distance from the launcher by a 62-meter-long arrestor cable. For planning purposes, the Marines assumed that an 80-meter-long path would be cleared by the explosion, because the line charge would not land in a perfectly straight line, and the first eight meters or so of the line charge would detonate short of the mine field's forward edge.

After the charge launched by the tank exploded, the tank held in place to provide cover as a tank equipped with a Track-Width Mine Plow moved into the lane and went to work. Usually, about 95 percent of the mines in the plow's path were pushed aside or detonated harmlessly. In their preparations, Marine combat engineers found that when dealing with blast-resistant mines, a MiCLiC explosion would often leave as many as 25 percent of the mines in its path intact. This meant that instead of proofing lanes that were virtually minefree, the plows operated in areas still thick with mines. As a result, instead of serving as an ancillary lane proofing tool, they became an essential component of the breaching operation.

When it reached the end of the trough created by the MiCLiC's detonation, the plow tank backed to the beginning of the lane and a Mk-154 pulled up behind it and fired one of its three line charges over the plow tank and into the mine field.

The process of line charges followed by plow tanks was repeated until the lane was cleared to the far side of the mine field. It generally took Marine breaching teams about 15 minutes to push through each mine field. Mine rollers were then used to "proof" the lane, exploding the few mines that might have been missed.

After the lanes were proofed, they were marked by combat engineers. While marking the lanes, the engineers looked for any obstacle or mine that had either somehow escaped destruction or fallen back into the lane. Anything that could not be moved was destroyed in place.

While most breaches went smoothly, the 2nd Marine Division had a problem in two of its lanes. In addition to the usual problems encountered with MiCLiCs, there were power lines just in front of the leading edge of the mine field, so a MiCLiC launched in one lane ended up draped across the power lines. Worse, these lanes contained British L-9 bar mines, which had been captured from Kuwait. Bar mines cannot be set off by explosive overpressure like the kind produced by MiCLiC. In addition, they can be fitted with anti-disturbance fuses, which are designed to set the mine off if an attempt is made to move it. Many of the mines in this sector were fused in this fashion. As a result, they were exploding on contact with mine plows, destroying the plow and disabling the tank that pushed it. Marine engineers would later complain that the mine plow was supposed to be able to absorb as many as three hits before becoming disabled. This may have been true as far as mines like the VS 2.2 (2.13 kg of explosive) went, but a bar mine (with 7.2 kg of explosive) was powerful enough to blow the plow apart. The problems caused by bar mines turned the establishment of these two lanes a five-hour ordeal. On G-day, the 2nd Marine Division would have eight tanks with mine plows and two AAVs disabled. The majority of the division's engineer equipment losses occurred in the Green lanes.

"Roller Dude" *c/o Maj. Wayne Sinclair*

Egyptian engineers did not use mine plows or mine rollers. Their breaches were established by tanks or M-113 armored personnel carriers launching Mk-58s, then employing Full-Width Mine Rakes.

Though each of the two main mine fields in the Egyptian zone was

thinner than those the Marines had to contend with (70 meters deep as opposed to 100–150 meters deep in the Marine zone), the Egyptians' job was a bit more complex than the Marines' was. First, in the Egyptian zone, there was a string of company-sized strongpoints running along the southern edge of the Iraqi defenses. The strongpoints were surrounded by mine fields and there were mine fields running between them. Though the mine fields between the strongpoints were relatively thin, this meant that there were three mine fields to breach rather than two.

In addition, the Egyptians would face the only working fire trenches in the Gulf War. Egyptian Rangers were able to capture an Iraqi engineer doing routine maintenance on the system. The Iraqi provided the Egyptians with details about the layout of the fire trenches. Each trench was about 1,000 meters long, made up of ten 100-meter sections. Three barrels of thickened fuel (also known as phougas) had been placed in each section. The sections had then been filled with oil. The phougas would be exploded electrically to start the oil burning. The barrels would be set off by wires running back to the main Iraqi trenches. The entire fuel distribution system was underground. From a central valve in a bunker, a network of pipes ran to another set of pipes, which ran behind each of the trenches. From these pipes, underground fill tubes would bring more fuel to the trenches.

Armed with detailed knowledge of how the fire trenches worked, the Rangers sabotaged them the night before G-Day. They created what would be an almost four-mile-wide fire-free zone by cutting the wires to the phougas barrels over that stretch of the system.

Between 3 and 4 p.m. on 24 February, two breaches were made in the mine field between Iraqi strongpoints. Each breach was made between strongpoints, far enough from each so that they could not bring effective fire on the breach force.

Virtually the moment the two battalions breached the first mine field, the Iraqis lit the fire trenches. Shortly after the breach was established, two mechanized brigades joined the breaching battalions north of the first mine field. Unfortunately, by the time the two brigades passed through the mine field, night had fallen and the brigades became tangled as they headed for the spot where the fire trenches had been sabotaged. It took until dawn on the following morning to untangle them.

Breaching of the main mine fields commenced at dawn on the following morning. Despite heavy shelling, the breaching battalions were able to push eight lanes through the two mine fields by early afternoon. Losses had been slight. One Mk-58 had tipped over as the tank towing it approached a mine field. Not knowing this, the tank commander launched it. The line charge landed too close to the tank, and when it exploded, it caused extensive damage to the tank and injuries to the crew. Due to incorrect wiring, another Mk-58 blew up instead of launching, killing two soldiers and wounding several others inside the M-113 towing it.

Conclusion

Though there were problems with some of the breaching equipment, the breaching effort must be regarded as one of the Gulf War's greatest success stories. Before the war, few analysts would have been willing to bet that either the Marines or the Egyptians would have made such short work of the mine fields (the delays in the Egyptian breach were due to factors other than mines) in their attack zones. The speed of the breaches allowed maneuver units to hit the Iraqi defenders before they were ready. As a result, in the Marine zone, what the Iraqis had planned as armored counterattacks in support of their front-line troops turned into anti-armor ambushes when they found that Marines, who had overwhelmed the front-line troops, were waiting for them in their staging areas. Thus, the skill with which the breaches had been conducted saved lives not only during the breaching, but also in the operations that followed.

While there is a tendency to see the Gulf War as a "one-shot deal" with little relevance to future wars, the fact is, sooner or later, American combat troops will run into mine fields that need to be breached quickly. With certain improvements in some of the breaching equipment (sturdier wiring on the MiCLiC, and a more robust mine plow, for example) used in Desert Storm, there is no reason to believe that this success cannot be repeated in the future. ■

Biography

Thomas Houlahan is the director of the Military Assessment Program of the William R. Nelson Institute for Public Affairs at James Madison University. He is the author of Gulf War: The Complete History.

Contact Information

Thomas Houlahan, Director
Military Assessment Program
William R. Nelson Institute
James Madison University
4602 43rd Street, NW #1
Washington, DC 20016
Tel: (202) 362-5918
E-mail: wksi@juno.com

Mine Action in Egypt:
The Landmine Struggle Center and Arabic Mine Action Campaign

Egypt's land is plagued with almost 20 million mines/UXO dating back to WWII. The government does not want to remove them without help from those who planted them. The Landmine Struggle Center and Arabic Mine Action Campaign were formed to help those who are affected.

by Jenny Lange, *MAIC*

Striving For Help

Egypt's allocation for funds for demining are limited and are not sufficient when looking at the scope of the problem of landmines/UXO in the country. In February 2000, Egypt announced that mine clearance had stopped due to a shortage of funds. But in June 2000, the Landmine Struggle Center, a national NGO, monitored a continuation of mine clearance conducted by the army in areas of the Western Desert for agricultural purposes. Commercial companies near oil and other resources also continued demining in 2000.

Egypt would like to receive help from the countries that are responsible for planting the mines. Egypt's Assistant Foreign Minister, Sayed el-Masri, says, "It's a very difficult thing. We cannot do it alone. We need the help of advanced technology to detect these unexploded mines and we think there's a moral and legal responsibility upon the states who planted them." Britain, Germany and Italy have designated money towards mine clearance, as well as old maps to help identify mine fields. For information on how the U.S. is helping Egypt, see "Humanitarian Demining in Egypt" by Timothy Kennedy on page 56.

Landmine Struggle Center

Background

The Landmine Struggle Center (LSC) was established December 3, 1997. The LSC is an NGO that formed because the government lacked organizations that worked with landmines in the areas of mine awareness, mine clearance and victim assistance. According to the LSC website, the following are reasons why the LSC was formed:

- Landmines are obstacles in the economic development in the north and east coast of Egypt due to the loss of agricultural land.
- In the last 20 years, Egypt has lost 3,200 people due to AP mines and 4,723 people have been handicapped.
- No clear, accurate maps are available for landmine removal, and natural forces have caused the removal of known mines to be difficult, sometimes impossible.
- No specialized first aid center has been formed to help landmine victims.
- Vocational training programs for victims are not available.
- No essential information about landmines is provided to inhabitants of mine-infested areas.

■ A member of the Al-Hawashla family carries two jugs of freshly squeezed camel milk as morning breaks in the Bedouin village. *c/o AP*

- No legal mechanism for helping the victims to receive legal rights has been established.
- Egypt is not in any international programs that aid countries suffering from the problem.

Four programs have been introduced into the country by the LSC, namely the Geographical Survey Program, Mine Awareness Program, Victim Assistance Program and Mine Clearance Program.

Geographical Survey Program

The Geographical Survey Program aims to accurately determine the areas of mine fields in order to produce detailed maps of mine-infested areas in Egypt and assess their danger. The program formulates statistics covering the number of casualties and their families, details of the incidents, and any needs of the victims. These needs are then considered by the LSC to be filled if at all possible to help make the tragedy easier to cope with. Details about the accident that are recorded include information about the victim, previous casualties in the area, any nearby mine fields, and nearby hospitals. The records made personally by the LSC about victims of landmines help monitor the degree of danger in areas with landmines.

In 1999, the LSC recorded 57 victims. In 2000, 34 victims were recorded, and up to September of 2001, 12 victims have been recorded. Victims do go unreported, yet Mr. Ayman Sorour, Executive Director of the Landmine Struggle Center, says the number of unreported victims should not be more than 10 to 15 per year.

Mine Awareness Program

Many Egyptians are unaware of the landmine problem in their country. The LSC formed the Mine Awareness Program in order to inform civilians about all aspects of landmines. The program created many goals in order to help spread mine awareness throughout Egypt. These goals include establishing a database about the problem of landmines in Egypt, publishing reports, newsletters and booklets about the problem of landmines and the efforts done to eliminate the danger, providing the media with the appropriate information, graphics and statistics in order to motivate them to focus attention on the landmine problem, setting mine awareness signs around mined areas, and providing workshops for citizens of Egypt about mine awareness.

During 1999 and 2000, 20 mine awareness workshops were held in El Alamein, the site of a gruesome battle during WWII. These workshops were deemed unsuccessful because of the amount of people who attended them. Of the 10,000 citizens of El Alamein, only 10 to 15 people attended each workshop. The director of the LSC believes that communication is the main problem in getting people to attend these workshops. Many people are unable to read or write, especially among the Bedouin society. In the Bedouin society, members only trust each other; they have certain customs and rules that they follow that are hard to break into as an outsider. Those who try to inform the Bedouins about mine awareness workshops are unsuccessful because communicating among their group is very difficult. The LSC would like to study communication among the Bedouin culture in order to learn how to successfully inform them about the issues of landmines.

Victim Assistance Program

The Victim Assistance Program was formed to directly help victims of landmine incidents. The goals of this program are to improve the health services of landmine victims, help handicapped victims adjust to new conditions, develop convenient first aid for victims and participate in establishing well-equipped emergency sections in hospitals specifically for landmine victims.

One thing the LSC has realized is that victims are not in need of psychological help; instead they would rather see the center help them with receiving artificial limbs. Therefore the center has set up trust funds for landmine victims. The trust fund directly helps victims by providing them with artificial limbs. The victims receive direct transfer to centers that fit them with the appropriate prosthetic limb. Last year, three victims received limbs.

Mine Clearance Program

The Mine Clearance Program was designed to determine landmine areas and necessary efforts in clearing these areas, to use modern technology in clearing mines from Egyptian lands and to cooperate with local efforts in clearance programs. Unfortunately, this program has ended due to lack of funds. Prior to the LSC, humanitarian demining in Egypt did not exist, and it was hard to expect a program to start. The LSC did all it could to start a program, yet funds were limited. Only the military clears mines in Egypt, and they will only clear for two reasons: military reasons or developmental reasons. The military funds their own projects, and the developmental projects are funded through the project itself. Because of the limited clearing efforts, landmines will remain in many areas. The LSC tried to combat this issue, yet the lack of funds forced it to stop.

Arabic Mine Action Campaign

The Arabic Mine Action Campaign (AMAC) was established in December of 1998 through a proposal by Ayman Sorour, Executive Director of the LSC. At the Human Rights Defender Summit, the AMAC was proposed to all the Arabic NGOs in order to raise mine awareness and mine clearance throughout many

continued on page 68

Mine Awareness Education in the Republic of Yemen

The Yemen Mine Awareness Association works with a number of other organizations to spread mine awareness and conduct mine surveys in the hopes of increasing the safety of its people now and in years to come.

An MAE child-to-child team in Amran-Aden.

by Aisha Saeed Nalya, *Senior Program Officer, Save the Children Sweden, Aden; Chairperson, Yemen Mine Awareness Association*

Introduction

The Republic of Yemen is situated on the southern tip of the Arabian Peninsula between the Gulf of Aden and the Red Sea. It is a country of beautiful scenes and architecture. The Republic of Yemen has 17 million people and is growing at a rate of 3.7 percent annually.

Until 1990, Yemen was divided into two independent countries: North Yemen and South Yemen. For several decades prior to unification both countries engaged in armed conflicts where AT and AP mines were deployed. However, most of the mines were planted in 1962–1975, when republicans fought the royalists in the North from 1963–1967, when the South fought for independence from the British during the border conflicts (1970–1983) and during the May–July 1994 civil war when separatists in the south fought for dissolving the union.

Yemen signed the Ottawa Convention on 4 December 1997 and ratified it on 1 September 1998. The bill ratifying the Ottawa Convention was passed in the parliament on 12 May 1998, and the ratification instrument was deposited at the UN in New York 1 September 1998, making the Republic of Yemen the 34th country to ratify the convention.

Background

After the two-month war in 1994, Save the Children Sweden conducted some interviews in the Aden, Sana'a, Lahej and Abyan governorates with war-affected children. They found that there were problems with not only landmines but also UXO, which remained in several places and which many children were tempted to pick up.

Save the Children Sweden invited partner organizations such as the

Child-to-Child Association, the Girl Guides and the Boy Scouts, the Red Crescent and the Committee for War Traumatized Children; representatives from Ministries of Education, Defense, Interior, Health and Social Affairs; and international agencies such as UNICEF, UNHCR, UNDHA and ICRC to a workshop on landmines in April 1995 in Aden, where the focus was on mine awareness education.

Mine awareness materials used in Somali and Rwandan campaigns were introduced by UNESCO PEER staff from Nairobi, and the landmine situation in the south of Yemen was presented by two officers from the Ministry of Defense's demining unit and the UNDHA demining expert. As a result of this workshop, the Yemen Mines Awareness Committee was established.

Together with Save the Children Sweden, the Yemen Mines Awareness Committee has worked with mine awareness education in the three southern governorates—Aden, Lahej and Abyan—since 1995.

In December 1995 and January 1996, a mine awareness campaign was carried out in most of the primary schools in the three southern governorates. The preparations for this campaign started in April 1995 in cooperation with Save the Children Sweden. Fifteen training of trainers workshops for 502 school staff in the three governorates were implemented. Also, 10,000 posters, 150,000 booklets with 10,000 teachers' manuals were designed by members of the Mines Awareness Committee and printed in time to reach over 140,000 school children, who in turn gave mine awareness messages to their families and communities.

MAE in Lahej.

In addition to this campaign, a special in-depth program on mine awareness was implemented with the Child-to-Child approach in 19 schools, where 109 school staff members were trained to involve 25,150 pupils.

In December 1998, the Yemen Mines Awareness Committee registered as an NGO named Yemen Mine Awareness Association (YMAA). Save the Children Sweden and YMAA carried out a community-based mine awareness pilot project in four villages: Al-Kood (Abyan), Amran (Aden), Masabeen (Aden) and Al-Habil (Lahej).

In connection with this project, a survey on mine victims/survivors has also been conducted. This is the first real survey on mine/UXO accidents, including deaths, to be undertaken in Yemen. In 1996, a team of YMAA also interviewed police, security and hospital staff in the three governorates of Aden, Abyan and Lahej.

The Members of The Yemen Mine Awareness Association

Members of the Yemen Mine Awareness Association belong to different Yemeni NGOs like the Child-to-Child Association in Taiz and Aden, Boy Scouts, Girl Guides, Red Crescent, the Trauma Committee and the staff from different ministries of defense, education, information and health. At the start in April 1995, there were nine members, and a year later 10 members joined. These members worked together with Save the Children Sweden as associate members. In December 1998, the new members joined the Association from the villages where the members are active.

All the members of the Yemen Mine Awareness Association are volunteers, and half of them are women.

The International Campaign for Banning Landmines (ICBL) nominated three members of Yemen Mine Awareness Association as landmine monitor researchers. They attended both regional and international landmine monitor meetings and submitted their reports on Yemen for 2000–2001. The landmine monitor is mainly used as an advocacy tool, and the researchers monitor the Yemeni government compliance with the mine ban convention.

Field testing an MAE game in a school.

Published by JMU Scholarly Commons, 2001

Mine Awareness Education in Yemen

Mine Awareness Department at the Regional Mine Action Centre (RMAC)

In 1998, the U.S. team trained 12 mine awareness educators within the RMAC in Aden. They have mobile village presentations in the villages around the C6 area, which was cleared recently by the new trained demining companies.

The work of the mine awareness department (six staff) at the RMAC in Aden concentrates on raising the awareness of different target groups living in villages close to the mine fields and supporting the work of the deminers in these fields.

Mine awareness is mainly raised by village presentations that are preceded by meetings with the key people (e.g., sheikhs, akles, imams and teachers) where information is gathered regarding accidents, mine victims, and places where mines and UXO have been found. Special forms are filled out to record the information that will also be valuable to deminers.

The village presentation consists of lectures to the communities in large meetings. The materials used are plastic models of frequently found mines/UXO and circulars.

Joint Mine Awareness Activities

The YMAA has been granted $31,000 (U.S.) for its community-based Mine Awareness Education Program (MAE) for which it collaborates with the NMAC and RMAC. The money is also used for advocacy work around the Mine Ban Treaty. New mine awareness education material was produced specifically for children, and a quarterly newsletter featuring current mine action activities, the progress in the Mine Action Centres and interviews with the villagers in the mine-infested areas is circulated regularly. Eight issues have already been printed and distributed to the media as well as among the staff at the mine action centres, the members of the National Demining Committee, concerned ministries and the community members involved in mine awareness education. International news events on landmine issues of children's, mine survivors' and villagers' voices are highlighted in the newsletter.

The mine awareness department at RMAC does not have the community-based approach that the YMAA uses in their MAE, which includes directly involving the community members in an MAE project in their village so that they disseminate mine awareness messages, as well as keeping the information flowing even after the mine awareness teams have left. Since they also help conduct mine victim surveys and evaluate the MAE project, it is now an advantage that the YMAA members have asked to cooperate in the villages to blend in their approach with that of the mine awareness department.

It has also been difficult for the mine awareness department to reach the women, since they do not have any women in their team, while half of the YMAA members are women and many are trained teachers.

A Level One Survey was finished in Yemen in July 2000. The survey identified 592 affected communities. To meet the needs of these communities, mine awareness programs have been developed jointly by YMAA and the mine awareness department at the Regional Mine Action Centre. Both Qaraba (Al-Dhala governorate) and Al-Nadra (Ebb governorate) were identified by Level One Survey as high-risk areas. Therefore, YMAA members supported by the American Embassy (Sana'a) utilized their community-based experience and trained the key personalities in 10 villages during the time from April–September 2001 to disseminate mine awareness education among their communities and practice safe behavior.

New mine awareness materials depicting mine survivors and cartoon stories for children will be produced during 2001.

Advocacy in the Region

In November 1997, a Regional Seminar on Landmines was organized by the Yemen Mines Awareness Committee and Save the Children Sweden. The event was sponsored by Save the Children Sweden, the United Nations Development Program (UNDP) and the United Nations International Children's Emergency Fund (UNICEF), and it was hosted by the President's Office. Eleven regional governments were represented: Egypt, Ethiopia, Iran, Jordan, Kuwait, Lebanon, Oman, Turkey, Saudi Arabia, Sudan and the United Arab Emirates. NGO representatives came from Egypt, Ethiopia, Eritrea, Jordan, Lebanon, Palestine, Saudi Arabia and Sudan. The Sana'a Declaration was approved by all the participants. The declaration urges all countries to sign the Mine Ban Treaty and calls for assistance from the international community to support humanitarian demining assistance not only for those countries that sign the treaty but also for those countries whose populations suffer from the mine threat but have not yet signed the treaty.

A regional Mine Awareness Education workshop with the Child-to-Child approach was organized in

MAE regional workshop with CTC appraoch.

MAE in summer camp.

Yemen by Save the Children Sweden and took place 27 November–3 December 1999. Twenty-five participants from Sudan, Jordan, Palestine, Lebanon and Yemen took part in the weeklong workshop in Aden. Among the Yemeni participants with facilitators from the Yemen Mine Awareness Association were teachers from primary schools in Aden, Abyan and Lahej and also staff from the National and Regional Mine Action Centers. A field visit to Al Kood community was also on the program. The participants here had the opportunity to meet with school children and community members who are involved in the community-based MAE pilot project.

The November 1999 Regional Mine Awareness Workshop, with the Child-to-Child Approach, led to two workshops in Jordan and Lebanon. Shafica Moh'd Saeed, member of the YMAA and Chairperson of the Child-to-Child Association, facilitated a mine a-wareness education workshop on 17–18 April 2000, which was funded by Save the Children Sweden and the Save the Children U.S. for youths in Tyre in the south of Lebanon. In August 2000, Aisha Saeed, Chairperson of the Yemen Mine Awareness Association and Program Officer for Save Children Sweden, facilitated a mine awareness workshop for supervisors of youth center held on 8–17 August 2000 in Aqaba, Jordan.

Designing, Field Testing and Producting Materials

In 1995, the Yemen Mine Awareness Com-mittee designed and published two booklets and a poster in cooperation with the Ministry of Defense and UNDHA expert Paul Kelly. This material was used in a 1995 mine awareness campaign reaching school children in the primary schools in Aden, Lahej and Abyan. In 1996, the mine awareness campaign was evaluated, the material was revised and it was decided that in the future all newly produced material should be field tested.

In July 2000, a game and a new poster on frequent mines and UXO in different parts of Yemen were designed. During the summer camp, this new mine awareness material was field tested in schools, and children gave valuable comments that were considered during final production. Also, comments from the communities in the pilot areas and the staff of the mine action center were included.

Both YMAA and the staff from the mine action program participated in the international workshop on "The Design of Material, Resources and Other Media in Mine Awareness Program," held on 19–22 February 2001, which will have an impact on mine awareness material produced in Yemen.

Lessons Learned

- Good cooperation and coordination between the NGOs, the government and communities is a must for the mine awareness program to succeed. Also, work at all levels (e.g., local, national) is essential.
- Mine awareness messages must be repeated several times, using different methods but giving the same message.
- Community-based mine awareness activities should be followed up involving all members of the communities.
- It is important to use the appropriate mine awareness materials for different target groups.
- Nomads, shepherds and children not attending schools should be reached at their gathering points.
- Children are resourceful and can influence other children in their community, especially those with less opportunity and education than themselves. ■

References

1. Nelke, C. *A Review of Mine Awareness Education in Three Southern Governorates: Aden Lahej and Abyan*. 1996.
2. Nelke, C. *Landmine Monitor Report on the Republic of Yemen 1999–2000*. 2000.

*All photos courtesy of the author.

Contact Information

Aisha Saeed Nalya
Senior Programme Officer
Save the Children Sweden
Chairperson of YMAA
P.O. Box: 476
Khormaksar, Aden
Republic of Yemen
Tel. (Office): 967-2-231602/231507
Fax: 967-2-232035
E-mail: rbyemcaed@y.net.ye

Aiding the Innocent:
Victim Assistance in the Middle East

***"Because eastern Turkey is cut off from the rest of Turkey, if you were an amputee, there was nothing you could do. This program literally lets people walk free again. It is healing patients, not just physically, but in so many other ways."*—Dr. David B. Young, Program Director, Physicians for Peace's Walking Free Program**

by Sarah B. Taylor, *MAIC*

Introduction

Hussein Khair Allah, a landmine survivor, recently spoke of his experience: "I was returning from a fishing trip on November 15, 1997, when I was injured by a landmine on the bank of the river Jordan, severing my right foot up to the ankle. I am a fisherman and the major source of my income was from fishing, which I am no longer able to do because of my injury. I need to work again to be able to support my wife and six children."

Allah's story mirrors those of many other landmine victims throughout the Middle East. However, Allah is lucky; he was able to survive the injuries that the landmine caused. Numerous others do not; for example, the *Landmine Monitor* reports that five to 10 people die each day from landmine accidents in Afghanistan.

Medical services and support systems are essential if people like Allah are to survive their initial injuries and then continue to lead fulfilling lives; therefore, this victim assistance must begin in emergency care and then continue through physical, social and economical rehabilitation. This is not an easy task to accomplish, considering that between March 1999 and March 2000 landmine accidents occurred in Algeria, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Libya, Lebanon, Pakistan, Oman, Syria, Yemen, Golan Heights, Northern Iraq, Palestine and Western Sahara. In fact, 405 victims were reported in the Bajaur area of Pakistan alone.

Today, numerous organizations, both governmental and non-governmental, are working to help improve the survival rate and quality of life of landmine victims. By giving immediate emergency care, fitting prosthetics and rehabilitating victims physically, socially and economically, these organizations work to not only save the lives of landmine victims but also to help them to return to their previous lives with as much ease as possible. It is difficult to express all that they do with mere words. Every day they save the lives of those who, without them, would die; they lessen the burdens of the survivors by helping them to adjust to their injuries. The importance of these organizations is immeasurable.

Locals train at the TCF "Village University" in Iraqi Kurdistan. Often, animals such as pigs are used to train locals in basic medical care and in treating landmine injuries.
c/o Trauma Care Foundation

Emergency Medical Care

Trauma Care Foundation

The Trauma Care Foundation (TCF) works together with the Tromsoe Mine Victim Resource Center (TMC). Other partners include the University Hospital of Tromsoe Department of Anesthesiology, the Faculty of Medicine, Norway and The World Health Organization, and its headquarters are located at the University Hospital of Tromsoe in Tromsoe, Norway. The organization consists of numerous European physicians who are trained in trauma care and the purpose is to work with others, teaching local people of mine stricken countries in order to create

FOCUS

Middle East

■ (Left) Locals learn first aid at the TCF "Village University" in Iraqi Kurdistan. *c/o Trauma Care Foundation*
(Below) This man was one of the first patients fitted at the new amputee rehab center in Dicle University, Diyarbakir, Turkey. *c/o Physicians for Peace*

effective methods of saving both the limbs and the lives of victims. An important aspect of this program is its philosophy; workers do not focus on adhering to Western standards of medicine. TCF realizes that this if often unrealistic in the regions in which it works; instead they strive to create "self-reliance" in which natives are able to save lives and limbs with the knowledge and resources that they do have readily available. While TCF works throughout the world to train natives in emergency medicine, they have an extensive program in Northern Iraq, and in 2000, they began a new program in Western Iran.

In order to accomplish its goal of creating self-reliance among the local people of Northern Iraq, TCF set up a "Village University." The Village University both teaches and trains locals to be health workers and in doing so creates a support network in which those who are trained are also taught to train and teach others. This training is done systematically in 400 hours.

Surveys in Iraq found that 40 to 60 percent of all landmine victim deaths occur before the victim arrives at a hospital. The Village University is designed to prevent as many of these deaths as possible. The "mine-medics" are taught individually and in teams on mannequins; live models and animal models (all International ethical standards are adhered to in the use of the animal models and all animals are purchased within the region that they are used) are used to train the students in all aspects of trauma care. Members of TCF train local Kurds with hands-on methods in trauma care, including CPR, Basic Life Support (BLS) and Advance Trauma Life Support (ATLS). More specifically, Kurds are taught and trained in breathing control, bleeding control, airway control, chest tube placement and airway incubation. Importantly, TCF also trains them to be effective leaders, as these mine-medics will go on to teach other villagers first aid. In fact, throughout the numerous Village Universities that TCF has developed, mine-medics have trained over 7,000 local villagers as "first responders." First-responders are trained to open airways, stop the bleeding of injuries (without using tourniquets) and perform CPR. Thus, mine-medics and first-responders thus together build what TCF refers to as "Chains of Survival." Because mine victims begin to die immediately after the injury occurs, it is essential that trained health-care workers be readily available.

By working together, mine-medics and first-responders are able to provide adequate immediate health care at the scene of the accident. In the end, TCF has created a population of health care workers who trust each other because they were trained with each other and, in the case of first-responders, by mine-medics themselves. Thus, a cohesive unit is formed and numerous limbs and lives are saved. Finally, a handbook entitled "Save Limbs Save Lives: Life Support for Victims of Mines, Wars, and Accidents" was recently written by three physicians at TCF (Hans Husum, Mads Gilbert and Torben Wisborg), which presents the theories and practices of the Village University and other general methods of saving the lives of landmine victims.

Prosthetic Care for Amputees

Physicians for Peace and Limbs for Life

Based in Norfolk, Virginia, Physicians for Peace (PFP), is a non-governmental organization dedicated to providing medical services and supplies, medicines and medical education to needy areas throughout the world. Originally founded by plastic surgeon Dr. Charles E. Horton, also of Norfolk, Virginia, PFP has completed approximately 200 missions throughout the world. In May 2000, Physicians for Peace was invited by the Turkish government to the eastern part of Turkey to evaluate the prosthetic and amputee needs in area and to aid the earthquake victims in Izmir.

When PFP arrived in eastern Turkey in 2000, it found a great need for its services. Program Director, Dr. David B. Young, an orthopedic surgeon from Virginia Beach, Virginia, stated, "We saw 59 patients in one morning—all victims of landmines…both children and adults. They did not have any prosthetics, rehabilitation or training in Dicle, which has a population of over one million or in eastern Turkey, which has a population between three to five million. The need is great." With this in mind, PFP, along with its partners, began its plans for the Walking Free Program. The program is a comprehensive prosthetic center at Dicle University in Diyarbikir, Turkey, in which volunteer physicians and prosthetists fit, train and rehabilitate amputees with prosthetics, free of charge.

Dr. Young aims to take the project a step further by establishing a self-sustained center. He stated, "We wanted to create a sustainable program to fit prosthetics and train amputees. Medical care will then be for them and by them. Sixty percent of the people there are unemployed; the program will be an A to Z in prosthetic care, consisting of prosthetic training, follow-ups, rehabilitation, etc." To achieve these goals, PFP helped Turkish citizens receive medical training in the United States and is in the process of creating a network between physicians and prosthetists in the United States with those in Turkey. Recently, Halit Ozdogan of Turkey completed a three-month training program in the United States, where he learned modern prosthetic techniques; he is now working at the center at Dicle University. Dr. Young stated, "They [Turkish citizens] were trained at Hanger-Newington, which is affiliated with Yale University, outside Hartford, Connecticut. But we also want to help them in their education system. That will then bring to Turkey more specialized treatments. We are also developing telecommunication online between them and Turkey. This will create in-country and international education, and we are in the process of developing a CD-ROM. Thus, communication will be on disc and direct." Officially opened on June 28, 2001, PFP estimates that in the first year, the newly trained prosthetists will be able to fit approximately 60 amputees and 75 per year in future years. Again, the services will cost the amputees nothing.

Aiding them in the project is Limbs for Life (LFL). LFL, also a non-governmental organization, aids amputees throughout the United States in both acquiring and caring for prosthetics, through its work, LFL has acquired a bank of artificial limbs, mostly donated by major manufacturers. An amputee himself, LFL's founded LFL in 1995 in Oklahoma City, Oklahoma after being injured in the line of duty as a police officer. The Turkish government also contacted LFL, and thus PFP and LFL joined together to provide assistance in prosthetics to numerous amputees, the majority of which are landmine

■ PFP volunteer, Richard I. Sieller, P.T., C.H.T., hand/physical therapist from Virginia Beach, VA, visits a young victim. *c/o Physicians for Peace*

■ Two young amputees receive much-needed assistance from the new center. *c/o Limbs for Life*

victims. In the United States, an above-the-knee prosthetic device can cost as much as $30,000 (US). Only a small portion of the rural Turkish population can afford these kinds of prices. Thus, LFL donated countless prosthetics and prosthetics parts to the Walking Free Program, making it possible for amputees to receive new limbs without a cost. Executive Director Craig Gavras also spoke of the great need in this area. He states, "There was unbelievable need; the poverty level is astronomical… We supply anything that has to do with prosthetics, and we decided to fit as many patients as we could."

Other contributors to the project include Smith and Nephew, Inc. Rehabilitation Division, Hanger Prosthetic and Orthotic Corporation and the Ronald McDonald House Charities.

Rehabilitation: Physical, Social and Economic

World Rehabilitation Fund (WRF)

Founded in 1995 by Dr. Howard A. Rusk, the WRF's purpose is to provide physical, social and economic rehabilitation to those with disabilities in countries that are afflicted by war. One of the numerous countries that receives assistance from WRF is Lebanon. WRF first arrived in Lebanon in 1986, and in the past 15 years, numerous rehabilitation projects have been implemented and more than 70 agencies have provided medical services to the victims of war in Lebanon. WRF's main partner has been USAID. WRF has focused a great deal of its efforts on the problem of landmines, entitling its efforts "The Landmine Project." WRF's programs not only rehabilitate victims, they also educate citizens and create awareness about the dangers of landmines.

A 13 year old landmine victim. *c/o WRF*

Perhaps the most unique facet of WRF's Landmine Project is its extended philosophy concerning the rehabilitation of victims. It believes in completely rehabilitating all of the landmine victims, aiding them with physical rehabilitation and then proceeding to help them integrate socially and economically back into their communities. Since its arrival in Lebanon, WRF has helped to establish a physical rehabilitation center, which now serves the entire district of Jizzine. By providing basic physical therapy and rehabilitation equipment to the Jizzine Government Hospital, WRF created a center for landmine victims in an area where there was previously no assistance. In the past, victims had to travel all the way to Sidon or Beirut for therapy. WRF also provided the Vision Association for Development, Rehabilitation and Care (VADRC), which is an NGO based in Rashaya that provides assistance in mending and enhancing its existing equipment in its Prosthetics and Orthotics Workshop, the only of its kind in this area of Lebanon.

While WRF is dedicated to aiding Lebanon's landmine victims in their initial physical rehabilitation, their most recent focus has been on the continuing socio-economic rehabilitation that is essential in helping the injured return to a normal lifestyle. In fact, in 1999, WRF and the United Nations Development Program (UNDP) came together to create programs throughout the world that are focused specifically on the socio-economic rehabilitation of disabled peoples, especially landmine victims. When WRF joined with UNDP, Lebanon became one of the partnership's main focuses, as the project with UNDP will compliment the existing one with USAID. In order to get a better understanding of the need for this type of assistance, WRF conducted an assessment test; however, the years that WRF has spent in Lebanon have greatly helped in assessing and dealing with the needs. The program's main goal is to create agendas that will both socially and economically integrate landmine victims back into their communities, returning the quality of their lives back to the state it was before they were injured. One of the ways that WRF is attempting to achieve this goal is through community-based rehabilitation in various parts of Lebanon. WRF aims particularly at creating community-based income generating programs in the District of Jizzine, where the number of landmines is so high that they affect not only victims, but also the community at large. Hoping to generate potential incomes in the community, WRF plans on building an actual facility for socio-economic rehabilitation. By creating employment for the victims of landmines, WRF feels that they will be able to lead productive lives; this not only assists in their economic rehabilitation, but also in their social rehabilitation, as they again become an important part of their communities.

Another important part of this program is entitled the "Kiosks Project." The Kiosks Project, which is in association with VADRC, has created three kiosks in areas that have high numbers of landmines. Kiosks are small stands or business that sell numerous low-cost items, such as coffee. They are operated by landmine victims, in the hopes of expanding both the job opportunities and incomes available to victims. Khaled Nimr runs a kiosk in West Bekaa, Lebanon. After stepping on a landmine and having his right leg amputated at age six, the 25-year-old survivor was scarred both physically and emotionally. Until recently, he had little hope of ever leading a normal life within his community; WRF's program has helped to change this. He now has both the income and self-esteem that come with having his job.

WRF has done a great deal to assist landmine victims throughout the world and particularly in Lebanon. In the future, WRF hopes to expand their efforts in this area, focusing not only on continuing education and awareness but also on the socio-economic rehabilitation of adolescents, particularly females.

Dr. Nadim Karam speaking to the community. *c/o WRF*

The International Committee of the Red Cross

In 1979, the International Committee of the Red Cross (ICRC) created a specific unit designed to aid victims of war and landmines in physical rehabilitation. Described as "…an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of war and internal violence and to provide them with assistance," ICRC has set up 56 rehabilitation programs in 25 countries since 1979.

The year 2000 brought a record number of individuals needing ICRC's assistance; during this year, it provided 16,442 prostheses and 11,005 orthoses worldwide. In fact, in Afghanistan, the number of needed orthoses was greater than the amount of prostheses. ICRC also increased the projects receiving assistance by 20 percent, and consequently hired more staff members. While concentrating on the present, ICRC also looks towards the future. Between 2000 and 2005, it hopes to obtain three important goals: to develop project guidelines for the treatment of amputees, to create a standard for training and develop a teaching package for local employees, and to better and standardize raw materials such as prosthetic components. During 2000, ICRC spent a great deal of their efforts in the Middle East, providing physical rehabilitation to individuals in Afghanistan and Iraq.

•Afghanistan

ICRC actually began helping Afghanis before its project began there in 1987. In 1981, it assisted disabled Afghanis in nearby Pakistan. In a nation where the need for physical rehabilitation is great, the medical resources are extremely inadequate; however, since 1987, ICRC has had prosthetic/orthotic centers in Kabul, Heart, Mazari-Sharif, Jalalabad and Gulbahar. Between 1987 and 1999, ICRC provided numerous services to the disabled. In fact, patients received 30,435 prostheses and 15,747 orthoses. ICRC also renovated and installed new equipment in the program's center, and continuing training was provided for the staff. Social and economic rehabilitation was also provided for the disabled through micro-credit programs and training.

In 2000, ICRC continued its aid. Patients received 4,600 prostheses and 6,360 orthoses, and physical rehabilitation was provided to all patients. ICRC registered almost 2,000 new amputees, 75 percent of which were landmine victims. Male and female patients were treated in separate centers, and ICRC attempted to make their services more easily accessible by decentralizing their locations and working together with the Afghan Red Crescent Society. ICRC also addressed the social and economic needs of the patients by helping them find employment, encouraging them to start small businesses and aiding them in attending school. In order to better the program itself, ICRC held two national workshops and in-house courses. The workshops focused on physiotherapy and orthopedic technology, and the courses centered on local training needs. Finally, ICRC also encouraged local employees to become more involved by giving them more managerial responsibility.

Basra, Iraq, Orthopedic Center, Manufacturing Department. *c/o ICRC*

•Iraq

ICRC began its program in Iraq in 1993 after serious worldwide sanctions were imposed on the nation. A country that was at one time wealthy, ICRC strives to keep Iraq's rehabilitation centers up to date. It has created six prosthetic/orthotic centers, which are found in Baghdad (where there are two),

Basra, Najef, Mosul and Arbil, it also supports the Baghdad Prosthetic/Orthotic School.

Between 1993 and 1999, ICRC provided numerous services to the disabled. For instance, patients received 10,595 prostheses and 6,410 orthoses. Like in Afghanistan, ICRC renovated and installed new equipment in the program's center and staff received additional training.

In 2000, ICRC achieved many of its goals in Iraq. Physical rehabilitation was provided, along with 2,807 prostheses and 1,446 orthoses, 53 percent of which were landmine victims. While importing goods into the country is often difficult, ICRC managed to acquire, under the oil-for-food program, prosthetic/orthotic components from Europe. ICRC also established and/or upgraded physiotherapy facilities and gait-training areas throughout the country. In addition, a physiotherapist visited all centers, and a physiotherapy handbook was created. In order to better the program itself, ICRC held, along with the Ministry of Higher Education, four national seminars covering topics such as partial foot prostheses and physiotherapy for lower-limb prostheses. ICRC also conducted a meeting for all of the program's centers' directors in order to discuss quality control, and the Under-Secretary of Health visited a center in Baghdad and set up a Steering Group for Prosthetic/Orthotic Services. Finally, ICRC encouraged local employees to become more involved; two local employees took over two positions and two were sent abroad to attend a physical rehabilitation conference.

Conclusion

At the 1998 First Middle East Conference on Landmine Injury and Rehabilitation, Queen Noor addressed the severe problem of landmines in Middle East. She stated, "The Middle East is the landmine heartland of the world… [It] is littered with, by estimates, more than half of the world's deployed landmines." To enduring such a devastating infestation of landmines, victim assistance is absolutely necessary in the Middle East. In order to truly aid the victims of landmines, medical services must begin with emergency care and continue through rehabilitation: this is the only way to help victims return to some sort of normalcy.

Much of this region is also plagued with poverty, making it difficult to provide all of the necessary medical care to victims. Thus, organizations such as TCF, PFP, LFL, WRF and ICRC play a fundamental role in creating better conditions for all victims; without their generosity, this terrible situation would be much worse. Through these organizations and numerous others like them, many landmine victims who previously might not have made it through their initial injuries are now back in the workforce, leading normal lives. ■

Contact Information

Odd Edvardsen
Manager
Tromsoe Mine Victim Resource Center
P.O. Box 80
9038 Ritoe
Tromsoe, Norway
Tel: +47-77-62-62-27
Fax: +47-77-62-80-73
E-mail: tmc@rito.no

Mads Gilbert, MD, PhD
Senior Anesthesiologist
Trauma Care Foundation
University and Regional Hospital
N-9038
Tromsoe, Norway
Tel: +47-77-62-61-90
Fax: +47-77-62-61-92
E-mail: mads.gibler@rito.no
Website: http://www.traumacare.no/

Brian Fair
Associate Director of Development/Public Relations
Physicians for Peace
229 West Bute Street, Suite 900
Norfolk, VA 23510
Tel: (757) 625-7579
Fax: (757) 625-7680
E-mail: bfair@physiciansforpeace.org
Website: http://www.physicians-for-peace.org

Craig Gavras
Founder
Limbs for Life
120 N. Robinson, Suite 1913
Oklahoma City, OK 73102
Tel: 1-888-235-5462
Fax: (405) 235-5472
E-mail: cgarvas@limbsforlife.org
Website: http://www.limbsforlife.org

Anthony Starros, M.E., P.E.
Senior Consultant
World Rehabilitation Fund
386 Park Avenue South
New York, NY 10016
Tel: (212) 725-7875
Fax: (212) 725-8402
Email: wrfnewyork@msn.com
Website: http://www.worldrehabfund.org

International Committee of the Red Cross
Public Information Center
19 avenue de la Paix
CH 1202 Geneva
Tel: ++41-(22)-733-20-75
Fax: ++41-(22)-734-60-01
E-mail: press.gva@icrc.org
Website: http://www.icrc.org

Published by JMU Scholarly Commons, 2001

Technology Needs:
Mine Clearance in Egypt and Jordan

Jordan and Egypt have different mine clearance problems, but there are some interesting parallels between them. In both countries the military have exclusive responsibility for mine clearance, and while the technical problems are distinctly different, the avenues for improvement are surprisingly similar.

by James Trevelyan, University of Western Australia

I visited Egypt, Jordan and Lebanon in September and October 1999 to learn about mine clearance techniques being used in the Middle East (*Trevelyan 2000*). This papet summarizes some of my observations and suggestions for further developments.

The Egyptian Government, in particular, regards landmine and UXO contamination as a sensitive issue. For this reason, it is not possible to present a detailed discussion of Egyptian problems.

■ The back end of a large British bomb can be seen inside the hole. The bomb was dropped on a British position heading south. The bomb was discovered during routine mine clearance in the area. It is awaiting an EOD team to destroy it in place, and the evacuation of the adjacent bedouin camp.

Mine and UXO Problems in Egypt

The Egyptian Military Engineering Organisation (MEO) is responsible for all mine clearance work in the country, reporting to the Egyptian Army and Ministry of Defence. I arranged the visit through the Egyptian Government, the Australian Department of Foreign Affairs and Trade and the Night Vision and Electronic Sensors Directorate of the US Army at Fort Belvoir, Virginia.

My only field visit was to the Western Desert area near El Alamein. Information on other areas was provided by the Military Engineering Organisation, and several other sources.

Egypt has been listed as the country most contaminated by landmines in the world with an estimate of approximately 23,000,000. This includes UXO and the number of landmines is much less than this. However, the number of devices that need to be removed is not a useful indication of the magnitude of the problem.

Tourist, agricultural and irrigation development projects in Egypt are significantly constrained by mine and UXO contamination and, in the affected areas, the civilian casualty rate seems high in proportion to the populations in those areas. (No precise figures were available to the author.) The old age of much of the UXO may result in greater risk of spontaneous or accidental detonation, so it is not useful to consider the mine and UXO problems separately. There are very large areas of land affected, and some estimates put the total area at 25,000 sq kilometres.

Origin and distribution of contamination

During the second World War (called the second International War in Egypt) Britain and its allies conducted a series of military campaigns to defend themselves and the vital Suez Canal from several invasion attempts by German and Italian forces. Most of the fighting was along the northern fringe of the Western Desert between the Qatara Depression and the Mediterranean Sea, between 1941 and 1943. The well-known battle at El Alamein was only one of many. A wide coastal strip is affected by mines and UXO, all the way to the Libyan border (and beyond).

In 1956, Israeli forces invaded the Sinai Peninsula and advanced

Col. Mahrous, (Rt) Commanding Officer, Engineers Brigade responsible for demining Alamein area, exchanging gifts with author.

almost to the Suez Canal in a joint operation inspired by Britain and France to attempt to recover the recently nationalized canal. British and French troops occupied the canal zone in the face of vigorous Egyptian resistance. Shortly afterwards, Israeli, British and French troops were withdrawn under strong international pressure.

In 1967, Israel again invaded the Sinai Peninsula in a pre-emptive strike. Eyptian and Isaeli forces confronted each other along the canal zone, with extensive intermittent bombardments between them. In October 1973 Egyptian forces fought a more successful campaign but Israeli forces continue to occupy practically all of the Sinai peninsula. Following extensive negotiations, Israeli forces withdrew from Sinai to the current border. In 1979 Egypt and Israel signed a treaty (Camp David Accords) which has ushered in a new era of peace and cooperation.

Apart from the large Western Desert area, there are mine and UXO contamination problems along the Suez Canal zone, across the Sinai Peninsula and along parts of the Red Sea coast. Most of the remaining contamination is in the Suez Canal zone, and nearby coastal regions. Much of the contamination in the coastal region is in salt lakes, salty mud and swamps which are difficult to work in. The local environment is very unpleasant for manual work with high summer temperatures, high humidity and salty dust on windy days. Other mines lie under deep wind-blown sand as in the Western Desert.

Social Impact

Until recently the only major social impact has been on nomadic (Bedouin) people who are mostly very poor and live on the socio-economic fringe in Egypt. However, the development of the tourism industry in the 1980's and 1990's is bringing new wealth to the upper classes of Egypt. The Mediterranean Sea coast is warm and has a very comfortable year-round climate, particularly in summer. Development is taking place along most of this coastline. This development is creating a new demand for adjacent land for irrigated agriculture and recreation. Because of this, the nomadic Bedouin are being pushed into yet more contaminated land. Therefore, mine clearance has recently become more important for the government.

Similarly, recreation tourism along the Gulf of Suez and Red Sea coasts is creating a demand for improved port facilities and clearance of coastal land.

The Egyptian government, like many poorer countries, has a hard time raising tax revenues and faces strong political pressure to invest in infrastructure for large population centres such as Cairo and Alexandria. At the present time, there seem to be limited prospects for channelling some of the huge financial investments along the coast towards demining projects.

Current Solutions

The Egyptian Army has developed techniques for demining which are different from those used by most humanitarian demining organisations. However, they are fundamentally similar in principle, and are affected by the well known limitations of metal detectors and prodding methods. UXO clearance follows conventional techniques which would be familiar in any other country. The procedures are changed from time to time, and are adapted for local conditions.

Quality assurance has been performed with tanks equipped with American mine rollers. However, this is now considered too dangerous after several large unexploded bombs were found.

Problems with Current Solutions

For an Army which has developed *mine field breeching* methods, the prospect of demining thousands of square kilometres of wind-blown desert and salt marsh is a huge challenge.

The major problem is that the cost required to achieve a 'satisfactory' level of clearance is too great. Appeals to Britain and Italy have yielded little assistance so far. Germany has been more generous: in 1998 the German Government provided about 100 modern detectors (Föster 4400) and offered to try the 'MineBreaker' machine in the Western Desert. The US Government contributed US$500,000 in 1999 for training and some equipment such as mine rollers.

Most mine field problems are seen by the Army engineers in terms of detection. They need better ways to detect and locate mines and UXO in deep sand and mud. Once the ordnance has been located, neutralisation or destruction is well within their capacity. However, lower cost solutions might come from looking at the problem differently. One approach might be to look at alternatives such as processing the soil to remove mines and UXO, using modern sand mining techniques used in many countries.

Western Desert Problems

Each region of Egypt has special technical problems. The principal technical problems in the Western Desert are:

- Wind blown sand burying mines and fragments up to 2 metres deep in places, though mostly less than that.
- High fragment density in many areas.
- Age of mines - up to 60 years.
- Unknown, or partially known location of mine fields.
- Many, large and sometimes unstable UXO's distributed across area, many UXO's considered to be more dangerous than the mines.

Salt Mud Problems

The principal technical problems in the Suez Canal and coastal areas are:

- Mines and UXO lie in grey mud that is either occasionally or daily flooded by salt water. Mines may lie on surface or deep under mud surface.
- The mud is extremely difficult to traverse. Feet either sink right in, or slip sideways.
- High fragment density in many areas.
- Age of mines - up to 45 years.
- Unknown, or partially known location of mine fields.
- Many, large and sometimes unstable UXO's distributed across area, many UXO's considered to be more dangerous than the mines.

Sinai Problems

The principal technical problems in the Sinai Desert are:

- Medium and low metal content mines. Egyptians refer to PMN mine as minimum metal, though it contains much more metal than many other mines.
- Wind blown sand burying mines and fragments up to 2 metres deep in places, though mostly less than that.
- High fragment density in many areas.
- Age of mines - up to 45 years.
- Unknown, or partially known location of mine fields.

Many, large and sometimes unstable UXO's distributed across area, many UXO's considered to be more dangerous than the mines.

Perhaps the most exciting find for deminers in the Jordan valley lies here at Bethany-in-Jordan: it is now recognised as the most likely place for the baptism of Jesus Christ. Deminers found stones and part of a mosaic floor. After the mines were carefully removed, archaeologists moved in and excavated a complex of water treatment facilities, chapels and even a flagstone covering a human head. The site is due to be opened to the public in time for the millenium celebrations. Dr. Mahommad in the photograph is the chief archaeologist responsible for identifying and excavating the site.

Mine and UXO Contamination Problems in Jordan

In terms of the value of the affected land, the most immediate problem for Jordan is the Jordan valley where a large number of mine fields were laid, mostly before and during the Arab-Israeli conflict of 1967. These were prepared along the lower part of the Jordan flood plain, and along the lower East slopes of the valley. The mines were used to strengthen defences along the valley as Jordan was anticipating an Israeli invasion across the Jordan river.

In later years there were periods of artillery bombardment exchanged between Jordanian and Israeli positions across the river. These exchanges have left a large number of UXO among the defensive positions, and shell fragments distributed over some of the mine fields.

There are two major zones: the northern Jordan valley near lake Tiberias (Sea of Gallilee) and southern Jordan valley near Amman and the Dead Sea.

Since the mines were laid there have been flash floods down the sides of the valley and the Jordan river has also flooded several times. Mines have been moved. Mostly, the movement is only a few metres. However, mines have been found floating on the dense salt water of the dead sea, and one swimmer is reported to have lost a hand from a mine.

The next most serious problem lies along the Yarmuk river where there are strong fortifications designed to resist an attack from the north. I met land holders who had land taken from them in order to prepare the defences and lay mine fields, and who now know of mines which have been washed onto their land by floodwaters.

The third area is the Araba valley which extends from the southern end of the Dead Sea in a straight line due south to Aqaba and Eliat at the head of the Red Sea. Mines were laid here by Israeli forces during the 1967 conflict. Until recently, the Jordanian government expected Israel to clear

these mine fields. However, the Army Engineers expect they will have to clear them "sooner or later".

Casualties

The number of casualties is quite small compared with other countries affected by mines. In the last 30 years, about 470 peole have been killed or injured according to military statistics, of whom 280 were military personnel (140 were deminers), and the rest civilians. (Egset and Hammad, 1999). Because there is no formal procedure for medical services to report landmine incidents, the actual figure is probably higher, but less than 900.

Most casualties occur in the Jordan and Yarmuk river valleys. A few occur in the south, but the problem in the Araba valley (Wadi Araba) seems to be declining.

A plaster lined baptism pool, with a column base in the foreground. The location of the column is not yet known.

Jordanian Mine Field Clearance Methods

Minefield clearance methods, for the most part, follow entirely different procedures from those used in other countries. Jordanian deminers enjoy the unique advantage that they laid their own minefields, and most were laid to precise patterns learned from British Army instructors. The minefield locations are accurately known and marked with steel marker posts which remain in the ground. However, they also have a large number of M14 anti-personnel mines which are about the hardest mines to locate because of their tiny metal content and small size.

Not all mine fields follow this pattern, however, Some were laid under fire, and at night, and thus may be poorly marked and recorded. Others (in the Araba valley) were laid by invading forces and their locations are poorly known and most seem to be unmarked.

Clearance starts by locating the steel marker posts. Deminers then clear the central (safe) lane by probing and digging if necessary, locating the larger anti-tank mines. Then the smaller anti-personnel mines are located. Typically 80 - 90% of the mines are located in this way and destroyed by burning out the explosive.

After manual clearance, Aardvark flail machines are used, clearing a strip wider than the original minefield. Each detonation is recorded, adding to the number of mines destroyed. Originally, six Mk 1 Aadvark machines were in use. Two Mk 2 machines were being used, and two Mk 4 machines were expected to be in use. The older Mk 1 machines were being upgraded.

The number of mines originally laid is generally known precisely. Some were accounted for by accidental explosions (wild animals) and these were sometimes recorded by troops watching that sector. However, there are usually still a few mines unaccounted for at this stage.

The next step is to drive bulldozers backwards and forwards across the mine field, again watching to see if any further detonations occur. If mines are still unaccounted for, the top 15 cm of sand is cut away by bulldozers, screened and replaced.

If there are still "too many" missing mines after this step, an equivalent area on the downhill side of the minefield is treated with the Aardvark flail and bulldozers.

The land is then released. According to the military, if there are unaccounted mines, the land remains fenced and signed with danger signs. However, I was shown a letter informing the land holder which only states that "demining operations have been completed". This was in response to a request to certify that the land is free of mines. The land in question is on the slopes of the Jordan valley above the King Abdullah canal, and has deep erosion gullies, with rocks and hard silt soil, and little vegetation to stabilise the soil. I could appreciate that finding all the small M14 anti-personnel mines after 30 years in that terrain would be almost impossible. Mines could easily have been washed into gullies and lie deeply buried under eroded material, or washed downstream.

The difficulty now is that many of the remaining mine fields have mines which are too deeply buried for mechanical clearance, and digging by hand is the only way to ensure clearance.

Jordan Valley Mine fields

The climate in the Jordan valley is oppressively hot and humid, and work is suspended for two months at the height of summer. Temperatures above 35 degrees are normal. High temperatures have affected the plastic materials used in some of the mines making them possibly more dangerous to handle.

Published by JMU Scholarly Commons, 2001

The types of mines where were used are:

- M14 (American) - a small AP mine containing very small metal components which makes it extremely difficult to detect with normal metal detectors, even if it is just below the surface. Newer derectors can detect this mine at depths of 6 - 12 cm.
- M19 (American) - an AT mine using similar fuse mechanism to the M14 and therefore just as difficult to detect.
- Mk 5 (British) - an old AT mine with a metal case which is easy to detect, but can be dangerous to handle when corroded.
- SACI - an older plastic AT mine which comes in several versions. This can be very dangerous when the materials of the mine have decayed.

The next sequence of photographs shows what the Jordanians regard as their major problem. A series of minefields in river flood plains have accumulated silt and sand as a result of floodwaters flowing through surface vegetation which grows because people stay away from the minefields. This accumulation has buried the mines to a depth of 1 metre or more. In this particular example, a team of 20 men have worked for 8 months to clear about 30 metres of minefield (along the centre line), with a width of about 8 metres. If we assume that the cost of deminers is about US$150 per month, with 100% charge for supervision, equipment support, accommodation and other costs, this has cost nearly $50,000. This roughly corresponds to a cost of US$200 per square metre.

Suggestions for Improvements in Both Countries

Current mine and UXO clearance methods are slow and expensive. It is now clear that there will be no short or even medium term improvements in detection technology. However, there are many possibilities for improvement by looking at the problem in different ways. Significant funding support would be needed within military demining organizations in both countries to support innovation and change. Outside agencies could assist in making such funding available.

Mine Detection Dogs

In my opinion, of all the technologies considered, mine detection dogs offer the best chance of significant improvements in clearance production rate and quality level. Because of cultural sensitivities and cost factors, the most attractive options to pursue this are:

- A trial of Afghan or Iraqi mine detection dogs (with handlers) in Jordan, Sinai Desert and Western Desert areas of Egypt. Iraqi handlers would be able to communicate in Arabic. Afghan handlers have more experience and a common religious background. Such a trial should be coordinated with similar trials in Yemen, Lebanon and Jordan where similar problems exist and dogs could make effective contributions.
- Investigate whether sufficient dog capacity exists in the Cairo Police Academy, Egyptian Customs and counter-terrorist organisations to build an indigenous mine detection dog capacity.

Aerial Photography

Although the officers I met claimed they had tried aerial photography, I think that the techniques demonstrated by ITC in the Netherlands should be evaluated. It is likely that the Egyptian air force has the necessary equipment and capability. Aerial photography would show where there is little or no sand cover and clearance teams can work without the need for detection equipment. It is possible that sand cover may change during the year, so repeated photographic surveys may be useful. High precision GPS registration of photographs will be essential as there are no permanent landmarks in most areas.

Special detectors for deeply buried mines

By using a larger diameter coil on a metal detector, the detection depth can be increased almost in proportion to the coil size. Detector manufacturers need to be approached to see if they will provide optional large diameter metal detector coils.

Ground Penetrating Radar (GPR) could be evaluated for special detection problems in deep sand, particularly in the Western Desert of Egypt where mines have metal cases.

It may be possible to use ultrasonic imaging technology to detect the deeply buried mines that are causing problems in wet marshland and mud. Considerable experimentation may be needed. However, these mines are currently very expensive to clear (in terms of time, machinery and manpower) and improving location ability may help to reduce costs.

Slurry Pumping and Water Jets

There is the possibility that water jets and slurry pumping technologies used in modern sand and slurry mining operations in countries such as Malaysia and Australia could be useful for mine and UXO clearance tasks. The cost of treatment is suprisingly low. The cost of moving the soil with this mining method is between US$0-17 and $0-40 per tonne of material removed. Assuming that, on average, about 1 metre of material needs to be removed from the surface layer of the minefield, this works out to a cost range of US$0-35 to US$0-80 per square metre. The cost will depend on many factors, and dealing with surface vegetation will require some ingenuity, but these costs are far less than existing techniques. The major operating cost is electricity to drive the pumping machinery. These figures are based on electricity at US$0-055 per kilowatt hour which is typical for a remote installation.

Long Term Research

In the longer term, careful research is likely to result in large cost savings in the demining program. Apart from slurry and water jet technologies, research into the manipulation of wind for removing sand cover and into risk factors for civilians is likely to substantially reduce operational costs.

Regional Cooperation

Since there are extensive mine and UXO clearance problems in most of the countries in the region, there could be extensive benefits from regional cooperation, especially for countries trying to provide cost-effective assistance. This could best be achieved by being sensitive to the political and cultural differences in the region.

Demining Machinery

The MEO said they were considering the use of demining. Machines such as 'Minebreaker' have been used extensively in Croatia and more recently in Bosnia, but expert users are cautious about recommending them except for vegetation clearance (not a problem in Egypt). Aadvark Flails are being used in Jordan in the final stages of mine clearance to neutralise mines which have not been located by manual deminers. All demining machines have failed to achieve their makers' expectations, except in certain limited circumstances.

The particular problems of demining in Egypt have made me extremely cautious about the use of large machines of this type.

The variable depths of mines under wind blown sand (many areas more than half a metre) make these machines of doubtful effectiveness for mine clearance. They can be expensive to operate (approx US$0-50 per sq metre) with high maintenance costs, particularly if mines and UXO are detonated by the machine. Evidence from other countries shows that the presence of rock or large stones greatly reduces the effectiveness of mechanical clearance.

However, in the long term, using mechanical clearance could be an effective means of *risk reduction* where manual demining (or other methods) cannot be used. However, this can only be effective with careful research and evaluation of the risks, costs to reduce risks, degree of risk reduction actually achieved, and the relative effects of spending funds on other ways to reduce risk to health.

Wind

In dry sandy areas, it may be possible to control sand movement to selectively remove sand cover from contaminated sites over a period of time. This would allow visual inspection and easy removal of mines and UXO. However, research and experimentation is needed to explore these methods.

Avenues for Real Improvement

Most of the engineering staff working on mine and UXO clearance in Jordan and Egypt are not fluent in English, nor are there reference works in Arabic on recent developments in mine and UXO clearance.

The lack of reference material in Arabic seems to be a major impediment towards progress in reducing costs. Further, we have found that translating the reports on which this article is based has not been possible without an intimate understanding of the field.

For this reason, we are in the process of exploring a scholarship scheme that would enable engineers to study part-time for research Masters degree qualifications in engineering. This would build a collection of literature in Arabic, as well as English, on problems and possible solutions. ■

Acknowledgements

The principal support for this visit came from the Egyptian Ministry of Defence and Military Engineering Organisation, and the Royal Jordanian Army Engineers, who contributed the time and enthusiasm of the many dedicated officers responsible for demining in Egypt. Support from the Military Liaison staff at the United States Embassy in Amman also helped.

Financial support for this research is provided by the Night Vision and Electronic Sensors Directorate of the US Army, private donations to the University of Western Australia, and a study leave travel grant from the University of Western Australia. My visit to Egypt could not have been so comprehensive without the support and encouragement of staff at the Australian Embassy, Cairo. Thanks are also due to many other sources who informally contributed background information, and to Dr. Samina Yasmeen for her understanding of the subtleties of Middle Eastern politics.

References

Military Engineering Organization, Egyptian Ministry of Defence, Interviews by author, October 1999.

Royal Jordanian Army Engineers, Interviews by author, October 1999.

Egset, W., and Hammad, S. (1999) Landmine Victims in Jordan: A Needs Assessment Study, Norwegian Peoples Aid, Fafo Institute for Applied Social Science, Norway, ISSN 0804-5135.

Trevelyan, J. P. (2000). Technology Needs for Mine Clearance in Egypt and Jordan. Reports available from the author on request.

**All photos courtesy of the author.*

Contact Information

James Trevelyan
University of Western Australia
35 Stirling Highway
Crawley 6907
Australia
Tel: 61-08-9380-3057
Fax: 61-08-9380-1024
E-mail: jamest@mech.uwd.edu.au

Humanitarian Demining in the Sultanate of Oman

Though Oman has moderate mine contamination, weather conditions have contributed to the difficulty of locating some mines. In January 2001, USCENTCOM implemented a train-the-trainer program, which complemented Oman's 15 year demining effort.

by LTC Steve Soucek and MAJ Darrell Strother

Background

Oman has a low to moderate landmine/unexploded ordnance (UXO) problem. Anti-tank (AT) and anti-personnel (AP) landmines were laid in the Dhofar region between 1964-1975 during an internal struggle with the People's Front for the Liberation of Oman and the Arabian Gulf (PFLOG, later shortened to PFLO, a communist separatist group). Both the Royal Army of Oman (RAO)—with its allies Jordan, Iran, and the United Kingdom—and the PFLO used landmines during the conflict: the RAO to support defensive positions or to interdict the separatists' movements, and the separatists to ambush the RAO and allied units.

Approximately 5000 square kms of the Dhofar district are affected by landmines/UXO left over from the conflict. The RAO and its allies used a wide range of AP landmines (US, German, Israeli, British) to support various defensive positions. According to the RAO, the majority of the mine fields were not mapped or marked, nor cleared at the conclusion of the conflict. The PFLO, supported by Marxist south Yemen and other Soviet bloc countries, used a variety of Eastern Bloc AT and AP landmines to protect their positions and to ambush RAO and allied forces. They too failed to map, mark or clear their mine fields. Heavy seasonal monsoon rains, terrain, and soil conditions have allowed a number of these mines to migrate from their original positions, which further contributes to the difficulty of locating the mines. The RAO has plotted suspected mined areas where known defensive positions were established during the conflict and where incidents occurred in recent years.

The RAO established seven zones of suspected mined areas based on historical records of battlefield areas, unit positions, and landmine incident/accident reports. The map in Figure 1 shows the approximate boundaries of each zone.

Request for Special Assistance

In June 1999, the Sultanate of Oman requested U.S. Government assistance with their 15-year demining effort. By November 1999, the Department of State (DOS) and the Department of Defence (DoD) jointly had led a series of policy and planning visits to Oman that culminated in the Jan 2001 implementation of a U.S. integrated train-the-trainer program for the engineer cadre and mine clearing troops of the Royal Army of Oman (RAO) Sultan's Armed Forces' Engineers (SAF-E). With U.S. assistance, RAO ultimately aims to develop a model Humanitarian Demining (HD) program that combines highly trained mine clearing cadre and troops, mine detecting handlers and dogs, mechanized mine detection and/or clearance equipment, and the latest associated HD technology in a synchronized package.

As a component of the U. S. Central Command (USCENTCOM), U.S. Army Forces Central Command (USARCENT) and U.S. Special Operations Forces trained more than 70 RAO demining and medical personnel in the areas of Mine field Survey, Marking and Detection, Information Management, Mine Awareness, Quality Assurance, and Medical Skills during January-April 2001. At the completion of training, USCENTCOM donated all training detectors, survey, and protective equipment as well as the Information Management and Mine Awareness computer hardware and software to the RAO for their future training programs.

By design, DOS initiated concurrent mine detecting dog (MDD) and handler training in Jan 01. DOS plans to finish the MDD training in Nov 01, and to formally

transfer RAO's five dog MDD force to RAO's newly trained eight man MDD handler detachment. USCENTCOM and USARCENT will conduct periodic assessment visits with the aim of helping ensure Oman has a viable, self-sustaining HD program toward the end of 2003.

The Oman HD program strategy is practical and supportable. RAO is complementing a disciplined, successful organization with enhanced technology, training, additional personnel, and proven international HD techniques, while further enhancing their HD program with USCENTCOM assistance. Oman aims to achieve a goal of 80 percent of all suspected mined areas cleared to United Nations standards within eight years. RAO will continue to cooperate and coordinate on a regular basis with the U.S. Embassy Country Team and USCENTCOM representatives to achieve their goal. Successful RAO demining efforts will also contribute to the Country Team's Mission Performance Plan goal of improving regional and peninsular stability.

Oman continues to contribute significant resources to their HD program. Emphasizing the point made in the FY01 and 02 Country plans, RAO contributed an estimated $1.6 million annually since formation of the mine clearing troop in 1984, and for four of the interim years they doubled their contribution to an estimated $3.2 million. RAO's current contribution is now even greater since they have added command emphasis, increased manpower, new HD kennel and office construction, and a continuous year-round demining operation. The Oman HD strategy is completely consistent with the program goals, and will serve as a model template for Humanitarian Demining and effective U.S. engagement through training assessment and sustainment visits.

Accomplishments

RAO's key HD accomplishments to date include restructuring their Engineer School structure and curriculum to accommodate U.S. HD training, restructuring their Mine Clearing Troop and training cycle to coincide with internationally recognized standards, and creation of the National Mine Action Center (MAC) in Muscat and the Regional Mine Action Center (RMAC) in Salalah. Additionally, in May 01, RAO deployed their newly trained and equipped Mine Clearing Troop to their priority clearance area in the vicinity of Sarfait, and have since found three significant UXO's. RAO MDD training has gone well under the direct oversight of the DOS MDD contractor, RONCO. Additionally DoD, DOS, USARCENT, and the Embassy Country Team have recently concluded a mechanical mine clearing survey in the Habrut area of Dhofar. As there is likely a very low density of mines and UXO's remaining in the affected areas, the most important future progress metrics will probably address area clearance, the amount of land made available for productive use, km of road cleared, and the number of mine fields identified, mapped, and marked.

Program Status and Conclusion

Mine clearing operations are ongoing, and RAO is still refining their organizational structure. The structure essentially evolved from a unit capable of conducting combat engineering clearing procedures only, comprised of 40 deminers and 20 support troops, to that of a complex, multifunctional HD unit. RAO now has 70 soldiers dedicated to accomplishing all HD functions, a core of trained demining cadre, and 12 medical personnel that are trained to handle blast injuries typically caused by UXO and mine incidents (medics will deploy with every demining troop rotation cycle). The demining sections will serve two-year rotations, and the information management, mine awareness, and dog handling personnel volunteered for 6-year service periods prior to starting their specialized training. Future DoD training will result from operational demining training deficiencies identified during USCENTCOM periodic training assessment visits. ■

**All photos courtesy of CENTCOM*

Biographies

LTC Steve Soucek is the Chief of Army Programs, OMC Oman.

MAJ Darrell Strother is Chief, Humanitarian Demining ARCENT/Engineers. He is the leader of USCENTCOM's HD training program to Oman.

Contact Information

Steve Soucek
Tel: 968-698-989, ext 440
E-mail: ssoucek@san.osd.mil

Darrell Strother
Tel: 404-464-3534
E-mail: darrell.strother
@arcent.army.mil

■ (L-R) Clearance training. Mine detector training. Mine dog team.

Landmines in Lebanon:
An Historic Overview and the Current Situation

Current estimates approximate the number of landmines in Lebanon to be about 150,000. Funding and assitance from various organizations and goverments are helping the country cope with its landmine situation and the resulting problems.

■ There are many areas that still need surveying in Lebanon.

by Harald A. Wie, *Mine Action Advisor, UNDP/ERD Lebanon*

Background[1]

It is estimated that 150,000 landmines of all categories are currently in Lebanon. The exact location of most of these weapons remains unknown. In addition, a large number of UXO continues to pose a serious threat to local populations, particularly in the south.

Following the end of the war, landmines became one of the most serious problems facing civilians as they began to reclaim their homes and undertake the post-war reconstruction process. The problem was particularly acute in the capital of Beirut. In an attempt to effectively address the situation, engineering units of the Lebanese Army subsequently conducted reconnaissance and assessment missions to gather detailed information about the mine fields and suspected areas in order to commence mine clearance operations.

Recognizing the serious humanitarian nature of the problem and with a determination to further strengthen their mine action capacity, the Lebanese authorities have asked the United Nations for support.

UNIFIL

Since 1978, the United Nations Interim Force in Lebanon (UNIFIL) has maintained a presence of over 4,500 troops in the southern region of the country whose mandate is to confirm the withdrawal of Israeli forces and to restore international peace and security. UNIFIL is also

charged with the responsibility of assisting the government of Lebanon in ensuring the return of its effective authority in the southern region (SC RES 425). On 31 July 2001, the Security Council extended its mandate until 31 January 2002 (SC RES 1365).

The Lebanese Army

According to military sources, landmines were emplaced in Lebanon from 1975 to 1990. The majority of the parties who participated in the war used landmines to consolidate their defensive positions along the demarcation lines, which have moved many times. Most of these landmines were deployed indiscriminately and hastily without any records. Only some of the mine fields and suspected areas are fenced and marked.

Since 1990, mine clearance, addressing humanitarian and rehabilitation needs, has been conducted successfully by the Engineer Regiment of the Lebanese Army, which is well structured to implement these tasks. According to a briefing paper that was made available to the mission team 743 mine fields with approximately 3,183 AT mines and 24,271 AP mines were counted in Lebanese territory, except the occupied areas, as of December 1998. Of these, 471 mine fields and suspected areas were treated, and almost 2,383 AT mines and 23,693 AP mines and a large number of UXO were removed between 13 October 1990 and 1 December 1998 by the Engineer Regiment. According to sources, 208 treated/cleared mine fields are still suspected of being unsafe. In addition, an estimated 30,000 items of unexploded ordnance are scattered in the Lebanese Territories occupied by Israel.

The AP mines laid by the Lebanese Army and/or militias and non-Lebanese parties are of Russian, Belgian, France, Israeli, Italian, Chinese, U.S. and Swedish origin. Some of the mines are of a low-metal variety that makes them difficult to detect, and they have an almost unlimited life span. The AT mines are mostly of Russian, Italian, Yugoslavian and U.S. origin.

According to information provided to the team by the commander of the engineer regiment, the total number of mine fields and suspected areas which were untreated was 272, as of 1 December 1998. They know according to the records that there are 24 AT and 2881 AP mines in the fields. But, there are numerous contaminated areas throughout the country that remain unknown and require survey.

Although most of the mined areas have been cleared by the military, the actual status of these clearing operations remains unknown. As a result, mines and UXO are often found by farmers, who usually inform the local NGOs or authorities. The

army disposes of mines by detonating them in place.

Victims Assistance

The Ministry of Social Affairs with the United Nation Population Fund (UNPF) has registered handicapped persons by type and cause in Lebanon in 1996. Cause is subdivided into five categories: 1) accident, 2) since birth, 3) illness, 4) war and 5) others. Mine and UXO accidents are included in the 'war' category, which includes 11.9 percent (3,561 persons) of the national total of 29,866 handicapped persons. This of course does not include those *killed* by mines or UXO.[1]

In 1996, the World Rehabilitation Fund (WRF) and the Ministry of Health with several community based organizations (CBOs) undertook a survey of the Lebanese landmine problem. Their findings concluded that in 52 out of 65 villages, the civilian accidents from 1975 to 1996 resulted in 212 injuries and 189 deaths out of a total population of 200,000. The details of this study show that the majority of the accidents occurred during specific events such as Israel's 1982 invasion of Lebanon and the 1991 return of previously displaced civilians to the area.

Detection and Clearance

Following the end of the conflict in 1990, the Lebanese armed forces began to address the threat posed by mines. According to the military, between 1990 and 1998 the majority of known and identified mine fields has been cleared. The Engineering Regiment consists of four demining companies with a total of 240 deminers. The mine clearance operation, addressing the humanitarian and rehabilitation needs, has been successfully conducted. Their work is often reactive rather than proactive because they are responsible for all countrywide mine clearance/UXO operations. Quite frequently, their work is interrupted, delayed or stopped altogether because of emergency requests from downtown Beirut or other areas.

The clearance operations were mostly conducted by manual techniques (prodding) rather then with technical means like mine detectors. Deminers are reluctant to use them since the majority of the AP mines tend to be plastic, and the land is saturated with metallic fragments and shrapnel. Because mine fields are often located away from roads in areas inaccessible to mechanical devices, it is impossible to use rollers. Progress is slow, though there is a need to operate with great speed and effectiveness. To strengthen local capacities, the U.S. government has provided technical assistance towards developing and upgrading human and technical demining capabilities.

To economize future activity, co-ordination started among all concerned on developing an operational plan of action at the national level. It was launched by the Lebanese Army, governmental agencies, NGOs and CBOs within the framework of the National Demining Office (NDO). The NDO was created in accordance with Council of Ministers' resolution No. 29 of 15 April 1998. The main goal of the NDO is to clear the country of landmines and UXOs, and increase the Lebanese population's awareness of the problem, and prevent further injury through mine awareness programs and campaigns.

Mine clearance priorities are established by the NDO and presented to the Chief of Operations for approval. The requirements for mine clearance are submitted to the NDO by ministries and other sources in an ad-hoc manner.

Mine Awareness

Mine awareness education is being undertaken within the NDO and is implemented by the Lebanese Army, NGOs and CBOs. The WRF provides the financial support and technical assistance for these activities. No attempt by this assessment team has been made to evaluate either current mine awareness programs or the various communication strategies to disseminate messages.

Currently, mine awareness programs are being undertaken in targeted areas by the Lebanese Army and the NGO community in coordination with local CBOs. A Technical Committee on Mine Awareness has been established in partnership involving the WRF, the Landmine Resource Centre and the NGO community.

Advocacy and International Conventions

Although the Lebanese government appears to be

sympathetic towards the international ban on antipersonnel landmines, due to the ongoing conflict, it is currently unwilling to sign the Ottawa Convention and the amended Protocol II of the Convention on Certain Conventional Weapons (CCW). The government of Lebanon has indicated its intention to sign both Landmine Conventions as soon as GA Resolution 425 is successfully implemented and the government of Israel signs the same Conventions.

The Situation after the Withdrawl of the Israeli Defence Forces (IDF)

In May 2000, the IDF withdrew from South Lebanon. Since then, it has handed over maps and sketches to UNIFIL, which has transferred the maps to the government of Lebanon. The maps contain an overview and information about 108 border mine fields, 15 inland mine fields and 288 booby traps. The coverage and the accuracy of these maps are still controversial.

Scope of the Problem

While information on the landmine and UXO problem in South Lebanon still remains incomplete, it is anticipated that an estimated 150,000 landmines are spread across the country.

Impact of the Problem

Mines and UXO have so far caused a relatively low number of injuries. This is likely to change with the anticipated return of displaced populations, who are unaware of the threat and of the location of dangerous areas. The problem will complicate the return of displaced persons and may hinder long-term reconstruction and socio-economic development of the region. In the 14 months following the withdrawal, there have been 139 civilian mine casualties (15 fatalities[2]). The Lebanese Army has a landmine database to record mine areas in Lebanon and completion reports—though details are still not known to the public.

National Capacity and Coordination

Mandate

The responsibility for coordinating mine action activities in Lebanon rests with the NDO, established by decree in 1998 as part of the Army and fully staffed by military officers. The NDO has interacted with all concerned partners, including the Lebanese Red Cross and concerned NGOs, such as the Landmine Resources Center (LMRC) at Balamand University. At the International High Level Workshop on Mine Action in May, the NDO presented its National Strategic Mine Action Plan for Lebanon 2001—2006.

Mine Awareness

National Mine Awareness activities have been undertaken by NDO in close cooperation with UNICEF, ICRC, LRC, WRF and LMRC funded by USAID.

Mine Marking and Clearance

The Lebanese Army reportedly has about 120 deminers operating throughout Lebanon.

Mine Victims Assistance

South Lebanon benefits from a good network of first aid posts managed by the Lebanese Red Cross and good hospitals. However, pre-hospital care is one of the parts of the health care system in Lebanon that needs to be strengthened.

UN System Response: Improving National Capacity and Coordination

Mandate

In 1999 United Nations Mine Action (UNMAS) conducted a Mine Action Assessment mission to Lebanon, and in addition UNMAS followed up with an initial mine action assessment mission to south Lebanon over the period 26 March – 1 June 2000. This mission confirmed the findings done by the Joint Assessment Mission, and it also included a recommendation to establish a coordination mechanism within UNIFIL.

Since these missions, the UNDP country office has been involved with follow-up activities to strengthen national capacity on a limited basis in its technical assistance capacity. A UN Mine Action Advisor is currently assisting the NDO to develop a National Humanitarian Mine Action Plan.

In February 2001, a joint UNMAS and UNDP/ERD[3] mission visited Lebanon in order to assess how the UN system could assist the government in order to accelerate mine action activities beginning with the south and how to strengthen the long term national capacity. The mission produced an "Outline Strategy for the Assistance to Mine Action in Lebanon."

The aim of this paper is to provide an outline strategy for United Nations assistance to mine action in Lebanon. Clarity of purpose regarding development assistance, as well as accountability and transparency in its application, are essential to successful international cooperation. The timely and efficient use of external assistance resources will help to accelerate the important work already begun by the Government of Lebanon through the NDO in addressing the impact of landmines and unexploded ordnance on the reconstruction and development of Lebanon. The objectives of the strategy are:

- To ensure the acceleration of mine action operations, particularly in the south.
- To assist the government of Lebanon in strengthening its capacity in all areas of mine action.

Based on Inter-Agency Mission Report and the UN Outline Strategy UNDP, in cooperation with the National Demining Office, has developed a Capacity Building Project Document for the support of the NDO.

Last May (one year after the withdrawal of the Israeli Defence Forces) the government of Lebanon in cooperation with UNDP/PRSG's Office, sponsored by the Italian Government, arranged an "International High Level Workshop on Mine Action in Lebanon" in Beirut/Nabathiet. At this workshop the Personal Representative for the Secretary General (PRSG) announced the establishment of an "International Support Group" (ISG) for Mine Action in Lebanon. At the workshop, the UAE announced its pledge of $50 million (U.S.) for demining operations in South Lebanon. Both initiatives are currently closely followed up by the PRSG's Office and UNDP.

Ongoing and Future Projects

Ongoing Projects

At the end of February 2001 the U.S. started up a Mine Dog Detection (MDD) training program in partnership with the NDO and will provide the Lebanese Armed Forces with a MDD capacity consisting of 18 dogs during the next 12 months .

Mines Advisory Group (MAG), UK in partnership with the NDO, has trained 15 civilian deminers through a six-month mine clearance project in Nabatieh funded by ECHO. This project is likely to be extended for 12 more months with funds from the EU. The Italian NGO Asso Bon has just finalized a one-month clearance project.

An Information Management System for Mine Action (IMSMA) is currently operational within UNIFIL through a Mine Action Coordination Cell (MACC) provided by UNMAS. Version 2 of the IMSMA will soon be established at the NDO office in Beirut.

Future Projects

A National (Socio-Economic) Impact Survey has been designed and will soon be conducted by the NDO, and funded by the EU.

MAG, in partnership with the NDO and with funding from the UN Voluntary Trust Fund and the Norwegian government, will start a level Two Technical Survey during the next couple of months.

Other UN Assistance to National and Local Authorities

Based on the recommendation in the UNMAS's reports, the following initiatives have been taken during June 2000 and June 2001. Ref. UN Portfolio of Mine-related projects May 2001.

- UNDP contracted a Mine Action Advisor (MAA) in June 2000 to work on a capacity building project for the NDO. The MAA's current contract with UNDP/ERD expires on February 2002.
- The UNOPS/UNMAS established the MACC/UNIFIL July 2000—Dec. 2001.
- The NDO had one senior officer at the senior Management Training Course at Cranfield University in August/September 2000.
- Invitation of the Director of the NDO to the UNOPS Management training NY, Oct. 2000.
- The Director of the NDO was invited to UNMAS fourth Meeting of Mine Action Programme Directors and Advisors at the GICHD International Workshop in February 2001.
- The Director of the NDO was invited to the Senior Mine Action Manager course at Cranfield University in August 2001.
- A study tour to take the Director of the NDO and one representative from the Ministry of Foreign Affairs to visit countries that are in the same or similar situation, has been funded by the Norwegian government, and this project will be conducted later in 2001.

Information Management

Invitation for training on IMSMA in Geneva in September 2000. The NDO and the Landmine Resource Center participated.

Quality Control, Training and Standards

Through the Ministry of Defence, the NDO and the Lebanese Army had four participants at the IMAS training in Beinuron 3–4 July 2001.

Resource Mobilization

Two donor meetings were held in 2000. The first was an UN/Donor meeting in July with a field trip to south Lebanon that was conducted by UNDP in cooperation with the NDO. The second meeting was conducted in November, but unfortunately the NDO could not attend.

In September, a NGO conference, funded by the Italian Government, took place in Beirut, and one of the issues was Mine Action. The NDO participated and made a presentation of its National Mine Action Plan.

On May 21—22 an International High Level Workshop for demining Lebanon starting with the South was conducted in Beirut with a field trip to Nabathiet on the second day to see demonstrations of various demining techniques and tools. The Italian Government also funded this workshop.

Advocacy

The government of Lebanon was invited to the Second Meeting of States Parties, in Geneva, in September 2000.

The Government of Lebanon was invited to the third Meeting of States Parties, in September 2001.

Current Situation

The United Arab Emirates (UAE) pledged $50 million (U.S.) for demining operations in south Lebanon at the International High Level Workshop (IHLW) in May. A Memorandum of Understanding (MoU) between the government of Lebanon (GoL) and the UAE is currently in progress.

At the IHLW, the PRSG announced the establishment of an International Support Group (ISG) for Demining in Lebanon was made by the PRSG. The practical arrangements to establish the ISG are in progress.

UNDP, in cooperation with the NDO, has designed a Pro Doc for capacity building (CB) of the NDO. The Pro Doc has been verbally introduced to the Minister of Defense; however, it is currently with the Director of the NDO for final consideration.

UNDP, through advocacy efforts, has made a sound foundation for a future cooperation not only with the NDO but also at the Minister of Defense level as well as with the Lebanese Army.

The donor community in Lebanon is still eager to assist the GoL to solve the mine problem. The government of Lebanon, however, must acknowledge the ownership to mine action by providing the necessary mechanisms with the international community, to provide transparency, accountability and efficiency. ■

The National Demining office determines priority areas.

References

- UNMAS Joint Mine Action Assessment Mission, 1999.
- UN Portfolio of Mine-Related Projects, April 2001.
- The Outline Strategy for UN Assistance to Mine Action in Lebanon, May 2001.
- UNDP Project Document for the Support of the National Demining Office, June 2001.
- Website : www.undp.org.lb

1) Lebanon Assessment Mission Report, 1999
2) Source: Landmine Resource Center, July 2001
3) Emergency Response Division

**All photos courtesy of Mr. Kerri Rutu, Operation Officer at the UN Mine Action Coordination Center*

Contact Information

Harald A. Wie
Mine Action Advisor
UNDP
United Nations House
P.O. Box 11-3216
Riad El-Solh Square
Beirut, Lebanon
Tel: 961 1 981 301, Ext: 1721
E-mail: harald.wie@undp.org.lb

Humanitarian Demining in Egypt: A Half-Century Struggle

Egypt has made great strides in its humanitarian demining efforts. However, recent funding shortages have decreased Egypt's ability to continue its HD programs.

by Timothy G. Kennedy, *UXB International, Inc.*

Summary

Over the years and with limited resources, Egypt has demonstrated a strong commitment to eradicate the landmine threat through its dedicated Army Corps of Engineers demining campaign. Since 1948, with limited financing and direction, they report clearing approximately 31 percent of the total mined areas and 51 percent of the mines or UXO. These clearance operations have been costly—Egypt expended over $91 million (U.S) in national funds and lost over 200 deminers. Competing priorities and dwindling financial resources imposed a halt to active HD operations in 1998. Egypt requested U.S. government HD assistance, and the U.S. Central Command developed a support strategy that addressed Egypt's training requirements while recognizing and complementing the huge HD efforts made by its Corps of Engineers and several non-governmental agencies. Two mutual Egypt-U.S. goals are to help Egypt integrate its HD functions into a civilian-led national mine action center and to ensure that its survey and clearance methods comply with internationally recognized standards.

Egyptian Landmine Problem

As a result of combat operations during World War II and between Israel and Egypt on four occasions between 1948 and 1973, lands within Egypt reportedly contain 21—23 million landmines and UXO. This problem most significantly affects locations in the Western Desert region, the Sinai Peninsula, and in the vicinity of the Suez Canal and Red Sea coast. The most seriously affected areas within the country are sparsely populated, but current national development plans require large-scale redistribution of the growing population and infrastructure to locations in proximity to a known or suspected mine threat. This will increase the risk of casualties—estimated at 8,313 (7,617 injured, 696 killed)—both to the local population and to national and international tourists attracted to the new developments and population centers.

Mines found in these regions include old, high-metal content WWII mines in the west and modern, low-metal content mines in the east, as well as massive quantities of UXO in all the regions. Each area presents unique detection and clearance problems including: alluvial or tidal flooding and mud, shifting sands, poor or missing mine field records, high metal fragment density rates, vast areas with widely dispersed mines or UXO, and aging/unstable mines or UXO. Additional obstacles to an effective Egyptian mine action program are funding shortfalls, inconsistent international support, disparate types

of donated equipment, a slow political process, vague organizational structure or hierarchy, and the lack of a full-time national-level Mine Action Center (MAC) to administer all facets of the demining program.

History of Humanitarian Demining in Egypt

As the most successful component of the Egyptian HD effort, the Army Corp of Engineers is tasked with the survey and clearance operations. This military-led effort, with clearly stated goals and objectives, has returned over 122,150 hectares of land for productive use by local inhabitants. Since 1948, with limited financing and direction, they have reportedly cleared approximately 31 percent of the total mined areas and 51 percent of the mines or UXO. Although successful, the clearance operations have proven costly. Egypt expended over $91 million in national funds and lost over 200 deminers in its efforts to rid the nation of these devastating remnants of war. Egyptian personnel involved in HD would benefit from training that meets current international standards. Mine field survey and marking, in preparation for clearance operations, are two specific training requirements that, if addressed and applied, would pay huge dividends by preventing casualties among the demining teams.

Egypt's HD capability, by the admission of its own government, is not capable of solving the entire landmine problem it faces, particularly within the Western Desert area, due to the magnitude and scale of the suspected and known mine-affected lands. Egypt requires modern survey and clearance technologies and is looking to enhance its HD capacity with the assistance of the international community. Compared to their clearance and survey capabilities, the mine awareness (MA), information management (IM), quality assurance (QA) and victim assistance (VA) aspects of the Egyptian mine action concept are less well developed, which also contributes to their high number of casualties.

In late 1997, the GOE requested HD assistance from the United States government (USG), and in mid-1998 the USG Interagency Working Group (IWG) for Demining approved HD support for Egypt. The Department of Defense (DoD), through US Central Command (USCENTCOM), was tasked to develop a support strategy that addressed Egypt's training requirements.

USCENTCOM and Egyptian Plan

In October 1999, representatives from the US Government (USG) met with Egyptian government officials, emphasizing the need to establish a civilian-led demining organization. That visit, coupled with a United Nations Mine Action Service (UNMAS) visit in February 2000, successfully gained Egyptian support to reorganize its HD organizational structure. Although the Egyptians established a civilian-led organization, they have not formed a permanent staff or mine action office with clearly delineated roles, responsibilities, objectives and goals. One of their declared goals is to tie HD activities directly to economic development plans.

Forming a Civilian Organization

On April 10, 2000, the Egyptian Prime Minister issued Decree Number 750 for the Year 2000. It outlines a civilian management structure for the coordination of a national mine action plan that supports development programs. Under the decree, the GOE established a national demining "Technical Secretariat," headed by the Minister of Planning and State for International Cooperation (Minister Ahmed el Darsh). The Secretariat includes membership from several ministries, which meet on an ad-hoc basis to implement mine action policy and strategy through five sub-committees: Planning, Legal Affairs, Finance (International Donors), Awareness/Victim Assistance and Technical. The intent for the proposed organization is to encourage inter-ministerial cooperation and leverage international donor support.

However, there still remains a need for the enhancement of this coordinating body to ensure that it uses an integrated approach that considers all aspects of mine action including surveying, marking, clearance, quality assurance, mine awareness, information management and victim assistance activities. Integration should take place within a comprehensive and effective framework under the auspices of a

permanent national mine action center. International support for the development and enhancement of such institutions and activities within such a framework is recommended, particularly with the assistance of United Nations bodies and coordinating mechanisms. Additionally, the relationship between the new civilian organization and the military, which conducts the actual mine clearance operations, is vague and not fully developed.

Identifying Requirements

In June 2000, representatives from the US Embassy, US Agency for International Development (USAID), USCENTCOM, and US Army Central Command (USARCENT) met with officials from the Egyptian Technical Secretariat, Ministry of Defense (MOD) Engineering Department, and the United Nations Development Program (UNDP) to outline potential USG support. During the discussions, Egyptian officials identified the following support requirements:

- Develop a comprehensive demining strategy that supports national development programs and fosters partnerships with international donors;
- Establish a UNDP-sponsored trust fund to sustain long-term mine action initiatives;
- Formalize the National Demining Organization (NDO) by defining form, function and duties;
- Assist the Ministry of Defense (MOD) to establish a National Mine Action Center and Regional Mine Action Centers that can implement national demining policy;
- Provide modern technical assistance, training, and equipment to enhance demining capabilities that meet or exceed internationally recognized standards;
- Provide a capability for wide-area detection of mine fields to assist in area reduction; and
- Provide an automated Geographic Information System (GIS) to archive mine field data.

Addressing Requirements

In March 2001, USARCENT led a training site survey, with representatives from the host nation (HN), USCENTCOM and the US Embassy Country Team, to finalize detailed financial, logistical, curricular, facility, and personnel requirements to begin addressing the Egyptian requirements. A USCENTCOM train-the-trainer program consisting of Mine Awareness, Information Management with GIS capability, HD-specific staff management, advanced UXO identification and disposal techniques and inter-agency liaison training was planned and completed for 42 Egyptian Corps of Engineer students during fiscal year (FY) 2001. Mine survey, marking, clearance, and quality assurance training to international standards is planned for an additional 100 students during FY 2002. U.S. trainers will provide instruction to 25 MoD students who will then form a cadre to train 75 additional MoD students.

From June to August 2001, the ARCENT-led training team consisting of members from the 96th Civil Affairs Battalion (CAB), 8th Psychological Operations Group (POG), and the 52nd Explosive Ordnance Disposal (EOD) Group presented the following curriculum to 42 Egyptian Corps of Engineer students:

8th POG instructed mine awareness to 15 Egyptian MoD students:

- Development of a National Mine Awareness Plan;
- Formation of national, regional and local mine action centers/ programs;
- Self sustaining programs with local involvement / ownership;
- Product development based on the Egyptian culture;
- Products that explain what to do if a landmine or UXO is found;
- Hands-on development of products for schools, local villages, and hospitals;
- Mine and UXO recognition boards; and
- Dissemination techniques: Radio, TV, Press, Posters.

52nd EOD instructed Advanced UXO Identification and Destruction Techniques to 12 Egyptian MoD students:

- Explosive safety;

- Demolition safety, ammunition safety;
- Proper disposal techniques;
- Protective works;
- UXO identification and explosive ordnance recognition;
- UXO marking;
- Identify current organizational EOD expertise or training and discuss alternatives;
- Discuss and identify personnel safety equipment used during operations;
- Determine current methods of identifying, recovering and disposing of UXO; and
- Introduce the ORDATA II mine and UXO identification software.

96th CAB instructed Survey and Information Management to 15 Egyptian MoD students:

- Knowledge of UN Survey Level 1, 2 and 3 reports;
- Tracking of mine fields and their status;
- Use of GPS for survey and marking mine fields;
- Use of the Demining Information Management System (DIMS);
- Use of ArcView Geographic Information System (GIS) software; and
- Awareness of historical research techniques to accurately locate mines (especially those laid during WWII).

Although members from the Egyptian military and the Technical Secretariat have received internationally recognized training on the UN Information Management System for Mine Action (IMSMA) in Geneva, the Egyptian Army Corps of Engineers specifically requested the DIMS training for comparison purposes. DIMS is a Computing Technologies, Inc. proprietary software program, developed for USCENTCOM and written in Arabic, that archives data from UN Survey Level 1, 2, and 3 forms. Like IMSMA, DIMS combines a relational database (Microsoft Access) with a geographical information system (ArcView) and mirrors its report generating and geographical display capabilities.

Training by 5th SFG (A) planned for April—May FY 2002 includes:

- Mine Survey, Marking, Detection, and Disposal; 25 then 75 Egyptian MoD students;
- Develop Standard Operating Procedures (SOPs) IAW international HD standards;
- Marking mine fields;
- Investigate marking techniques other than barbwire;
- Site and route markings;
- Protective equipment, clothing, and training;
- Detection equipment and training;
- False alarms;
- Quality assurance equipment and training;
- Develop a refresher-training program; and
- Develop a Quality Assurance Program.

Enhancing Future Developments

The pressure exerted by an expanding population base and the need for additional industrial, agricultural and tourism lands will eventually force the reclamation of mine/UXO-contaminated areas, although that imperative is not yet critical. Egypt's competing priorities and dwindling financial resources dictated a halt to active HD operations at the end of 1998. While Egypt has made significant progress, it still should continue the development and, more importantly, the implementation of a national mine action organization that makes all the decisions for their HD effort. Forming the Technical Secretariat was a good first step, but they should continue to solicit support and provide the resources to permanently staff that organization while fully integrating the military arm of their mine action program with the civilian apparatus. Full-time military liaison officers could be integrated with the established sub-committees into a national mine action center to provide the technical expertise and detailed planning required to set realistic priorities that support national developmental goals. Regional mine action centers for the Eastern and Western Desert areas could be formed using the current military organizational pattern as a model to address regional issues and provide local program oversight. A national mine action training center staffed by the military should be formed to provide the trained personnel—both military and civilian—to fill mine action centers at all levels. And lastly, the decision-making process for expediting policy changes and aggressively pursuing donor opportunities should be streamlined and consolidated under one nationally recognized authority.■

Biography

Mr. Kennedy is a project manager with UXB International, Inc., currently supporting the U.S. Central Command as the HD desk officer for Egypt, Jordan and Yemen. A 25-year Army veteran, he served 22 years in Special Forces operational units, earning an MA in Education from Campbell University.

Contact Information

Timothy Kennedy
UXB International
(813) 827-4027
Fax: (813) 827-2303
kennedtg@centcom.mil

■ Information management training.

Published by JMU Scholarly Commons, 2001

The Jordanian Humanitarian Demining Program:

A model of optimism and persistence

U.S. Central Command approached the Jordanian humanitarian assignment, as it had in previous HD operations, from a holistic management perspective.

by Major José Saucedo, *US Army Central Command*

Introduction

Detecting and removing over 300,000 estimated mines in Jordan's 509 mine fields is a huge but not insurmountable problem. The deliberate clearing process requires courageous patience, a demonstrated quality of Jordan's highly qualified engineer officers and soldiers. Trained and experienced deminers, outfitted with state-of-the-art protective equipment and using internationally recognized demining techniques and methodologies, form the base of the Royal Corps of Engineers Humanitarian Demining (HD) attack plan. Though many mines are unaccounted for due to erosion, flooding, and accidental detonation, Royal Corps of Engineer HD soldiers have an established perseverance that will prevail.

Historical Perspective

Jordan's mine field problem is a result of Arab-Israeli conflicts between the 1950's and 1970's and the mine field borders are generally confined to a common border with Israel and Syria. The agriculturally rich Jordan River Valley is deprived of production and travel due to Jordanian and Israeli mine fields. Thus, the Hashemite Kingdom's first mine field clearance priority is the Jordan River Valley. These mine fields are accurately known and marked, albeit, as Brigadier General Naser Majali, Commander, Royal Corps of Engineers relates, some were laid during darkness and under fire; however, most mines were laid in precise patterns in accor-dance with British mine field standards (Figure 2, Mine field Layout). Steel marker posts and barbed wire surround all mine fields but shifting soils have covered several posts rendering the mine field markers difficult to locate and recognize. However, military intelligence units know where all mine fields are located, and remarkably, can identify them by their name and location.

Standard mine field patterns used in Jordan, adapted from British Army. Each anti-tank mine (square) is protected by three small anti-personnel mines (typically M14's). The distances are indicative and may vary according to the mines used, but were accurately maintained during mine laying. This means that any mine that is still in its original position can be found quite easily.

Brigadier Majali's goal was to rid the Jordan Valley of landmines by the year 2000. Perhaps he was echoing a sentiment resulting from King Hussein's meeting with Cardinal Roger Etchegaray, President of the Papal Council for Justice and Peace at the Vatican in June 1998, where discussions focused on millennium celebrations to mark the anniversary of the birth of Jesus Christ.

Queen Noor may also have influenced his optimistic goal when she revealed her sentiments in a July 1998 speech at the 1st Middle East Conference on Landmines Injury & Rehabilitation. She stated, "A few years ago, when I planned to visit near this newly rediscovered site, where John the Baptist preached and baptized, I was told that I would have to walk only on restricted pathways that had been cleared; the army had not yet completed demining the surrounding region's stark but beautiful wilderness. I was struck by the irony of this in one of the world's most spiritually significant landscapes, where prophets like Moses, and companions of the prophet Mohammed such as Abu 'Ubeida bin Al-Jarrah preached."

Brigadier Majali's comment rings true but hindsight suggests that the timeline was too ambitious. The

Jordan River Valley is still littered with mine fields and Engineer soldiers continue demining in addition to conducting actual vertical and horizontal construction across the kingdom and participating in UN Peacekeeping missions. Equipment continually requires replacement for practical and safety purposes as it ages.

Deminers have been conducting clearance operations using at least 4 different detector types and probes to accomplish their task with 95-100 per cent clearance rate accuracy, but the process is laborious, expensive, and dangerous. However, according to Brigadier Majali, to clear mines that might have been swept away due to floods or other reasons, deminers use mine sweepers to detonate missed mines. The minesweeper Brigadier Majali generally employs is the Aardvark MK III flail. The valley's intense and sometimes suffocating heat and the stress associated with demining limit the deminer's ability to work long hours. Large shrubs and bushes also hamper the work and make deliberate clearing more time consuming. Deminers are assigned to either of five active demining companies and reside in the Jordan River Valley under the command of a Provisional Demining Battalion.

U.S. Aid

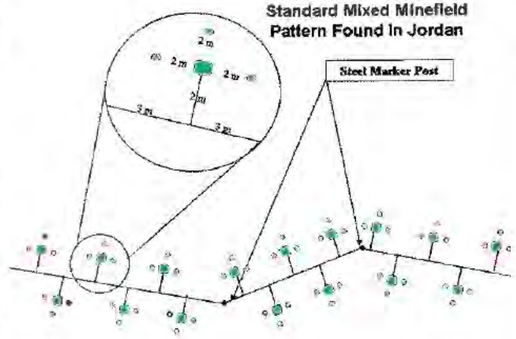
In 1998 the United States government responded to Jordan's request for assistance by tasking the U.S. Central Command to provide training and equipment in all aspects of HD: information management processes and technology, survey and clearance technology, mine awareness, medical training, and victim assistance. U.S. Central Command approached the Jordanian humanitarian assignment, as it had in previous HD operations, from a holistic management perspective. The Command's HD team first developed a multi-year strategy (country plan), in coordination with Jordan, the U.S. Embassy, the Department of State, other Department of Defense agencies, and the Command's implementing component, the Third U.S. Army. The country plan addressed a requirement determ-ination site survey in Jordan and the train-the-trainer program, through refresher training and sustainment, among other planning consid-erations. The plan envisioned a dual phase program: Introduce International Standards and Conduct Train-the-Trainer training at Engineer Battalions, October–December 1999, and 2) help establish a Humanitarian Demining Training and Doctrinal Center, June–August 2000.

Phase I

Introduce International Stand-ards and Conduct Train-the-Trainer training at Engineer Battalions, October–December 1999 U.S. Army Forces, Central Command (ARCENT or Third U.S. Army) led the HD training operation during a seven-week period at the Jordanian Armed Forces (JAF) Royal Corps of Engineers facilities and the 4th and 12th Engineer Battalions. Twenty-seven U.S. trainers and support personnel representing the Third U.S. Army, 5th Special Forces Group (A), 4th Psychological Operations (PSYOP) Group (A), 96th Civil Affairs Battalion (A) and 52nd Ordnance Group (EOD) formed the train-the-trainer team designed to teach the four courses that form a well rounded HD Program: Survey, Marking, Detection and Clearance; Mine Awareness; Information Management; and EOD. This composite team trained together at the Humanitarian Demining Training Course (HDTC), Fort Leonard Wood, which trains HD to international standards and specifically addressed the Jordanian mine field situation. Selected Special Forces (SF) medics attended the Operational and Emergency Medical Skills Course, Casualty Care Research Center, Bethesda, Maryland.

The well led and prepared team, instructional and training materials in hand, arrived in Jordan and introduced new protective equipment and mine clearance technology, established reliable quality assurance procedures, expanded on knowledge of UXO and safe handling procedures, developed durable and maintainable mine field marking techniques, and provided optional mine clearance methods in accordance with International Standards for Human-

Figure 2
Standard Mixed Minefield Pattern Found in Jordan



itarian Mine Clearance Operations. The team also established an effective mine awareness and information management capability to comple-ment and facilitate Jordan's demining operations. The specific training requirements, equipment and supplies required, and overall concept of the operations were identified during the Pre-Deployment Site Survey (PDSS) conducted three months prior to training start-up.

The training was the first of its kind in Jordan and was designed to introduce and train new technology and protective equipment and to expose the 4th and 12th Engineer Battalions to the train-the-trainer concept. For this purpose ARCENT, in coordination with USCENTCOM, purchased 19 Vallon VMH/X-2 detectors, protective equipment, mine field marking kits, demolition kits, four Product Development Work Stations complete with the computers, modems, high end printers, scanners and video cameras,

three Information Management computers complete with printers and mine/UXO training aids specially developed with the appropriate amount of metal to allow the deminers the ability to detect them at various depths. One hundred and twenty-two students participated in training throughout the 7-week training period and all of the training equipment, supplies, and services were donated to Royal Corps of Engineers.

Survey, Marking, Detection and Clearance Training

The SF soldiers attached to this mission proved exceptionally well suited for this training. The team brought invaluable cultural ex-perience, Arabic language and training skills, and a well-honed sense of duty. They tailored a program of instruction (POI) for the Jordanians from the existing HDTC POI and TC 31-34. It included first aid, land navigation, detection, probing and demolition techniques, and an introduction to surveying. The Engineer students were very receptive to all aspects of training with the exception of survey and marking techniques. It was difficult to overcome the Jordanian Engineer soldier's ingrained habits from 7 years of demining – they and some of their leads did not believe their known mine fields had to be surveyed and marked. They argued that their mine field records sufficed and surveying a known mine field amounted to redundant work; however, erosion and inaccurate mine field records necessitated the change in mindset. The SF trainers gradually made progress by convincing students of the survey and marking need for all mine fields.

Training at the 4th and 12th Engineer Battalions that followed the train-the-trainer course proved exceptional. NCOs and junior officers donned equipment and conducted training at training areas close to the respective battalion compounds. The SF trainers conducted split operations and assisted with this training. Successful training at this level was due to battalion commander support and wholehearted emphasis from Brigadier Majali.

Mine Awareness Training Course

Four highly skilled PSYOP personnel trained 11 specially selected Engineers on the Product Development Work Station (PDWS). Instruction was based on a well-developed POI that thoroughly addressed visual, audio and video campaign and product development and dissemination. The selected students attended U.S. sponsored computer and software training before the HD team arrived in country. This train up proved invaluable in that the Mine Awareness team could address technically competent students with software terms and jargon without having to explain basic computer concepts. Students learned community awareness programs while conducting target audience analysis using Corel Draw to develop supporting products. Students developed several mine awareness campaign leaflets, posters and messages for actual dissemination. Two PDWS units were transferred to the 4th and 12th Engineer Battalions upon completion of training with a view to integrating the PDWS to support actual demining operations in the Jordan River Valley. The third PDWS remained at the Engineer School for training purposes.

Information Management Course

The six specially selected students receiving this training also participated in the computer train up classes with the Mine Awareness students. The CA Team providing the Demining Information Management System (DIMS) training experienced few problems instructing information systems language. The POI covered operations order, plans development, practical exercises, and building Access databases from presently held mine field records and creation of a Geographic Information System. Indeed, the highly motivated and adept students created an information management self-teach audio power point presentation in Arabic which detailed how the information management computer system functions. Upon completion of training, one of each computer system was transferred to the 4th and 12th Engineer Battalions to integrate the DIMS computer systems into supporting actual demining operations in the Jordan River Valley. Students, now members of the battalion staff, were to input manual mine field record information from their respective operational areas (4th and 12th Division Sectors) to develop databases, enhance record keeping and manage current demining information.

EOD

23 experienced and highly skilled Jordanian ordnance personnel possessing EOD backgrounds attended this very technical course. Ongoing range clearance and current demining operations served to provide a wealth of experience to these EOD personnel. Lack of automation equipment, technical manuals, and ordnance software had hindered safer and more advanced unexploded ordnance (UXO) disposal methods. The U.S. EOD team instruction was invaluable. Safety was multiplied 10-fold via ORDATA II instruction and the donation of a ruggedized Panasonic "Toughbook" laptop computer. Fully 13 classes out of the EOD POI were incorporated into the Royal Engineer Weapons School's EOD Curriculum. The Jordanian EOD course hosts all Jordanian military branches and police and several Omani units.

Phase II

Establishing Humanitarian Demining Training and Doctrinal Center, June – August 2000

It was apparent in December 1999 that a follow up training visit to build upon established deminer basic skills was necessary. The Royal Corps of Engineers wished to take advantage of the summer demining break to train additional Jordanian deminers and to establish a deminer's course at the Royal Engineer Weapons School. The intent was to train a Royal Engineer Weapons School cadre, provide them with necessary course curriculum and materials and assist this cadre in training newly assigned deminers before they rotated into actual demining operations in September 2000. The Royal Engineer Weapons School would in effect assimilate selected demining tasks into the Engineer Officer Basic and Advanced Courses and the EOD Course and would establish a deminer course based on the U.S. Survey, Marking, Detection and Clearance Train-the-Trainer Course POI. The Royal Corps of Engineers also requested additional Information Management instruction.

USCENTCOM again called upon the special operations community to provide SF and CA soldiers to conduct the requested training. The team again trained at the HDTC, Fort Leonard Wood where the Information Management trainer enhanced software and computer skills while attending several ArcView, Microsoft Access and DIMS automation courses. Drs. Alan D. Davison, Chief, Maneuver Support Center Field Element and James J. Staszewski, Senior Cognitive Scientist, Carnegie Mellon Research Institute, enhanced SF home station training by providing the SF trainers advanced mine detector training techniques and methodology designed to improve the deminers' ability to efficiently detect mines regardless of the detector used. Additionally, Mr. Ron A. Hitchler, Security Search representative and Vallon detector expert provided the SF training on quality control (QC) technology; specifically, the MB4 Memo Box and Eva 2000 software designed to afford the Jordanians the ability to categorically declare a mine field cleared when declared so by the deminers.

Once in Jordan all training focused on safety and enhancement of current Royal Corps of Engineers demining capabilities and establishment of a demining training curriculum at the Royal Engineer Weapons School. The 15 U.S. trainers introduced new quality control technology and mine clearance techniques and improved upon the UN-recognized mine field-marking techniques the Jordanians were taught during Phase I training. The HD Team also upgraded Demining Information Management System software on Information Management computers so that archiving mine field data was simplified at the Provisional Demining Battalion and at the 4th and 12th Engineer Battalions, who continued demining operations in their sectors. The HD Team also supported the Royal Corps of Engineer effort to create mine awareness campaigns designed to complement active demining efforts in the 4th Division sector in the Jordan River Valley.

113 students participated in the USCENTCOM and ARCENT sponsored training throughout the 7-week training period. Additional equipment, supplies and services were donated to Royal Corps of Engineers.

Survey, Marking, Detection and Clearance Train-the-Cadre Course

Brigadier Fayez, Commandant, Royal Engineer Weapons School, established the training momentum by addressing the 30 student cadre emphatically stating that they would embrace, learn and understand the International Standards for Humanitarian Mine Clearance Operations the U.S. trainers brought. SF trainers conducted the month long training at the Royal Engineer Weapons School classrooms and local training areas in accordance with an improved and tailored POI incorporating the following:

- Basic First Aid
- Mine Detection Equipment
- Mine field Clearance Operations
- Basic Unexploded Ordnance Identification
- Demolitions/Explosives Safety
- Mine Probing Techniques
- Basic Map Reading and extensive GPS Training
- Short Range Planning
- Military Decision Making Process

Some cadres had received instruction and training during Phase I, which proved very helpful. The two most competent trainers were two highly dedicated NCOs, who regardless of the extreme midday heat and complex material, always maintained a step above all others.

After cadre graduation the SF trainers assisted the 30 Jordanian cadre prepare for their instruction and training during a weeklong overlap session. Translated lesson plans and presentations were delivered to the cadre for their instruction. Multimedia projectors greatly enhanced instruction and allowed the cadre to manipulate computers for the desired effect. Seventy-eight prospective deminers representing the five Engineer battalions arrived for training after the cadre's weeklong preparation. The SF served as assistant instructors (AIs) during the month long deminer training, also conducted at the Royal Engineer Weapons School and local demolitions range.

Information Management (IM)

The additional ArcView and DIMS training the 96th Civil Affairs (CA) cadre received contributed significantly to the success of the Information Management instruction

and training. The CA Team's training intent was to develop a staff capable of electronically archiving mine field data using the DIMS software. Trained DIMS soldiers at the 4th and 12th Engineer Battalions would then be capable of archiving mine field record data thus providing the Headquarters, Royal Corps of Engineers the capability to effectively and efficiently plan and implement demining operations. The database would also provide critical information to accurately monitor progress in HD operations and would serve as a management tool to determine clearance operations priorities, and strategies to implement mine awareness and victim assistance programs. Unlike the survey course, this course was designed for the entire eight weeks and did not follow the train-the-trainer model.

The eight highly intelligent students were able to grasp all concepts due principally to attendance at the automation skills enhancing course taught during Phase I. All received Microsoft Office 2000 Suite and Arc View software instruction prior to attending this course.

An IM computer and printer was delivered and installed at the Provisional Demining Battalion. The Demining Battalion serves as the hub for all information but did not possess the automation equipment to properly conduct its information management archive and record keeping.

Copies of all translated programs of instruction, lesson plans, instructor notes and presentations and a sample HD training SOP in Arabic were submitted to the new Royal Engineer Weapons School commandant, Brigadier Muhammad. In turn, he tasked the permanent doctrine and training department cadre to update all school curricula with demining information found in the U.S. HD Teams' programs of instruction and presentations.

Conclusion

HD training in Jordan was truly rewarding to both Jordanian and U.S. soldiers. Indeed, the endeavor humbled the U.S. training team on several occasions when experienced deminers questioned on what merit do the U.S. trainers train the Jordanians, who have removed mines relatively safely for seven years. Responses were complicated by the fact that U.S. military trainers are not allowed entry into active mine fields under title 10 U.S.C. section 401, unless done for the concurrent purpose of supporting a U.S. military operation. Further, the only humanitarian (not combat) demining background non-engineer U.S. soldiers possess is via attendance at the two week HDTC at Fort Leonard Wood. While the training is conducted in a very professional manner with state-of-the-art and international standard resources, experiential credentials will remain absent.

The automation and demining equipment and training based on the International Standards for Humanitarian Mine Clearance Operations have, without a doubt, contributed significantly to the Jordanian Humanitarian Demining Program. U.S. trainers imparted professional instruction and training that has taken root in the Royal Engineer Corps. This was not always easy. Accustomed to working 12-14 hours days in the U.S., the U.S. trainers accepted the fact that Arabic culture requires special attention. A 6½ hour Arabic workday requires morning and noon prayer consid-erations and a 30-minute "breakfast" midmorning to make the day tolerable before dinner at 1400. Work beyond 1400 is counter-productive. Demining in the extreme heat requires ingenuity and constant motivational inspiration. After all, the suffocating summer heat is one reason demining operations in the Valley are suspended for three months. Lasting professional and personal relationships were built on accommodating these cultural considerations.

After seven years of demining experience, the Jordanians reluctantly accept the International Standards for Humanitarian Mine Clearance Operations. Deeply buried mines and mines carried by floods to unknown locations suggest that areas may never be fully cleared. One look at an anti-personnel mine field on the banks of the Jordan Rivet where the metal posts, much less the barbed wire fences, are barely visible automatically conjures up scenes of mines floating to the Dead Sea. Other mines have washed and settled into gullies and lie deeply buried. Regardless of the mechanical clearance method used, the deminer must continue to dig deeply in accordance to where mine field records dictate the mines should be—antipersonnel mines, if employed properly, will be located where no mechanical clearance vehicle can tread. The Jordanian HD program has a difficult road ahead. Aging equipment must be replaced. The international community must lend a financial hand of goodwill. The Jordanians will someday clear all mine fields to the very best of their ability and it is comforting to know that a few U.S. soldiers provided positive and significant contributions to their noble labors. ■

Biography

Jose Saucedo is a Distinguished Military Graduate from West Texas State University and graduate of Infantry Basic and Advanced Courses. He led the Humanitarian Demining training effort in the Hashemite Kingdom of Jordan in 1999 and 2000. Major Saucedo is currently assigned to the G5, Third U.S. Army.

Contact Information

US CENTCOM
MacDill AirForce Base, FL
33621-5101
Tel: 813-828-5895

Israeli Landmine Policy and Related Regional Activity

Although the Israeli people feel it is impossible to separate policies dealing with landmines or any other topic related to security from the broader political framework, Israel has been taking and continues to take the dangers posed by landmines seriously, offering assistance in mine clearance, education and rehabilitation.

by Aharon Etengoff and Prof. Gerald Steinberg, *Bar Ilan University Arms Control and Human Security Division Program on Conflict Management and Negotiation*

Introduction

Although the dangers posed by landmines are particularly acute in the Middle East, responses to the Ottawa Convention are limited. Jordan, Sudan, Tunisia and Qatar are State Parties, and Algeria has signed but not ratified the Ottawa Convention. The lack of signatories in the region reflects the continuing conflict and instability as well as the role that mines play in territorial defense.

In Israel, there is significant support for both the concept and effort to abolish landmines, but security considerations and continued warfare outweigh arguments in favor of accession to the Convention. Israel is active in international cooperative programs to clear landmines as well as in rehabilitation and education programs.

The Defensive Use of Landmines

Israel's Lilliputian breadth and width, coupled with "hot" borders and a limited area of maneuverability for infantry and armored units, has prompted Israel to make extensive use of mines in combat and border defense. According to U.S. State Department estimates, there are 260,000 mines in Israel, primarily along the borders with Lebanon, Jordan, Syria and territories captured in the 1967 war. In addition, there are a significant number of mines scattered throughout the Golan Heights and the Jordan Park area that were planted by Jordanian and Syrian forces, respectively.

Israeli policy stipulates that mine fields must be clearly marked on maps, as well as fenced off, and entry to mined areas is strictly forbidden. In July 1998, the Israel Defense Forces Department of Field Security examined the issue of unmarked mines, concluding that "regarding mine fields [that] constitute part of an obstacle laid by our forces on the front lines...there is no possibility of marking them on civilian maps. Regarding mine fields that were laid by enemy forces... [and] mine fields located in the vicinity of sensitive sites, such as electrical power stations, water pumps and the like—there is no impediment to marking them on the maps."

Landmine Awareness and Casualty/Survivor Assistance

Unfortunately, arms and explosives are part of daily life in Israel. Thus, Israeli citizens, in general, accept and support policies that are perceived as necessary in response to a hostile environment and fatal terrorist activities. During special terrorism awareness sessions, Israeli school children are also shown detailed pictorial images of various landmines and are taught to avoid them. In addition, all military graduates in Israel possess considerable awareness of mines as a result of their army service.

Soldiers and civilians have fallen

■ Israeli soldiers look for land mines near Kibbutz Misgav Am. *c/o AP*

casualty to undeclared and declared landmines in the Golan Heights, West Bank and other areas. Israel's comprehensive Bituach Leumi, or National Insurance Service, completely covers the cost of treatment for victims of landmines.

Those who have suffered from injuries caused by landmines (whether soldiers, citizens, tourists, students or anyone who has entered the country legally), are included in the Health Services clause of "Victims of Hostile Activities" regulation, and as such, are given extensive treatment. This treatment includes an initial evaluation, subsequent operations and extensive orthopedic rehabilitation. Patients are provided with psychological therapy and counseling, as well as occupational, speech and physical therapy. They also receive the appropriate prosthetic device or devices.

As a result of the traumatic experience, landmine victim often experience a variety of difficulties, including stress, anxiety and behavioral and emotional problems. Therefore, before, during and after rehabilitation, the patient interacts with a well-trained, professional staff including orthopedic specialists, therapists, social workers and psychologists.

Israel also provides extensive vocational training and outpatient treatment. The Social Welfare Ministry, the National Health Insurance Institute and the General Sick Fund (Israel's largest HMO) run vocational schools for landmine survivors. Israel's comprehensive rehabilitative vocational facilities enable the landmine victim to return to the workplace—providing him or her with a sense of success and inclusion in society.

Medical centers that are involved in the treatment of civilian landmine victims and survivors are: Beit Loewenstein in Rannana, Tel Hashomer in Tel Aviv-Yaffo, Tel Aviv University Medical Center and Schneider's Children's Hospital in Petach Tikvah.

Landmine Marking & Clearance Activity

The priority given to marking active landmine areas and the clearing of unnecessary mine fields has increased significantly in recent years. In December 1997, the Israeli Ministry of Defense informed the Engineering Unit (in) Central Command Headquarters that: "maintaining the status quo [of unnecessary mine fields] is not acceptable to the defense establishment." The MOD (Ministry of Defense) went on to say: "We would like to find a solution that will lead to the evacuation of the area[s] suspected of being mined and will provide a possibility for complete working of the land."

Between March and September 1998, the State Comptroller's Office conducted an audit of the Israel Defense Forces' policies on mine laying, and in 1999, this office issued a detailed report (partly public and partly classified) on this issue. The Comptroller's report examined the management of various mine issues by the Israeli Defense Forces and examined the degree to which the provisions of Protocol 2 of the CCW are being implemented. Following thorough research, the Comptroller's report recommended several operational, doctrinal and logistical procedural adjustments. These recommendations are in the process of being examined by the IDF.

Landmine clearance is proceeding, albeit carefully, due to the high risk involved in clearance operations. In January 1999, the division of Finances, Equipment and Property in the Israeli Ministry of Defense stated that it was examining the possibility of Israeli Defense Forces evacuating unnecessary mine strips, as well as adjacent areas suspected of being mined. The Ministry of Defense also raised the possibility of using civilian contracting companies to clear suspected areas. To advance the process, the State Comptroller recommended the appointment of an inter-ministerial committee to examine all aspects of the subject and to guide government policy. In addition, Israel has developed a number of advanced mine-clearing technologies and related equipment.

Unfortunately, Israel has considerable expertise in demining, and is acutely aware of the humanitarian problem caused by APs. Therefore, Israel offers assistance to mine-affected countries in the following areas: mine surveys, mine awareness activities, transfer of mine clearance equipment, cooperation in medical and social rehabilitation, and contribution to the Database of Technological Information. Israel has also contributed to the UN Voluntary Trust Fund for Assistance in Mine Clearance, and has held and hosted an international workshop on the rehabilitation of mine victims.

Since 1996, Israel's Ministry of Foreign Affairs has been engaged in mine clearance and mine awareness operations in Angola. In addition, a comprehensive Israeli NGO, Aid Without Borders, conducts mine awareness programs in Angola under the auspices of UNICEF. Aid Without Borders has been active in Kosovo as well, where it taught mine awareness to children in conjunction with MAG, a British mine awareness organization.

Israel's Ministry of Foreign Affairs also operates a joint landmine assistance program with Canada in Guatemala. Canada's sphere of responsibility in the program includes both physical and psychological rehabilitation, while Israel is involved with the economic rehabilitation of mine victims. This economic rehabilitation consists of encouraging and teaching landmine survivors to establish and successfully run independent micro-enterprises or other small businesses.

Published by JMU Scholarly Commons, 2001

Mine Clearance Along the Borders

Egypt

Following the 1979 Egyptian-Israeli Peace Treaty, Israel provided Egypt with maps of the mine fields that it had placed in the Sinai area, and prior to withdrawing, it demined considerable areas of the Peninsula. While some cooperation in this area continued, in February 2000, Egypt suspended cooperative mine clearance operations with Israel, citing lack of funding, but it also was seen as part of the continuing Egyptian campaign to reduce links with Israel.

Lebanon

Mines were also used extensively during the period of Israeli military presence in southern Lebanon, following a series of terrorist incursions and attacks during the mid-1970s. In May 2000, Israel unilaterally implemented UN resolution 425 and withdrew all of its forces from Lebanon. Following the redeployment along the international border, Israel gave the United Nations detailed maps delineating the Israeli-planted mine fields in south Lebanon, enabling UNIFIL forces to remove them. Swedish mine-clearing teams in Lebanon (working after the withdrawal) have reported that these maps are accurate, and that they have "full cooperation" from the Israel Defense Force liaison. By November 14, the United Nations reported that it had cleared 1,520 mines.

Due to the refusal of the Lebanese government (which is under the influence of Damascus, as reflected by the presence of 30,000 Syrian troops in Lebanon) to open any channels of communication with Israel, a coordinated demining program remains blocked. Indeed, the conflict and violent attacks have continued, and on October 7, 2000, Hizballah sent forces across the border to kidnap three Israeli soldiers.

The continuing conflict via Hizballah and other terrorist groups operating in Lebanon (backed by Damascus and Iran) has exacerbated the dangers posed by mines in the area. In addition, press reports originating in Lebanon regarding Israeli policy on the use of mines and APWs, including a number citing unnamed United Nations personnel, have been found to be unsubstantiated and designed primarily to isolate Israel politically.

Jordan

Since the 1940s, the long border between Israel and Jordan has been used as an area of infiltration and direct military conflict. Consequently, many mine fields were laid along both sides of the Jordanian-Israeli border. In 1994, Israel and Jordan signed a peace treaty, and in 1997, the two countries carried out a combined project of clearing mine fields along their shared border. Israel also handed over maps of Israeli planted mines and suspected mine areas to the Jordanian authorities.

Israel is currently involved in a multilateral humanitarian landmine clearance project with Jordan and has offered the Jordanian engineering corps additional mine-clearing equipment and safety gear. In addition, Israel has offered to fund a mine victim rehabilitation program and is willing to provide technical training assistance for its medical staff.

Israel has also treated Jordanian victims of Jordanian landmines. To date, four victims, three adults and a child, have undergone extensive treatment and rehabilitation at Israel's Beit Loewenstein and Schneider's Children's Hospital.

Palestinian Authority

During the Second Meeting of State Parties, the Palestinian NGOs in attendance focused on anti-Israeli political propaganda, rather than the substance of the issues and efforts to develop a basis for cooperation in mine education and clearance and victim rehabilitation. Palestinian activists (funded by groups such as Defense for Children International and belonging to organizations such as Al-Haq) distributed blatantly hostile anti-Israeli literature, press releases and screened films condemning Israeli policy in which the landmine issue was, at best, secondary. Similarly, on July 4, 2001, Al-Haq accused Israeli forces of planting landmines in the proximity of an outpost near al-Khader, in the Berthlehem area. These allegations were not supported with evidence and were denied by Israeli officials.

In this environment, Palestinian claims of Israeli landmine use in the West Bank and Gaza Strip cannot be considered reliable. After publishing these allegations, the *Boston Globe* issued a formal retraction, noting "an editorial July 10 implied that, in the current Middle East conflict, Israel is placing mines in areas where Palestinians live. This claim is not substantiated."

Meir Itzchaki, of the Arms Control Division, Regional Security and Arms Control Department, Israeli Ministry of Foreign Affairs, Jerusalem, disputed the Palestinian claims in a letter to the coordinator of Landmine Monitor, in which he stated: "Minefields laid by the IDF are, as a matter of routine, fenced,and warning signs in Hebrew, Arabic and English, are placed. Additionally, the IDF conducts safety inspections on a regular basis and transfers the appropriate information to civilian authorities.... Israel has become party to the Amended Mines Protocol II despite the unique circumstances prevailing in the Middle East. Having decided to join this instrument, Israel fulfills its obligations to the fullest extent, and strongly rejects allegations to the contrary."

The Palestinians have also used landmines in the West Bank and Gaza Strip in their war against Israel. According to an Israeli press report, "security sources in Israel have learned that the PA has increased its mine-

laying and fortification work in its outposts facing IDF position[s]." In addition, members of various Palestinian militia groups extract explosives from landmines (placed in 1967) for the manufacter of other explosive devices and have attempted to improvise anti-vehicle mines from bombs and grenades meant for use against IDF tanks.

Conclusions

In the Israeli environment, and in the broader Middle East, it is impossible to separate policies dealing with landmines or any other topic related to security from the broader political framework. Israel's security realities and the continued warfare with the Palestinian Authority following the failure of the Oslo peace efforts, as well as continued threats from many other areas in the region, determine the limits of its landmine policy. As long as these threats continue, the use of landmines as part of wider defensive actions will be seen as both necessary and justified, and Israeli participation in the Ottawa convention will continue to be limited. At the same time, and within these restrictions, Israel has been taking and continues to take the dangers posed by landmines seriously, and offering assistance in mine clearance, education and rehabilitation.

If and when the direction of regional peace initiatives changes, and other countries, such as Egypt, Jordan and Lebanon, are willing to resume cooperation with Israel, regional landmine limitation and removal activities can also resume. National borders do not restrict landmines and other forms of antipersonnel weapons, and floods, as well as other natural processes, often shift the location of mine fields from one side of a conflict line to another. Ultimately, the interests of all of the people in the Middle East require cooperative activities—both to end the need to employ landmines for defense as well as to expand clearance activities that would prevent additional unnecessary casualties. ■

Contact Information

Professor Gerald M. Steinberg
Director, Program on Conflict Management and Negotiation
Political Studies, Bar Ilan University
Ramat Gan, Israel
Tel: 972-3-5318043
Fax: 972-3-5357931
http://faculty.biu.ac.il/~steing/conflict/conflict.html

Landmines in Egypt (continued from p. 30)

Arabic countries. The LSC is the coordinator of the campaign. Countries with NGOs representing them in the campaign are Iraq, Syria, Palestine, Lebanon, Jordan, Egypt, Djibouti, Mauritania, Morocco, Algeria, Tunisia and Libya. Together, these countries contain almost 60 million mines/UXO.

Mine awareness and mine clearance is necessary among these countries so they can solve the landmine problem together. Because the current mine/UXO situation is difficult for governments to deal with, the AMAC has agreed to exchange and discuss information on a variety of topics including information about victims, how to help raise mine awareness and mine clearance among each other, and how to research the financial capacity of other countries to help members of the AMAC. At the national level, the AMAC invited all Arab countries affected by the mine/UXO problem to develop demining and mine awareness programs, as well as to assist victims. AMAC also requested that the Arabic countries with the financial capacity to support both governmental and NGO mine action programs in the Arab countries affected by the Landmine/UXOs. So far, the AMAC has been successful in raising awareness among each other and other countries. Saudi Arabia donated $300 million to Yemen for mine clearance, and the United Arab Emirates donated $50 million to Lebanon for redevelopment and mine clearance. These Arabic NGOs working together to strive for better situations among each other is a great event and will bring much success to the landmine situation among all of them.

It is organizations like these that will ultimately help the problem of landmines, especially in Egypt. Time will tell when those who are able to walk on Egyptian land will feel safe with every step. ■

Contact Information

Mr. Ayman Sorour
Executive Director
Landmine Struggle Center
P.O. Box 121
Emababa, Giza
Egypt

The Effects of Landmines on Women in the Middle East

Middle East women whose families are affected by landmines must cope with disabled children and spouses and must keep the family surviving when a breadwinner is lost.

by Mary Ruberry, *MAIC*

Introduction

The countries of the Middle East are beset with troubles caused by nature as well as man-made strife. The region is prey to earthquakes, droughts and flooding, and years of conflict have left the region riddled with landmines and UXO. As a result, national economies have suffered, leaving social and medical infrastructure battered and scarred. Regional turmoil has caused the flight of millions of refugees and displaced persons who survive in sparse camps, many for decades.

As the nurturers and child rearers, women must keep their families going under difficult conditions. Female landmine/UXO casualties make up a markedly lower percentage of victims as compared with males because in most Middle East countries women's mobility is strictly limited by Muslim law. Yet women bear the burden of mine accidents as they take up support of the family and care for disabled children. In Afghanistan, landmines' effects are especially dire as, under Taliban law, women are not allowed to work and must turn to begging if a breadwinner is killed or disabled.

Many rural or desert areas do not have roads or other infrastructure for transporting landmine victims to medical facilities. In remote regions, doctors are scarce and many of the national medical services have deteriorated from years of struggle.

The International Committee of the Red Cross (ICRC), in conjunction

An Afghan woman in a burqa carries her child at the Jalozai refugee camp in Pakistan. *c/o AP*

Two landmine victims at an Iraqi prosthetics center. c/o ICRC

with local Red Crescent Societies, seeks to fill the gaps in medical services with a widespread network of clinics and workshops. Other international organizations also provide medical services and training, along with prosthetics/orthotics and mine awareness training in some locales.

When a female is injured in a mine/UXO accident, her chances of marrying may be effected. Female mine victims are aware that they might be considered burdens to their families. Rehabilitation programs largely run by NGOs do exist, and some countries have recently enacted legislation upholding the rights of disabled people. However, as Barbara Robertson of Women and Disability Resources says, "The unemployment rate for disabled women in developing countries is virtually 100 percent."

Thomas G. Houlahan, author of *Gulf War: The Complete History*, describes the treatment of women in the Mideast as differing "dramatically" from state to state. In countries governed by fundamentalist Islamic beliefs, women are forced to adhere to severe restrictions or risk death. Other countries, such as Jordan and Iraq, have legally granted more civil rights to women.

Women's literacy rates are extremely low in the Middle East; averaging around 50 percent for the region, and as little as 15 percent in Afghanistan. Electricity is rare, especially in rural areas. Therefore, women's access to information through radio, television or the Internet is largely unavailable.

Afghanistan

Due to years of upheaval, Afghanistan ranks first in the world for refugee populations according to the United Nations High Commissioner of Refugees (UNHCR). Approximately two million refugees reside in camps along the border in Pakistan, many for 20 years. Another one and a half million live in camps just inside Iran. At present, another million more refugees are currently expected as thousands of families move toward Pakistan and other neighboring states.

Many humanitarian organizations have been operating programs in Afghanistan, though assistance to women has been hampered by Taliban rule and often curtailed. Mine awareness training for women is deemed illegal by the Taliban though some community-based programs exist. Most humanitarian workers have been pulled out of the country due to the present crisis, and the International Federation of Red Cross Red Crescent Societies (know as "the Federation") fears the results of reduced services for a population already pushed to dire limits.

The U.S. State Department states, "Since the Taliban became a military and political force in late 1994, women and girls in Afghanistan have become virtually invisible in Taliban-controlled portions of the country." The restrictions imposed by the Taliban have created an atmosphere in which women may risk death by leaving their homes. A large number of women have been widowed by Afghanistan's wars and are forced to beg for survival draped from head to toe in heavy burqas.

Doctors Without Borders describes Afghanistan as a country with an "extremely undeveloped health infrastructure." "The most sophisticated medical facilities are situated in the five regional capitals of Kabul, Kandahar, Herat, Jalalabad and Mazar. Outside these cities, medical facilities are usually rudimentary, says the group."

Afghanistan's lack of roads is a primary difficulty in providing medical assistance to mine victims. In many regions, no roads or transportation exist for the timely deliverance of wounded civilians for medical treatment. Limited medical facilities are run by NGOs, especially the ICRC. Clinics run by the Afghan Red Crescent Society (ARCS) have continued treating patients in Kabul and the central, western and northern regions. However, at present, the ARCS has no information on whether other clinics around the country are still operating as there is no way to communicate.

About 95 percent of the mine victims in Afghanistan are male, according to the UN Mine Action Center for Afghanistan (MACA). The great disparity between male and female victims is due to women's lack of mobility. Women are not allowed to work; therefore, when a family loses the breadwinner because of a mine fatality or disability, the oldest boy is responsible for providing for the family's survival.

[redacted] says that 50 percent of landmine victims die before they reach a medical facility. According to MACA, between January 1990 and July 2001, a total of 7,346,829 people received mine awareness training in Afghanistan. Of that number, about one and one-half million have been women and girls, though the Taliban authorities do not allow women to receive mine awareness training. The Afghan Campaign to Ban Landmines (ACBL) states that 1,076,553 civilians received mine awareness education in 2000 throughout the country.

According to the Comprehensive Disabled Afghans' Program (CDAP), about three percent of the population is disabled. With a total population of 20 million, this figure translates into 700,000 men, women and children. The CDAP's website states, "War has disabled thousands, creating amputees, blindness and paralysis." When the breadwinner becomes disabled, the whole family is adversely affected. Thus, according to the CDAP, "the actual proportion of the population affected by disability is probably higher than 10 percent."

Egypt

95 percent of Egypt's 63 million people live along the Nile River. Overcrowding compounded by increased urbanization has resulted in sanitation and health problems, as well as severe poverty in Cairo and other major cities. According to Oxfam GB, in 1997, over a third of the population lived in poverty. "Poverty also exists in rural areas, with malnutrition a particular problem amongst women."

To combat Egypt's concentration of mines, the Landmines Struggle Center (known as "the Center") was established as an NGO in December of 1997. The Center estimates 3,200 people have been killed and 4,723 people injured by mines in the last 20 years. Also, Egyptians have lost 10 percent of their agricultural lands due to landmine contamination, especially in the northern and eastern coastlands. No information is available about female mine victims.

One of the greatest difficulties for providing assistance to landmine victims according to the Center is that no adequate medical facilities exist near the affected areas and that there is a lack of mine awareness information provided to at—risk populations. The Landmine Monitor Report states that "Some civilian victims travel up to 100 kilometers to receive medical attention."

To fill in gaps in medical services, the Egyptian Red Crescent Society (ERCS) runs 27 branches, one in each governorate of the country. The branches treat approximately 5,000 patients each, and on average more women are served by the ERCS than men. A number of services specific to women are provided by the branches including mother-and-child care and activities to raise awareness about reproductive health care and female empowerment.

Iran

According to Iran's 1991 census, women make up about half of the country's population of 56 million. Of the total population, an estimated 53 percent of Iranians live below the poverty line. The Iranian government claims that the literacy rate for women is 65.8 percent; however, the United Nations Statistics Division states that 43 percent of women are literate (compared to 70—78 percent of men).

According to the Medical Engineering Research Center, approximately 300 mine/UXO accidents occur in Iran each year. There is little information about landmine victims in Iran, and virtually no gender-specific information is available. The only known survey of mine victims was completed by the High Center of Research and Informatics (HCRI) last year in a western province. The survey concluded that the highest percentage of deaths occurred in young people under the age of 20.

The Federation's website states, "Apart from the UN system, only a handful of NGOs are represented in Iran, most of them focused on refugee assistance." In 1999, the ICRC, after apparently re-establishing ties with the Iranian Red Crescent Society (IRCS), constructed a center for training Iranian and foreign technicians in prosthetics and orthotics. In 2000, Iran established its first NGO, the Society for the Protection of Victims of Mines and UXO, for developing mine awareness projects.

The victim assistance efforts of HCRI are focused on the four most heavily mined provinces along Iran's western border. HCRI plans on a project to train surgeons in the most densely mined province, Eylam, to become "master trainers" who pass their emergency medical skills onto other "medics, paramedics and people from [the] Red Crescent of Iran." HCRI further states "that the best approach to the landmine problem include[s] other aspects such as prevention [and] demining," and the organization is presently "getting involved in these areas as well."

Generally, little information is available about women in Iran, except through the country's official website and international human rights organizations such as Amnesty International and Human Rights Watch. The official website of the Iranian government contains extensive material about women and national women's organizations. However, reaching the women's organizations is very difficult.

Iranian Red Crescent Society (IRCS)

Last May, the Iranian Red Crescent Society was designated the focal point for a working group to create a network for gender issues in the Middle East and North Africa. Developing a gender network was one

of the recommendations adopted during the Third Conference of Middle East and North Africa National Societies held in Tehran. Robabeh Rafiee, the coordinator of women's activities for the IRCS said, "Women must be empowered, and therefore they must be trained and educated. Women must know what their rights are and men must learn to respect and protect the rights of women."

Northern Iraq

Aid programs have been implemented in Northern Iraq in response to what Handicap International (HI) refers to as a "severe emergency situation." Since 1991, HI's workshop in Suleymania has been producing and providing mainly below-knee or above-knee prostheses, along with crutches, walking aids and orthoses. The second center opened in Halabja in March of 1998, through which more than 350 disabled people have received long-term support. HI has developed partnerships with the Kurdish government's Ministry of Public Health, along with local NGOs the Rozh Society and the Handicapped Union to develop a "holistic approach" to rehabilitating the disabled.

Mines Advisory Group (MAG) has run a comprehensive mine action program that began with training and planning in the early 1990s. Since then, the program has grown to encompass an extensive database, significant demining efforts and mine awareness programs for children and men. MAG estimates that since 1991, a total of 6,302 people have been injured by mines and UXO in the northern governorates and 3,470 have been killed. Of those numbers, 212 women are counted as injured and 118 killed. Apparently, 60 percent of female victims are under the age of 30, and most women who survived an accident stated they were unaware that there were mines in the area.

The United Nations Office of Project Services operates its most extensive mine action program in Northern Iraq as part of the Food for Oil Program. The program consists of a network of medical facilities, demining and mine awareness projects along with mine detection dogs. The network of services for victims and at-risk populations in Northern Iraq has dramatically reduced the number of casualties from mines and UXO over the last 10 years.

Southern Iraq

The ICRC has begun focusing on mine and UXO casualties in the southern region in an effort to define an effective mine awareness strategy with government approval and in association with the Iraqi Red Crescent Society. The ICRC provides support to four prosthetic/orthotic centers run by the government, and has renovated 14 health centers and eight large hospitals in Baghdad and other cities. During 2000, ICRC facilities provided physical rehabilitation services for patients who received 2,807 prostheses and 1,446 orthoses, of whom 53 percent were mine victims.

The Iraqi Red Crescent Society (known as "the Society") estimates that 3.5 million Iraqis are adversely affected by the economic deterioration resulting from 10 years of sanctions. According to the Federation, the public health system has been especially hard hit with hospitals and primary health care centers falling into disrepair. The Society operates 18 branches—one in each governorate—led mostly by volunteer directors.

Thomas G. Houlahan described women in Iraq as being "treated fairly well," and said they are not subjected to the severe restrictions imposed by "fundamentalist Islam." He said that Iraq's government is interested in modernizing the country, and therefore, women there are not clad in black. Nevertheless, according to the United Nations Statistics Division, less than half (47 percent) of Iraq's women are literate.

Israel

Jerry White, co-founder of Landmine Survivors Network (LSN) says that, "Israeli care and rehab for landmine victims is the best in the world." Israel maintains landmines for defense, though most of the mines in the country were laid during the 1967 Six Day War. According to David Chinitz of the Braun School of Public Health and Community Medicine, 96 percent of Israel's population is covered by "voluntary health insurance" provided by four competing "sick funds."

Jordan

The Jordan River Valley contains the country's landmine threat, and the location of mines is generally well documented. In March 2000, a national mine action campaign was established by royal decree and includes clearance, mine awareness and victim assistance. Additionally, the ICRC, in conjunction with the Jordan Red Crescent Society and LSN, runs mine awareness programs. LSN also provides extensive support to Jordanians disabled by mines and UXO. Oxfam GB states that women's literacy rate in Jordan—over 70 percent—has improved significantly over the last 35 years.

Lebanon

Decades of external and domestic war have severely impacted Lebanon. Israel's withdrawal from South Lebanon in May of 2000 (after 22 years) left an estimated 130,000 landmines. The National Demining Office of the Lebanese Army coordinates mine action. A number of local organizations and international NGOs have instituted extensive mine awareness programs. Approximately 3,000 landmine casualties have been reported, almost all in the south. Non-military mine victims depend mainly on NGOs such as Norwegian People's Aid for rehabilitative services. The Lebanese government subsidizes 80 percent of hospital care, and in May 2000, a law was passed upholding the rights of disabled Lebanese, including landmine survivors.

According to Sawsan Mehdi of Lebanon's Society for the Protection of Nature, during the civil war women had to manage and support their families as men hid at home to avoid being kidnapped. When Lebanon's economy plummeted during its devastating civil war, opportunities for females to receive education and gain meaningful employment also waned. The National Commission for Lebanese Women cites the "limited labor opportunities" for women, but emphasizes the advancements made as more women move into professional careers.

Palestine

The Palestine Red Crescent Society states, "The Palestinian people have suffered a long history of occupation, imprisonment, exile and displacement." The exact number of landmines and UXO in the Occupied Palestinian Territories (OPT) is not known, but the Defense for Children International/Palestine Section (DCI/PS) estimates that since 1967 there have been more than 2,500 landmine/UXO victims. More than half of the victims are children, and most of the accidents have occurred in Jenin, Tulkarem, Qalqilya and Nablus. DCI/PS has launched a mine awareness campaign to raise awareness of the landmine/UXO problem in the occupied territories.

Yemen

Scattered throughout the country, most of Yemen's landmines are left from the 1994 civil war, though other conflicts over the last 40 years have also contributed to the infestation. According to the Mine Clearance Planning Agency of Yemen, of the 178 mine victims counted in the last two years, 42 have been females. Radda Barnen (Swedish Save the Children) has led mine awareness activities in Yemen since 1995, and since 1994 HI has provided assistance to people with disabilities. However, most of Yemen's mine victims live in the south and do not have access to a rehabilitation center.

With a literacy rate of 26 percent and a maternal mortality rate of 1,400 per 100,000 live births, Yemeni women face considerable hardships. Oxfam GB says, "Women's access to health services is worse than for men because social laws forbid examination of women by male doctors, and there are few female health workers."

Conclusion

Mere survival is unfortunately the most pressing issue for many women in the Middle East, where they must nurture and care for their families under extremely adverse conditions. When a breadwinner is lost to a mine accident, his widow must care for the disabled and struggle to provide food and shelter for the remaining family members. ■

Contact Information

Mary Ruberry
MAIC
One Court Square
Harrisonburg, VA 22807
Tel: (540) 568-2718
E-mail: ruberrmm@jmu.edu

A Soldier's Diary of Desert Storm

A soldier relates a vivid first-hand account of his close encounters with landmines and his personal experiences as a Psychological Operations Team Sergeant in the Middle East during Operation Desert Storm.

A U.S. Marine patrol walks across the charred oil landscape near a burning well during perimeter security patrol near Kuwait City in 1991. *c/o AP*

by Darin M. Busé

Introduction

To say the mood was celebratory would be an understatement. As the last few thin-skinned vehicles crossed back through the burm that only days earlier had been breached, a shower of tracer fire and flares pierced the evening sky. The once neat file of Bradley fighting vehicles, 113 track vehicles, M1 Abrams tanks, trucks and hummvees now mobbed together in the desert just inside the border of Saudi Arabia. As a Psychological Operations Team Sergeant, I had never before been in such company as the Third Armored Cavalry Regiment. I was not prepared to witness the efficiency and overwhelming power that a unit of this nature could disseminate. Among cheers, blowing horns and the ever-present sound of bagpipe music, courtesy of my loudspeaker operator, SPC. Ferguson, there was a moment to reflect and wonder about those that were left behind. During the course of the conflict, our unit had encountered a number of displaced Iraqi civilians trying to escape the incredible devastation. How would they go on after all that had transpired? How could we ever calculate how the debris that was left by this operation would affect these people and how it would change their lives and ours from this day forth?

Prior to the onset of Desert Storm, my team—Sgt. Elswick, Spc. Ferguson and myself—spent several weeks being assigned and reassigned to different portions of the Third Armored Cavalry's area of operations. We were a part of the Physiological Operations effort but were fortunate enough to have a linguist from the Quaiti military assigned with us named Asher. He and I spent many hours discussing the differences and similarities of our cultures and nations and had established a good working relationship.

An Unusual Mission

As the highest-ranking member of our team, I was asked to attend the operations briefings held daily in the Troop Tactical Operations center (TOC). One of the scout units had accidentally driven through a flock of sheep being moved through our area of responsibility. The XO was anxious to resolve the incident before it became common knowledge. Because there had not yet been a civil affairs element attached to support the unit, Asher and I were given the job of finding the shepherd and making reparations to him. While preparing to go, I began to gather my thoughts of what I would say to win the heart and mind of this poor shepherd.

The two of us drove across the desert for what seemed to be an eternity, running into different segments of Third ACR, asking directions and moving on. We finally came upon a small detachment. We asked if they had heard of the incident with the sheep and they confessed that they were the ones who had caused the tragic event. They were able to give us precise directions to follow, and within minutes we were hot on the trail. The trails that were left in what seemed to be an endless span of sand made a huge X in the terrain.

I had been given a small book of Arabic phrases earlier that I was now intently rehearsing. After the third or fourth rise, a small cloud of dust could be seen in the distance. The nearer we came, the more distinguishable the forms became until we could make out the shape of two Land Rovers, a Mercedes flat-bed truck and a herd of camels, sheep and goats.

Dangerous "Junk"

The moment of truth had come. Asher shouted something once or twice and all of us came to a stop. A dark slender man climbed out of the truck. He was dressed in a long somewhat white shirt and loose trousers with his kufiyya (the traditional Arab headgear) piled high on top of his head. He walked toward us, his arms wide open with a great smile that showed large gaps along the sides of his mouth where teeth once resided. His hands came together, then were quickly extended many times until they came to rest on the forearms of my friend. I was depending heavily on the initial contact to be a positive one, and so far I was pleased. Asher introduced me and said that the man's name was Nacer, more precisely Nacer bin Abdul bin Hamad Al-Batani. In the best Arabic I could muster, I boldly proclaimed, "Salaam Alaikom." He responded with an explosive laugh and replied, "Salaam Alaikom," and wrapped his arms around my neck. Not surprisingly, I was taken aback by this. Several times I tried to broach the subject of the sheep, but to no avail. Soon evening was upon us.

I was getting anxious, not relishing the thought of driving back in the dark given the difficulty we had coming so far in daylight. I tried again to bring up the sheep and was stopped with an invitation to dinner. To my amazement, in the short time that we had been talking, the little band had assembled their camp and was busy preparing the evening meal. Asher and Nacer excused themselves to pray while I sat in the truck plotting my next move, troubled by the fact that nothing was being accomplished.

Rich-colored tapestry pillows lay on all sides, and the scent of spice hung heavy. Two of the women came in with large platters. As we ate, I was careful not to use my left hand to show respect for that custom and tried to discern the subject that was of such great importance to Nacer. It obviously wasn't the sheep he had lost. He continued on even while pouring strong dark tea into a cup and handing it to me.

A boy came into the tent holding a tattered blanket wrapped around some object that he was cradling like a baby. He handed it to his father. I swallowed hard as he uncovered an intact projectile separated from its shell casing. I could not identify its origins and did not care to get a closer look to see.

I quickly asked Asher, "How do you say danger!?" Nacer grinned. He went on to say that many men, women and children had been hurt and killed by similar articles of war left behind. They collected them for the value of the metal and for whatever else could be inside. He knew how to identify some landmines and demonstrated in the air how he uses a wire-like probe to locate them in the sand and then dig them out by hand. He took great pride in finding them and boasted of how well he taught his sons how to do this. Surely he knew the risk he was putting himself and his children in? I thought back to when we first came up behind the truck and remembered how it bounced and shook as they moved along, not in my mind the best means of transporting UXO.

A Tense Extraction

Asher and I made our way back to the area where the troop we were supporting was bivouacked. I reported that all had been forgiven and also about the ordnance that we had seen.

We were called up to the burm to play a surrender appeal over our loudspeaker system. We went through the prerecorded tape several times but there was no response. We couldn't see any Iraqi soldiers, but we heard the sound of 450 watts carried miles across the desert.

To be honest, I don't remember much of anything about breaching the burm that divided Saudi Arabia from Iraq, with the exception of the shrill sound of Scotland the Brave being played as loud as I have ever heard it right over my head. The pace was furious and the wake utter devastation.

Two Kuwaitis look at a display of landmines left by Iraqi troops after the Gulf War at theGulf War museum. *c/o AP*

■ I by we

ju

success t
Armorec

lin

ru
th

su
th

I

Biography

Conclusion

active

tactical tear

Storm.

Contact Information

hu

l:

25 August 2021

This article has been temporarily removed. We apologize for any inconvenience.

Sincerely,
The Journal of CWD

25 August 2021

This article has been temporarily removed. We apologize for any inconvenience.

Sincerely,
The Journal of CWD

Non State Actors

Non-State Actors must be involved in any considerations about reducing the use of landmines, a mission which the Non-State Actors Working Group has set out to accomplish.

by Margaret S. Busè, *Editor*

Despite the spectacular high-tech nature of combat technology, most armed conflicts are fought on foot using low technology methods of guerilla warfare. Anti-personnel mines manufactured by state and non-state parties are frequently used in counter insurgency warfare, a type of warfare that threatens the global landscape today. The mines victimize combatants and non-combatants without discrimination. Landmines are inherently indiscriminate weapons, making them ideal to instill terror in a local community. This is especially significant in counterinsurgency warfare and the patrolling, ground-fighting, area denial and terror tactics commonly used by Non-State Actors (NSAs) and terrorist groups. Landmines deny access to land and infrastructure, increase the difficulty of survival and impede post-war recovery and long-term development. By destroying the social fabric, landmines impede the peace process.

The majority of wars fought in the later half of the twentieth century, and that are currently being fought, involve non-state, anti-state or stateless actors outside the control of states or governments recognized by the United Nations. The Non-State Actors Working Group (NSAWG) of the International Campaign to Ban Landmines (ICBL) states that in "every region in armed conflict today, AP mines are found in armories of non-state groups. AP mines are frequently used more often by non-state actors than states." Also, the experience of many Non-Government Organizations (NGO's) is that non-state actors often use improvised landmines, which are usually more dangerous and volatile than commercial landmines. Landmines have been and continue to be produced and used not only by state forces but also by non-state groups, drug cartels, and factions including local communities protecting their livelihoods.

Non-State Actors (NSAs): Who Are They?

Conflicts in the world today often involve armed opposition groups who act autonomously from recognized government. Included in this category are rebel groups, irregular armed groups, insurgents, dissident armed forces, guerillas, liberation movements, freedom fighters, and de facto territorial governing bodies. The NSAWG believes there are about 190 *recognized* non-state actors. This does not include farmers, drug cartels, and many of the smaller loosely organized NSAs. Ideology, objectives, strategies, level of organization, support base, legitimacy, and degree of international recognition vary greatly. Terrorist groups can be defined as organizations that commit violent acts that seemingly have no purpose other than to inflict terror among the civilian population. The acts of violence are not directed at military troops or other military targets. They are not for defense. The purpose of the acts of violence is to disrupt the social fabric by creating a high level of fear among the civilian population. A NSA may or may not be considered a terrorist group. The groups that fall under the NSA heading can vary greatly. The NSAWG defines them as "organizations with less than full international recognition as a government who employ a military strategy."

NSAs and Landmine Deployment

NSAs differ from states in their method of deployment of landmines. States are usually defending a position, denying an area or disrupting an opposing force. NSAs usually use landmines offensively to disrupt social, economic and political operations.

Freedom Fighter, Terrorist or Non State Actor? *c/o AP*

FEATURE

Taliban Declaration

Statement of the Islamic Emirate of Afghanistan on the Problem of Landmines issued by the Office of the Emirate with the signature and seal of Taliban supreme leader Mulia Mohammad Omer Akhund:

> As Allah Almighty has made Human being his representative on the Earth, both his life and death are regarded with much respect in Islam. God Almighty teaches us in the holy Quran : Whosoever killeth a human being for other than man-slaughter or corruption in the earth, it shall be as if he had killed all mankind, and whose saveth the life of one, it shall be as if he saved the life of all mankind ...

Because they are often using landmines to terrorize, they are more likely to position landmines in places around schools, trodden paths, wells, etc. Because of indiscriminate placement there are rarely well kept mine records or mine field maps. Landmines may also not be laid in a conventional pattern. It is a soldiers' memory and a community's victims that have to serve as starting points for clearance operations.

An Afghan soldier who had fought in the war against the former USSR told the *Frontier Post* that countless numbers of Taliban troops are trained in guerrilla war strategies and that he is an expert in making land mines and is assigned to manufacturing and laying mines in Afghanistan. He also asserted that the current landmine contamination has contributed to Mullah Muhammad Omar and Osama bin Laden's safety. For the Northern Alliance to capture Kabul, they must breach intense fortification of the city by land mines and trenches.

In Turkey, Human Rights Watch noted that neither the soldiers nor the guerrillas of the Kurdistan Workers Party (PKK) could remember where many of their mines lie buried. During the clashes, troops from various parts of Turkey were deployed in the area and mined the surroundings of settlements to cut the logistical support of PKK fighters. They later went back to their original bases with the landmine maps, "or the maps were lost." Consequently, there remain an unknown number of landmines on the routes that would be used by Kurdistan refugees. In Angola, in many areas already identified as mine areas, warning signs had been placed, but the UNITA rebels had been removing them.

Mines, anti-personnel mines in particular, have been and continue to be used and produced by non-state groups. Because of the difficulty in monitoring compliance in landmine use, it is questionable if they will ever be completely removed from modern warfare. The often repeated phrase, "mines are the weapon of the poor," especially holds true for NSAs. It is much easier to purchase or improvise a landmine than it is to get the materials for a nuclear bomb. Mines are the weapons of the poor not only in the sense of being affordable, but also in the sense that they primarily target the poor and impoverish the community long after a cease-fire has been attained.

Because of the ease of construction and affordability, NSAs often improvise landmines. These may be more dangerous than commercial mines because they have a tendency to be highly unpredictable and unsafe to handle. The relative damage caused by these mines — to the combatants themselves and to official or unofficial deminers —has the possibility of being greater than that of the regular mines to which states have access.

Afghanistan NSAs and their Operating Environment

The Taliban

Taliban Islamic Movement of Afghanistan is a Sunni Muslim regime recognized by Pakistan, Saudi Arabia and the UAE. The first devotees came from the poverty-stricken refugee camps that sprung up along the Pakistani border during the Afghan-Soviet war. The Taliban movement emerged out of the chaos and uncertainty of the Afghan-Soviet War (1979-1988) and subsequent internal civil strife in Afghanistan. The young men of these camps learned a fierce and fundamental strain of Islam through the madrassas, Islamic schools that dotted the Afghan-Pakistani border. In September 1994, Mohammad Omar, then a mullah and currently the leader of the Taliban, created the militia in the southern Afghan province of Kandahar. From the start, its goal was to unite a divided and war-plagued Afghanistan under a strict and unyielding version of Sharia—Islamic law as written in the Koran, the life of Mohammed and his followers, and Muslim scholars through the ages.

The *mujahideen* fought the Soviets with Pakistan providing places of refuge, military training, and other support. After the Soviets withdrew in 1989, civil war broke out between the mujahideen factions and the central government. Afghanistan's central government had long been dominated by the country's majority ethnic group, the Pashtuns, but after Soviet withdrawal a coalition government that included Tajiks, Uzbeks, Hazaras, and other minority groups came to power. The Taliban, which emerged as a mujahideen faction, consisted mostly of Pashtuns intent on once again dominating the central government in Kabul. They were trained and armed by the Frontier Constabulary, a quasi-military unit in Pakistan, which also has a significant Pashtun population. The Taliban promoted itself as a new force for peace and unity, and many Afghan people, particularly fellow Pashtuns, supported the Taliban in hopes of respite from years of war.

Al Qaeda

During the war with Russia, the soldiers in Afghanistan developed a recruitment, support and training network of thousands of Muslim fighters worldwide called Al-Qaeda. Osama Bin Laden emerged as their charismatic leader. The foundation philosophy is pan-Islamic. These devout fighters are organized as follows:

- Soldiers fighting regimes of "religiously corrupt" Muslim rulers (Egypt, Saudi Arabia)
- Soldiers fighting regimes oppressing a Muslim population (Kosovo, India)
- Soldiers fighting regimes in an effort to establish a Muslim State (Palestine, Chechnya)
- Soldiers fighting any direct threat to Islam (USA, Israel, Russia)

The hazardous, isolating and harsh mountain terrain of Afghanistan provides a protective base for Bin Laden. Because Bin Laden and his network has become an icon of perseverance and resistance to Western influence—he has a huge Islamic following. It is further strengthened by Bin Laden's call of a "world Islamic Jihad Against the Jews and Crusaders," which empowers a never-ending base of recruits worldwide. Al Queda fighter's support and fight for the Taliban. A steady, secure and diverse international base of funding makes Al Queda a powerful force.

The Northern Alliance

The National Islamic United Front for the Salvation of Afghanistan, formed in September 1996, is comprised primarily of the Tajiks, Uzbeks, and Hazaras and has been a collective opposition group to the Taliban. It is led by the ousted President of the Islamic State of Afghanistan, Burhanuddin Rabbani/ Ahmad Shah Masood, who was killed on September 9. He Was replaced by Mohammed Fahim..

Other NSA organizations include: Jamiate-Islami-yi-Afghanistan Islamic State of Afghanistan, Shura-yi-nAzar-i Shamali (Supervisory Council of the North), Jumbish-i-Milli-yi-Islami-yi-Afghanistan - National Islamic

The Non State Actors Working Group (NSAWG)

The NSAWG was established by country campaigns of the International Campaign to Ban Landmines (ICBL) to address the need to develop relationships with NSAs. The NSAWG maintains a database on NSAs and promotes and disseminates their accumulated research on NSAs and landmines. They are breaking important ground in engaging NSAs in a dialogue. That this dialogue is about landmine use is almost secondary. Because of the Working Groups (WGs) impartiality, work on the community level, and the level of trust they have among NSAs, the WG has a pivotal role to play when it comes to understanding insurgent groups, how to engage them and draw them into the political arena for a dialogue, and how to get them to adhere to a basic humanitarian code of conduct through the landmine issue.

Some states that are currently in power and use landmines began to do so while they were still non-state groups fighting for power. A primary and legitimate reason that a number of states have linked their own refusal to renounce anti-personnel mines has to do with the use of mines by the non-state groups. At the core of the landmine use issue is how to monitor compliance. It is critical to remember that many insurgent groups using landmines are not in a declared war and most of the conflicts they are fighting are internal.

Root Causes of Landmine Use

An uncomfortable but necessary action is to regard the conditions that have lead to the renewed, continued use or initial use of landmines. There will be no end to the violence that results in landmine use unless there is a recovery socially, economically and politically. Demining should be carried out with other infrastructure development plans that contribute to a healthy country. Thomas Gebauer points out that, "Peace does not follow a plan that most donors look for... What is required is sensitive aid and long-term engagement. Without the recovery of a healthy social fabric, there will be no reintegration, no peace, no end to the violence."

International Conventions and Treaties

The United Nations Small Arms Conference, The Managua Declaration and the European Parliament Resolution demonstrated the international community's efforts to affect the fight against terrorism, address landmine use and hopefully, have a tremendous impact on all disarmament efforts. Unfortunately, many of these treaties ask for commitments from groups that are not bound or are operating externally from the governing laws of their own countries. Their interpretations of laws may be different

from the originating law making body. Many groups do not follow the laws of civil secular society and interpret laws from religious documents.

It appears transparent that all combatants, regardless of country of operation, religious or political affiliation, are capable of understanding that it is illogical to make the land they are fighting for unusable. Unfortunately, the goals are not clear-cut in guerilla warfare. This is a game where the rules change as you play and the immediate goal may be to secure one strategic point, or disrupt the living conditions of a local population. Internal conflicts, by their very nature, are fought among, with, and alongside the civilian population. An armed opposition group's goal of freedom, however that may be interpreted, may be fought at all costs, landmine use included.

If a state is a signatory to an agreement, all entities and individuals within the state are also bound, including NSAs operating within that state, (whether they like that idea or not.) Violations of such agreements compel or mandate prosecution by international tribunals. Where NSAs have been found to violate a treaty, they can then be prosecuted. The problem:

- The treaty must provide for criminal penalties.
- The language of the treaty must be clear and unequivocal. It is highly unlikely that there can be a successful prosecution where the violation is based on vague and/or ambiguous language.
- What if the state in which the NSA operates is not a signatory?
- How and who will monitor compliance?
- What will be used as credible evidence?

The NSAWG launched the Geneva Call, which advocates the adherence of NSAs to a total ban on AP mines as well as adherence to other "humanitarian norms". It also provides for a method of accountability for their commitments. According to Elisabeth Reusse-Decrey, co-chair of the NSAWG and President of the Geneva Call, "It hopes to fill a gap in the international legal regime whereby NSAs, who by definition cannot adhere to or be part of international treaties."

The NSAs would sign a "Deed of Commitment for Adherence to a Total Ban on Anti-Personnel Mines and for Cooperation in Mine Action", which would then be maintained by the authorities of the Republic and Canton of Geneva. Providing reports, field inspections and visits would monitor their commitment. This "soft approach" appeals to a sense of what is right and wrong from a humanitarian perspective. Because of the very nature of the types of wars NSAs are fighting, they may not be able to adhere to a total deed of commitment. It is hoped that they could at least commit to not targeting wells, schools, playgrounds, medical centers, and other necessities for civilian survival.

Numerous international conventions, regional agreements, bilateral treaties and even unilateral policies should seek to enhance security between states and reduce tensions. Effective arms control measures can only be achieved and sustained in a region where wars, armed conflicts, terror, political hostility and incitement are not features of everyday life.

The political reality of many of the countries affected by landmines mandates a practical step-by-step approach, culminating in a comprehensive peace or at the very least eventual establishment of a mutually verifiable zone free of land mines and other weapons of war. Once an area is declared a mine-free zone, violators *may* be prosecuted.

The program of action adopted at the United Nations Small Arms Conference was an important point of departure, even though it did not provide resources for implementation, nor have provisions against the transfer of small arms to NSAs. The Angolan representative underscored the close and complex link between terrorism, organized crime, drug trafficking, and the illegal exploitation of natural resources, illegal trafficking and easy availability of small arms and light weapons. Despite United Nations' efforts, those weapons directly affect everyday lives, more so than weapons of mass destruction. Small arms continue to land in the hands of terrorist groups, rebels and other NSAs.

At the same time, the proliferation of these small arms must be viewed from a total viewpoint of arms control and disarmament, post-conflict peace building, conflict prevention and socio-economic development. In conflict situations, the problem should be viewed comprehensively in the framework of demobilization and reintegration of ex-combatants.

Though armed opposition groups cannot sign on to international treaties, they can sign on to domestic treaties, be it peace treaties or cease-fire agreements with the government forces they have been fighting. These treaties can and should incorporate human rights and humanitarian norms, including a landmine use policy. The NSAWG advocates this approach because "acceptance of human rights and humanitarian norms, whether before or during the negotiation of domestic treaties, is a confidence building measure, which assists the peaceful settlement of disputes."

> "Rebel groups, by their very nature, reject some laws. However, there is a difference between rejecting some laws and all laws. International human rights and humanitarian law set out basic norms accepted by all humanity whether in peace or war, whether the conflict is internal or international.... The value of these norms has to be relearned with each armed conflict. However, the norms themselves do not have to be reinvented. Once armed opposition groups accept the applicability of these norms, it becomes possible to compare their behavior with their statements.... the non-governmental community can compare what armed opposition groups have said, through their acceptances and acknowledgements with what they do." - NSAWG

Why Should We Address Non-State Actors?

The dynamics of terror and the significance of NSAs require a global perspective or whole earth philosophy. NSAs are now addressing the whole globe when fighting their cause, not just their country of origin. The terror some NSAs are able to inflict does not take issue with people's politics; it assails their very existence by using intimidation and chaos as weapons. The international community must now address a "profound and unequivocal" challenge to global stability that is being orchestrated by groups that many civilians are not even familiar with. For all countries, the new global reality adds another complex dimension to regional stability. Landmines are one of many intense combinations of threats across the spectrum of internal stability.

The primary reason for approaching non-state actors is not just for adherence or compliance with landmine use as terrorism against civilians. The real reason to engage insurgent groups is to bring them into the political arena in a legitimate way. By opening a dialogue with insurgent groups, the isolation in which they operate in is removed. By being given a voice, they are less likely to choose obliteration or belligerence and risk silencing that voice in the international political arena. The NSAWG understands this concept of self-preservation and has developed a framework of approach for insurgent groups.

The mine action community can attest to the annual Landmine Monitor report for its excellent landmine information. The NSAWG utilizes the same standard of excellence in organizing its NSA database. The WGs approach to a non-state actor is developed in consultation with the affected communities. Engaging NSAs in the landmine issue provides the context for engagement in the conflict resolution and peace building process. The landmine problem becomes the jumping off point for the larger problems of peace building and infrastructure development. Again, it must be noted that there are some NSAs who cannot be engaged because of ideological or belligerent views. A dialogue can only be based on common goals or principles and if this is absent, nothing can be accomplished. NSAs in this category should be publicly pressured and denounced and thereby lose any legitimacy or sympathies they may have gained.

In this rapidly changing world, insurgent groups come to power, become state actors, disappear from the world map, are absorbed into other political parties, or operate, but are not claimed by legitimate political parties that are actively supporting them. Many NSAs are a surrogate force of

Afghanistan NSAs and Their Operating Environment

NSA's in Afghanistan include: Movement of Afghanistan NIMA, Hezbi-i-Wahdat Islamic Unity Party of Afghanistan, Hezbi-i-Wahdat-Akbari faction, Harakat-i Islami Islamic Movement of Afghanistan, Hezb-i-Islami Islamic Party of Afghanistan, Shura-yi Mashriqi Council of the East. Large areas of the south and northeast have guerrilla groups and foreign terrorist organizations that have set up training camps, with or without Taliban acquiescence. The Internet and international travel have developed many links between terrorist groups. Afghanistan is in financial decline, and political and economic chaos. Continued sources of instability in Afghanistan are the current U.S strikes, the civil war with the Taliban, which controls 90 percent of the country, and the other factions, most notably the Northern Islamic Alliance. Currently, there is no central government.

Landmine Use

The prolific and indiscriminate use of mines has been one of the most brutal aspects of the conflict and has left Afghanistan with perhaps the greatest level of mine contamination in the world. Conventional forces have used mines in defensive positions and to force populations off the land. Modern delivery systems have been applied to scatter these mines by helicopters, by fixed-wing aircraft and fired from artillery. Guerrilla forces have used mines to block roads and to harass their opponents. On September 11, 2001, landmines contaminated 720 square kilometers of Afghanistan. The Taliban and their opposition, the Northern Alliance, have accused each other of laying new landmines. The Northern Alliance denied use to Landmine Monitor, but admitted to an EU mission that they continued to use antipersonnel mines. There have been rumors that the Taliban regime forces are continuing to use landmines, but NGOs have not been able to confirm this. In light of the current conflict, it can be assumed that more landmines will and are being used.

"Because the norms are there, we can avoid the horrors and tragedies of past armed conflicts. We need only to pay attention to the experience of the past encapsulated in existing human rights and humanitarian norms. Communicating human rights and humanitarian norms to the parties in an armed conflict is nothing less than communicating the wisdom of civilization accumulated from the depths of past human suffering." - *David Matas*

the state itself or of another state. In both cases, approaching the surrogate group could prove a productive means of engaging the state party itself. Some rebel groups may eventually become governments or are already de facto governments in areas under their control. To engage them would enable networks of trust and accountability to be built upon.

Because many different NSAs operating in various countries may be linked by ideological or religious vision, engaging with one in the peace-building process may open the door for engaging other groups that share a similar vision. As has occurred in many countries, once peace is restored many NSAs have been called on to assist demining in areas under their control or work within their communities in the mine action field.

There are a number of tested precedents for post-war non-state involvement in humanitarian mine action. In Central America, the conflict settlement allowed for major non-state parties in El Salvador and Nicaragua, and subsequently Guatemala, to acknowledge a regional mine problem and join the demining effort as demobilized personnel. The involvement of demobilized irregular combatants in demining work in Namibia, Mozambique and Zimbabwe is well known.

Some NSAs have acknowledged the need to reconsider their use of landmines. Unilateral statements and bilateral agreements with clear references to mines have been made by non-state armed groups to the ICBL in Sudan, the Philippines, Somalia, Colombia, Western Sahara, Kosovo/Yugoslavia and Afghanistan, among others. Some of these groups have already publicly committed themselves to a ban on landmine use. Others have indicated their willingness to make a renunciation of mines, contingent on their opponent governments doing the same. Still others appear willing to support mine clearance and victim assistance programs in areas under their control. While the ICBL sees this as a promising development for their cause it can also be viewed as an attempt by NSAs to integrate into the global political arena.

Engaging NSAs through a persuasive and inclusive process of dialogue and education, appealing to appropriate legal and normative reference points and to political self-interest can be viewed as one attempt to curtail their power and use of weaponry— landmines included. In the aftermath of September 11th, views across the globe have radically changed towards NSAs. For many NSAs that are belligerent the view must be broadened from curtailing their use of landmines to curtailing their power completely. This, however, may not solve the problem but create the isolation and martyrdom that many of these groups thrive in.

The NSA Working Group believes that, wherever possible, NSAs must be approached in consultation with the communities affected. Careful attention must be given to the political context and to the impact of landmine work on other initiatives aimed at establishing a just and lasting peace.

Conclusion

The plight of mine-afflicted communities is not neatly distinguishable from communities inflicted with war and impoverishment. It is war and impoverishment that set the foundation for militant and radical NSAs to gain momentum and a loyal following. While governments, donors and NGOs can undertake humanitarian demining and integrated mine action plans, it is often politically and economically impossible for mine action organizations to address the root causes of the impoverishment and conflict. This is the very factor that directly or indirectly paves the way for the proliferation of NSAs and the wars that go with them. ■

Sources

Jane's Intelligence Review
Jane's Intelligence Digest
Reuters
Landmine Monitor 2000
Landmine Monitor 2001
"Tools of Engagement on NSAs in the landmine ban"- David Matas
"The Ottawa Treaty and NSAs"-Soliman M. Santos Jr.
Report from the NSAWG, March 1998-March1999
"The International Criminal Court and Rebel Groups" Soliman M. Santos, Jr
"Building a Social Transformation Perspective for Mine Action Programs"-Alejandro Bendada
"Mine Action in the Context of Social Integration"-Thomas Gebauer
ICBL NSAWG Information Paper "The Use of Landmines by NSAs"
NSAWG Database

Contact Information

Margaret Buse
MAIC
1 Court Square
Harrisonburg, VA 22807
E-mail: busem@jmu.edu

Travelogue: Afghanistan

Oren Schlein shares his experiences first hand of Afghanistan, the Taliban and the Adopt-a-Minefield program.

by Oren Schlein, *Executive Director, Adopt-A-Minefield®*

In early July 2001, I traveled to the Afghan cities of Kabul, Jalalabad, Herat, and Kandahar. The purpose of my trip was to assess the status of our Adopt-A-Minefield® program in the country. I was hosted by the Mine Action Program for Afghanistan (MAPA), which is a part of the United Nations Office for the Coordination of Humanitarian Affairs in Afghanistan (UNOCHA). This report was written after the terrorist attacks on New York and Washington DC on September 11, 2001. Adopt-A-Minefield® is a program of the United Nations Association of the USA.

Initial Impressions

My field mission to Afghanistan was longer than most of my other visits to mine-affected countries. This was because of the difficulty in obtaining authorization to travel in-country and the rather vast distances between destinations. It took me over a month to obtain my visa to enter Afghanistan and even once I arrived in Kabul, I had to visit a Taliban office to obtain further internal visas to travel within the country. The process of obtaining these visas was a small example of the extremely bureaucratic nature of the Taliban regime.

Afghanistan has suffered such a complete and extreme level of structural collapse over the past two decades of conflict that Afghan society has been thrust back into a primordial age in which nobody takes their daily survival for granted. Essential services that we take for granted in our own societies, including health care and education, and basic infrastructure are virtually non-existent in Afghanistan. The country has also suffered a severe drought for the past four years. Even before the recent mass exodus of Afghans from most urban centers following the September 11th attacks on the United States and the subsequent military strikes on Afghanistan, there were nearly four million Afghan refugees living in Pakistan and Iran, and hundreds of thousands of internally displaced persons living throughout Afghanistan. As recently as this summer, the United Nations and other international aid agencies were providing food and basic humanitarian services to more than three million Afghans. The number of Afghans now in need of such assistance has risen to over seven million, out of a population of 20-21 million people.

In spite of the horrible human tragedy that has afflicted the Afghan people in recent years, they are a remarkably resilient, proud, and generous people. Everywhere we went, we were welcomed with open arms and the heartfelt appreciation of those whose lives we have helped through Adopt-A-Minefield®.

Background to Adopt-A-Minefield® in Afghanistan

Afghanistan has been one of the most popular and well managed Adopt-A-Minefield® programs at the country level. This is because MAPA's mine clearance program in Afghanistan has been one of the best coordinated and implemented in the world. The model established by the UN in Afghanistan during the 1990s has served as an important example for developing and managing other national mine action centers. Adopt-A-Minefield® joined the UN's efforts to clear mines in Afghanistan in 1998. Since then, over $550,000 has been raised through the collective fundraising efforts of hundreds of individuals and groups in the United States and overseas for mine clearance operations in the country. The sites included in the Adopt-A-Minefield® portfolio represent a cross-section of the types of projects that MAPA undertakes, both geographically and in terms of the types of clearance tools used. We have funded the clearance of sites in the Central, Western, Eastern, and Southern Regions of Afghanistan, and we have plans to support clearance

■ This compound near Herat is small, yet demining teams have had to deploy every type of clearance tool at their disposal.

operations in the Northern Region. The diversity of land and topography in Afghanistan is truly remarkable. The skills required to clear all these areas is equally diverse.

MAPA uses four main types of demining resources, including manual clearance teams, mechanical clearance teams, mine detection dogs, and explosive ordnance disposal teams. Afghanistan has about 50 percent of the world's mine detection dogs, and a majority of our Adopt-A-Minefield® sites are cleared with these dogs. MAPA incorporates a *toolbox* approach in its clearance operations, which means that it often uses two or more demining techniques in its work to improve the efficiency of its demining operations. Effective implementation of this approach also results in significant cost savings.

Kabul: 3-5 July 2001

Because of the United Nations sanctions on Afghanistan, all flights in and out of the country are run by the UN, which bases its operations out of Islamabad. The flight path over Kabul is over the Hindu Kush mountains, which are a stunning introduction to Afghanistan and no preparation for the devastation below. By air, one is welcomed to Kabul by the sight of derelict and abandoned buildings, and bombed out planes, tanks, and other remnants of war surrounding the rudimentary runway. No effort has been made to remove these obsolete planes and tanks from the airfield. The terminal itself is a dark, empty, and depressing structure with no electricity and dozens of broken windows. Although a handful of Taliban security don't appear terribly interested in our arrival, I am rather nervous about the fact that I am carrying camera equipment with me, as the Taliban prohibit any photography of live beings, including people and animals. The penalty for being caught is imprisonment.

Our First Security Briefing

The first thing we did upon our arrival at the guesthouse was receive a security briefing. It was perhaps the most important meeting we had in each city we visited because it alerted us to any security problems in the area — perhaps fighting among the Taliban and the Northern Alliance forces, or bandits operating outside the city centers — and what specific evacuation plans were in place in the event we needed to quickly leave the area.

The Taliban Ministry of Interior is the security focal point in Afghanistan. It is responsible for looking after the armed Taliban guards posted outside the UN compounds with their Kalashnikovs — ostensibly to 'protect' the UN staff. In Kabul alone, there are several UN compounds, each housing a different UN office. The Taliban were constantly threatening to evict the UN from these compounds, and negotiating with the Taliban had become a great source of frustration to all UN staff. It had become commonplace for high-level UN officials to spend a majority of their time dealing with administrative issues of this sort, taking them away from the humanitarian assistance work that they sought to provide to the Afghan population.

We were told to avoid the Taliban 'guests' Arabs, Pakistanis and Chechens who came to Afghanistan for terrorist training. This includes not even driving anywhere near their compounds or in areas where they are known to be. Foreigners are told not to accept invitations to Afghan homes. On several occasions, we were invited to dine in their homes, but we did not accept any of these invitations, as the penalty for doing so is imprisonment for the Afghan hosts. Foreigners are also imprisoned, but usually released within hours. Afghans are frequently detained for several days and the detention has been described to me as an 'unpleasant experience.'

The Vice and Virtue

In the weeks before our visit, there had been several incidents monitored by the UN security officer in Kabul, some of which had made it into the international press. Most of these involved the Ministry for the Prevention of Vice and the Promotion of Virtue the Vice and Virtue, or religious police, as they are more commonly known. They are a constant source of fear to the local Afghan population.

The Vice and Virtue had been particularly active in Kabul in the two months prior to our visit. A couple of foreign workers from the Comprehensive Disabled Afghans' Program, a landmine survivor assistance clinic, had been detained for three days because they had been caught with music tapes in their cars — a 'vice' prohibited by the Taliban. Other vices include owning televisions, video players and satellite dishes, clapping, and singing. Foreigners can be jailed up to 14 days, and Afghans can be detained up to six months and have the power to their homes cut off for any of these offenses.

One of my lasting impressions of Afghanistan is that although the country is beleaguered and the situation often grim, the Afghan people display great fortitude in the face of all their difficulties. Theirs is a very proud can-do attitude and they are unfailingly grateful for any help they receive. I met a number of committed UN employees and brave and resolute deminers during my visit. Afghans are very fond of proverbs and seem to have one for every situation. While we were in Jalalabad, the head of the Mine Detection and Dog Centre shared a poignant proverb with the graduates of the Monitoring, Evaluation and Training Agency, which summed up the efforts of all deminers, aid workers, and donors: 'A person who saves one life saves a society.'

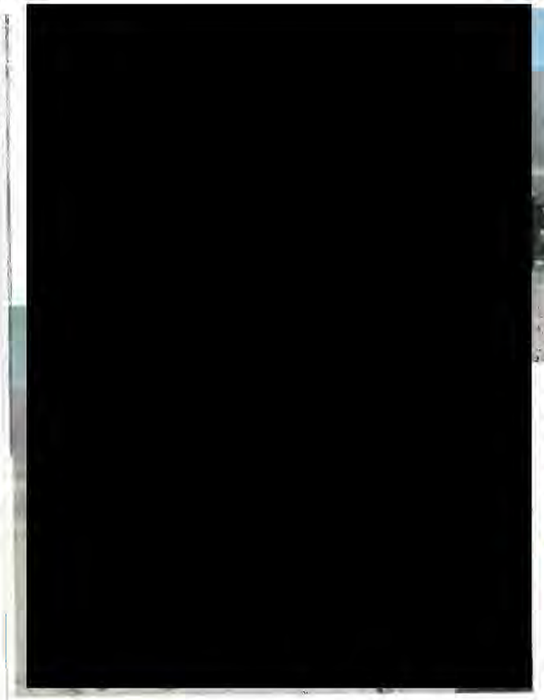
A few days before my arrival in Kabul, the Taliban had scaled the walls of one of the UN compounds, with their Kalashnikovs in hand. They spent 15 minutes rifling through the premises, having a good look at all the rooms, equipment, and fixtures. Shortly after their departure, the head of the UN regional office received a call from a senior Taliban official informing her that the UN had 15 days to vacate the premises. This bullish attitude is very typical of the Taliban's treatment of the UN and other foreign aid agencies. This particular story had a better ending than most — UN staff engaged in several late night discussions with their Taliban counterparts, explaining their legal rights of abode and that it was in the best interests of the Afghan people that the UN be permitted to remain in the compound so that they could continue their work. The sense of exasperation that I heard from many UN workers related to the fact that the Taliban had a habit of making impulsive decisions without considering all the facts and consequences of their actions beforehand.

In spite of the widespread fear, anxiety, and repression that they engender, the Vice and Virtue can also be a source of bemusement to the local population. On our way back to the UN guesthouse, we passed a contingent of Vice and Virtue in their archetypal black Toyota pickup truck — the vehicle of choice among the religious police. They were driving through the streets of Kabul shouting at the locals through speakers mounted on the top of their truck. As we passed them, I noticed that my Afghan host was not wearing his turban. This is an essential requirement for every Afghan male. He turned to our driver with a big grin on his face and told him to drive faster. I asked him whether or not he was concerned about being stopped and he proceeded to laugh out loud and tell me that the Vice and Virtue were essentially a 'bunch of clowns.'

Meeting the Taliban

We had a meeting scheduled with the Office of Disaster Preparedness, which includes the Department of Mine Clearance, the official Taliban entity responsible for setting demining priorities along with the UN Mine Action Center for Afghanistan. We were warmly greeted by eight Taliban officials. We removed our shoes, exchanged handshakes, hugs, and smiles, and were seated at a long rectangular table. I introduced myself and explained the Adopt-A-Minefield® program to my hosts. They were pleased that so many of our Adopt-A-Minefield® donors had supported mine clearance efforts in Afghanistan. With the money we had raised in 2000, we were among the top ten donors for mine clearance in Afghanistan, and the only non-governmental organization in this

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1



a few days earlier in Islamabad, in which he informed me that if anything happened to me while in Afghanistan, there was nothing the U.S. Government could do to protect me.

Regional Mine Action Center

After our meeting with the Taliban officials, we met with representatives from the Kabul Regional Mine Action Center (RMAC). The Kabul RMAC is the organization responsible for overseeing the survey and clearance of mined areas in the Central Region of Afghanistan. It works closely with the national Mine Action Center in Islamabad and with its implementing partners — those nongovernmental organizations that specialize in mine clearance, survey work, mine awareness, and survivor assistance.

Our first visit was a tour of the headquarters and kennels of the Mine Detection and Dog Center (MDC) in Kabul. This organization was established in 1989 and is recognized as one of the most advanced mine detection dog organizations in the world. It works under the auspices of UNOCHA and MAPA. Originally funded by the United States, MDC is now funded by Germany. MDC's objectives are to clear priority mined areas and to survey suspected mined areas. It has its own breeding program with more than 100 dogs and operates in four of Afghanistan's five regions.

The Village of Merza Khail

On the Fourth of July, we ventured into our first mine field, an area known as AFG-070 (a number designated by Adopt-A-Minefield®), which was being cleared by MDC. During the Soviet occupation, Russian forces used the main road near Merza Khail to travel between a nearby military base, which housed a rocket depot, and the Pakistan border. The road was heavily mined by the Mujahedeen to deter the Russians, and today all the villages in the area are suffering the consequences of this mine contamination.

During our visit, we met with seven village elders. They told us that many mine accidents still occur along the road and near the village. Several children have been maimed and killed by mines in recent years and, as a result, they are confined to specific areas in and around the village. Villagers have also found mines while ploughing the arid fields behind the village and many animals have been lost to mines. Even the village well was mined during the war, rendering the village's main water source unusable.

When I asked how old the village was, I was told that it was 'five or eight great-grandfathers old.' Before the Soviet occupation, 80 families of five or six people each lived in the village. Now, only 20 families remain, with most having left the area and settled as refugees in Pakistan. With regard to the mine problem, Niamatuwllah, the village elder, explained that his village has a home-based school for boys, not girls, which incorporates mine awareness into its curriculum. He also mentioned that the school only teaches the Koran, and no secular subjects. In addition, the deminers working in the area provide mine awareness training sessions two times a week to the children and men. This effort to increase local awareness about the mine problem is part of a countrywide effort in Afghanistan to integrate mine awareness into the activities of demining organizations. Because of the Taliban prohibition on women receiving any form of education, and certainly any form of training by men, the mine action community in Afghanistan has established female mine awareness teams based in the cities that travel to the villages to instruct women on the dangers of mines. The reality is that women rarely venture out of their homes or villages, so the immediate threat of mine injuries is significantly less to them than it is to men and children.

The Clearance Process

MDC was halfway through clearing the road around Merza Khail when we visited. They had a five-week-long clearance plan, in which they expected to clear 117,523m^2, a five-kilometer stretch of land about 25-30 meters wide. Mine Dog Group 7, or MDG7 as it is known, is led by Taj Mohammed, the group leader. His group is split into two sections of six deminers each, two dogs with handlers, and one section leader. In addition, MDG7 has one paramedic and two drivers to assist with medical emergencies, transportation of the deminers and their equipment, and other logistical requirements.

As with most mine clearance operations, this particular demining project was slow, tedious, and dangerous. The demining teams mark off a base line from which to operate and deploy the dogs along an eight-meter-long leash. They are trained to sit in place if and when they detect anything suspicious, at which point the dog handler calls the section leader to the area. The section leader marks a two-square-meter area, using the dog's position as the center point. The dog is given a blue ball as a reward for his efforts and the manual deminers are then called in to clear the area.

A Glimpse into the Soviet Occupation—the Village of Surkhab

Following our visit to Merza Khail, we drove 15 minutes south to the village of Surkhab, along a shelled road with large, deep artillery craters. The sites that have been scheduled for clearance lie along both sides of the road. Before the drought, the entire region was fertile agricultural and grazing land. Now, it is a massive, dry lakebed. Most of the area is littered with landmines, particularly antitank mines laid by the Mujahedeen to protect their positions against advancing Russian troops. There have also been several accidents along the road, including children injured while playing with mines and unexploded ordnance. The net effect of the drought and mine problem on the village of Surkhab is that three-quarters of the 90 families in the village have left the area. Twenty families remain; the rest are refugees in Pakistan.

The village is 'three fathers old' about 100 years. It has suffered extensive hardship over the past 20 years. In 1980, the Russians attacked all the villages in the valley, but Surkhab suffered particularly badly. The Russians conducted repeated aerial bombings of the village because it was home to several Mujahedeen fighters. At one point, the Russians raided the village for five continuous hours, shooting a dozen men, women, and children, and taking all the animals.

Following this incident, most of the villagers abandoned their homes, heading for the hills above or fleeing the valley for Pakistan. Tragically, four villagers, all Mujahedeen, remained behind. They were captured by the Russian forces and locked in the village Mosque, a simple room, which was set afire. Three died and one was severely injured. Their fellow villagers witnessed the incident through binoculars. The three victims are martyrs to the Afghan jihad, or holy war, against the Russians. The Mosque in which they died is now a mausoleum to Tela Mohamed, Berget, and Lal Gul. The one survivor, Hazart Gul, now lives as a refugee in Iran.

Za Zai, the village elder who told me this story, said that village life was forever changed by this incident. Most of the villagers who lived in refugee camps during the Soviet occupation of Afghanistan now have established lives in Afghan communities in Pakistan. Surkhab receives no food or other assistance from aid agencies. Most of the villagers work as laborers in Pakistan and Iran to support their families. The average laborer in Afghanistan earns $0.80 a day; in Pakistan, they can earn over $1 a day. This is still less than the $4 a day necessary to feed a family of 8-10 people, but with multiple family members working, most villagers just manage to survive.

RMAC has surveyed the area around Surkhab and identified 160,000m^2 of land that will need to be cleared to accommodate the needs of the entire village. In the process of surveying the land, the deminers found one antitank mine by the side of the road. As a result, the villagers are more vigilant than ever, they welcome mine awareness teams to

JOURNAL: Issue 5.3: Landmines in The Middle East Focus

Emergency, a landmine survivor assistance clinic

The Vice and Virtue had scaled the walls of Emergency, with their Kalashnikovs, on May 17, 2001. They were upset by reports of men and women eating together in the clinic's cafeteria. Rather than approach the clinic's administrators and investigate the alleged incidents, they beat up local staff and foreigners, arrested several workers, and shut down the clinic, which had only recently opened. Emergency had an annual budget of $1 million and had built a state-of-the-art facility in Kabul. They have similar clinics in other mine-affected countries and have provided medical services, including complex life-saving surgeries, to 200,000 people — about 20-25 percent of whom are mine survivors — worldwide over the past seven years. The Kabul clinic was to have been one of the better sources of medical care in Afghanistan, supported by several first aid posts around the country. Since the raid, it has sat idle and vacant.

their village, and they carefully monitor the movements of their children.

A Demining Challenge

A mine field is a difficult concept to grasp without having visited a range of sites. There are so many physical characteristics to mine fields, differing types of terrain, and varying climatic conditions in which to undertake clearance operations. On the last day of our visit to Kabul, we visited the village of Pashaye, a two-hour drive from the capital.

The Dara-i-Pashaye valley, in which Pashaye is located, was one of the most fertile areas I visited during my Afghan travels. It was green, agriculturally productive, and clearly not affected by the drought that has devastated so much of the rest of Afghanistan. Afghan Technical Consultants (ATC), the country's largest demining organization, had cleared much of the agricultural land in the valley, which has been returned to the villagers. They were now hard at work clearing the rocky hills above.

On the day of our visit, ATC had found three antipersonnel landmines. As we sat in our vantage point halfway up the hill, we observed more than 20 deminers carefully sweeping the ground with their metal detectors, occasionally crouching down to clear the earth around a suspected mined area. The deminers faced two big problems. The hills were steep and the deminers were susceptible to accidents if not careful, and the soil itself was hard and comprised of stones of high metallic content. The metallic content slowed down the clearance process considerably because they triggered false alarms, each one requiring the deminers to manually check the ground for mines. It was by far the most perilous mine field that I have seen cleared over the past several years.

There is a very sad footnote to this story. Several days after our visit, we received news that one of the ATC deminers had slipped while unearthing a suspected mine in these same hills above Pashaye. The deminer lost part of his leg. Until this accident, MAPA had not suffered any demining casualties in 2001, a significant drop from the 11 accidents in 2000. It was a solemn moment for the entire demining community in Afghanistan.

Jalalabad: 6-7 July 2001

Early in the morning of July 6th, we left the UN guesthouse in Kabul for the five-hour drive to Jalalabad, Afghanistan's easternmost city, about an hour's drive from the Pakistan border. The road was better than most in Afghanistan, even though more than half of it was still unpaved. We caught glimpses of many unexploded ordnance, including artillery shells and rockets, lying by the side of the road and high up in the hills above us. Jalalabad is distinctly different from Kabul. It is greener, more relaxed, and in some respects more animated than the capital city. It is also much hotter and more humid than Kabul. In more prosperous times, Jalalabad was a holiday retreat from Kabul.

We met officials from the Regional Mine Action Centre for the Eastern Region, who discussed the mine contamination problem in the area. As throughout Afghanistan, the Russians and the Mujahedeen both laid mines during the Soviet occupation. After the departure of Russian forces, the UN estimated that there was 131km^2 of mined land, including 110km^2 of high priority land, which needed to be cleared to enable refugees to return to their homes and existing populations to cultivate their land. To date, 60 percent of the high priority areas in the Eastern Region have been cleared, more than 70,000 mines and 91,000 UXO have been destroyed, and nearly three million metal fragments found. In addition, more than 1.2 million people have received mine awareness instruction.

National Capacity Building

One of the key challenges facing the international landmine community is to develop national capacities for local mine action organizations to manage their own programs without disproportionate external assistance. The Mine Action Programme for Afghanistan has illustrated the success of this approach over the past 12 years. In 1990, when the program officially started, there were a few hundred deminers assisted by dozens of international technical advisors. Today, there are nearly 5,000 Afghan deminers and program managers, assisted by less than a dozen expatriates.

The Poppy Fields of Jalalabad

In Jalalabad, we visited three Adopt-A-Minefield® sites along the former frontline between the Mujahedeen and Russian troops. The area witnessed heavy fighting and considerable casualties. Hills and mountainous terrain run along a North-South corridor known for its abundant production of poppies. The poppy trade has been one of the greatest sources of income for Afghanistan in recent years, furnishing a vast amount of the world's heroin supply. In 2000, Mullah Omar, the spiritual leader of the Taliban, ordered that all poppy crops in the region be destroyed and replaced with wheat. On this blisteringly hot, sunny July afternoon, as we drove through the villages of Nangarhar province, there were no poppy fields in sight.

One of the villages we visited, Lala Qala, had been a base for the Mujahedeen fighters attacking Russian positions in the hills. The area had witnessed 50 mine incidents and in a 22,000m^2 area of agricultural land that had recently been cleared, deminers had found 26 antipersonnel landmines and three unexploded ordnance, as well as nearly 20,000 metal fragments. It took 35 days to clear the area, benefiting 400 people from the local village. Aiding their efforts, the deminers relied upon a mechanical backhoe excavator. Unlike manual clearance efforts or mine detection dogs, mechanical mine clearance can be significantly faster, although proportionately more expensive. Although mechanical mine clearance is the least cost effective clearance tool, the deminers lower costs by using Afghan machines and spare parts. Although not appropriate for all terrain, the excavator is ideally suited for the flat agricultural fields and irrigation canals of Lala Qala.

Herat: 8-10 July 2001

Herat is unlike either Kabul or Jalalabad—it's a beautiful, desolate desert town. As we flew into Herat, all we could see for miles was a barren, dusty wasteland. It was hard to imagine that the terrain could support any life.

This area between Kabul and Halalabad is one of the few not to have suffered from Afghanistan's recent drought.

Unexpectedly, the city appeared like an oasis in the distance. While its outer perimeter blended into the outlying desert, the city itself was remarkably green and lush, with handsome minarets and mosques dotting the city center.

The UN security officer at the UN guesthouse informed us that there were all sorts of Afghan factions in the mountains around Herat who were fighting each other. At times, these factions allied themselves against the Taliban. There was a major Taliban base south of the city and there were major security threats to the east and south. In fact, the local militia had erected large roadblocks and the threats were so severe that the Taliban rarely ventured along the main road east of Herat anymore. The west was relatively quiet because of a large Taliban presence, and the north experienced some limited activity.

Upon inquiring, I was informed that there was no evidence that either the Taliban or local militia were laying mines in the Western Region. Nevertheless, large numbers of mines left over from the 1980s threatened the local populations, the Kuchi (nomad) tribes, and the 95,000 internally displaced persons (IDP) living in the area. There were six IDP camps near Herat and large Kuchi populations that moved about frequently in search of arable land, as the drought was particularly severe in western Afghanistan. Awareness of the mine problem was limited in Herat. In the past two years, mines had injured 15 IDPs, three in 2001 alone, and these are only the reported cases.

The Organisation for Mine Clearance and Afghan Rehabilitation (OMAR) is among those organizations that has conducted comprehensive mine awareness instruction throughout the region in an effort to educate the population and help stem the tide of mine victims. One afternoon, we visited an outdoor mine awareness class on the main road out of Herat. At least 50 children were in attendance. The collection of materials, including silkscreen posters and coloring books, was impressive given the limited resources. We had also hoped to see a women's mine awareness class, but the local Taliban officials even forbade the Western female in our party from attending.

Published by JMU Scholarly Commons, 2001

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

Sand Storms Near the Turkmenistan Border

We visited five minefields while in Herat, but the most memorable was Kuhkst, about 25 kilometers south of the Turkmenistan border. As we approached Kuhkst, a sand storm descended upon us and we were overcome by a sand swell, which didn't let up for 15 minutes. Apparently, both sides of the road were mined. It was hard to imagine that this agricultural land was viable given the harsh conditions. Yet, the soil has such unique properties that they could grow rain-fed crops. I found myself in a field of sunflowers and melons, although I couldn't see more than five feet in front of me. In spite of the strong winds and sand storms, manual deminers had been clearing the entire area—a seemingly impossible task. It once again illustrated the perseverance and courage of the deminers.

The village of Haji Basher was a former Russian military base along the main transit route from Pakistan. The red stone markings indicate suspected mined areas

Residential Mine Fields

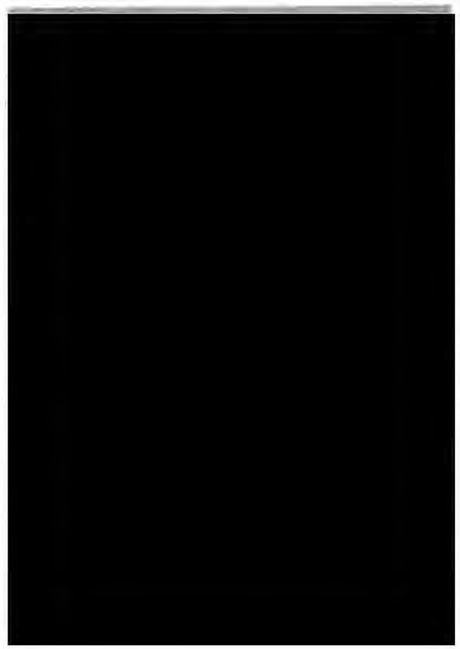
Along the main road leading into Herat are several villages that were heavily mined during the Soviet occupation, including the village of Deza. It is located next to an old Russian munitions dump, which the Mujahedeen blew up during the war. The ensuing fire burned for three days and three nights. In all, 14 people were injured and eight killed. The explosions also destroyed many homes. Years after this incident, the villagers of Deza and four nearby villages continue to suffer from the presence of mines. There have been several mine accidents and much land is unusable. During recent clearance operations, deminers found more than 300 UXO and 48 antipersonnel landmines in the area immediately adjacent to the old munitions depot. As we walked through the village, debris, including old burned out tanks, was strewn everywhere. Red stones and red flags marked those areas where mines had been found, some as close as five or ten meters from village homes. Several children greeted us during our visit. They played in areas that had been cleared by the deminers, although it was evident that so long as some of this land remained mined, there was an accident waiting to happen.

A few miles closer to Herat is a compound belonging to one of the city's prominent religious elders, Eamaddin, who has more than 200 followers. During the war, Russian forces used his large, luxurious house as a military base and also conducted heavy aerial bombings of the area. The site changed hands many times between the Russians and Mujahedeen. What remains today are some external walls and the façade of some of the houses within the compound. The area is so heavily contaminated with mines that none of Eamaddin's family are able to return to their homes. Of the eight families that lived here before the war, six families are refugees in Iran, and two families have returned to Herat to rebuild the compound once it has been cleared of mines. Eighty family members in all hope to move back after demining operations are completed later this year. Wahid Duddin, Eamaddin's son, lives on the edge of the compound with his two sons and wife in a new house that he has built until he can move back into his old home. They are literally living in a live mine field. In 1995, an antipersonnel landmine killed one of Wahid's relatives and injured another when they entered the compound.

Kandahar: 11-13 July 2001

The final stop on our Afghan journey was Kandahar, home of the Taliban. After more than a week of hearing Taliban stories from my UN hosts, and having met a few in Kabul, I was somewhat apprehensive at the realization that I would be spending the next few days in Mullah Omar's backyard. Mullah Omar lives just a few miles from the airport, and we passed his home on our way to the UN guesthouse. As the guesthouse is on the opposite side of town from the airport, we also had to drive through the central marketplace. It was bustling with activity, more so than any of the other cities we had visited. This was largely because the Taliban feel more secure in Kandahar than elsewhere in Afghanistan and they impose fewer restrictions on the local population. As foreigners, however, we were strongly advised to keep an even lower profile in Kandahar than in the other Afghan cities.

Kandahar has a long and turbulent history. The city was destroyed during the Soviet occupation. Years of fighting have left it with the dubious distinction of being the most heavily mined city in Afghanistan. As I discovered during my two-day visit to Kandahar, virtually every part of the city has been mined. Homes and agricultural fields within a stone's throw of the UN guesthouse are mine-contaminated. It is an urban disaster that has not afflicted other Afghan cities to the same degree, nor with the same level of long-term humanitarian consequences. The mine problem is not limited to Kandahar city, however. The rural areas of the Southern Region are equally affected.



Demining a City

The most poignant memories I have of Kandahar are visiting mine-affected communities on both sides of the main road that runs through the center of town. The first site we visited was Ward 6, a five-minute drive from the UN guesthouse, on the west side of Kandahar. The site is a 51,405m² residential area, which was the scene of intense fighting between Russian troops and the Mujahedeen. The Russians held the top of an adjacent hill to monitor traffic on the main road below. The Mujahedeen advanced from positions on the other side of the hill. Both parties heavily mined the area. Because of the complications of detecting and removing mines and unexploded ordnance amid the rubble of the old homes, the demining teams have had to flatten many of the houses. As of my visit, they had unearthed 71 antipersonnel landmines and 189 UXO, and the most complex part of the task, clearing the area around the walls of the homes, was yet to be completed.

An hour's drive to the east, we reached the village of Haji Basher. Haji Basher was a former Russian military base along the main transit route from Pakistan, which was used as a strategic post to defend Kandahar city. The village was so strategically important to the Russians that they laid a large mine belt around the village and surrounding areas. Although most of the villagers no longer live in Haji Basher, Kuchi tribes regularly travel through the area. Because of the high level of mine contamination, the accident rate is very high. There have been 15 accidents in this area, including three deminers, five Kuchis and villagers, and several animals. While walking through the 'safe lanes' (two lines of white painted rocks) carved out of the mine belt, we found the remains of a camel that had detonated a mine last year. Because of the high-density nature of the mine field, mine detection dogs do not work well in this terrain and the local demining organizations do not have suitable machines to clear the land. The entire area is being cleared manually. Eight different tasks have been surveyed and it is expected that it will take several more months to complete the project.

Our final stop was a medical and agricultural university in the heart of Kandahar. The school was heavily mined during the Soviet occupation and most of the buildings were either bombed or ransacked. It was a difficult clearance task because of all the rubble. Deminers found 19 antipersonnel landmines and 10 unexploded ordnance in the compound. Although most of the buildings have not yet been reconstructed, the students we met were very proud that they were able to study in such adverse conditions. Our UN hosts informed us that these same students had helped loot their own classrooms during the occupation.

To Quetta and Home

We concluded our trip to Afghanistan with a sumptuous meal provided to us by the Kandahar office of the Mine Detection and Dog Centre. Because of the restrictions on foreigners visiting Afghan homes, all the demining organizations we met in our travels offered us elaborate meals or refreshments in their offices or in

The desecrated mausoleum of the former King of Afghanistan, King Nadir Shah, the father of the exiled King Zahir Shah.

the field. We never lacked enough good Afghan food—Palau, lamb korma, chicken korma, melon, firni (milk custard dessert), and green tea. The hospitality extended to us was unforgettable.

Afghanistan Program Update

Since the terrorist attacks in the United States on September 11, 2001, and the most recent military strikes against Afghanistan, the United Nations has suspended all demining operations in Afghanistan until security conditions improve. As a result, we have had to temporarily suspend all minefield adoptions through the Adopt-A-Minefield® program in Afghanistan. UNOCHA and MAPA offices throughout the country are closed, except for a small number of deminers who have been retained in each regional center to respond to emergency needs. UNOCHA and MAPA headquarters in Islamabad remain open and MAPA is currently developing post-war plans for responding to the immediate threats resulting from the current conflict.

Once demining operations resume, we expect MAPA to reassess the mine contamination problem in the country and to formulate a new work plan for its clearance activities. It is possible that some of those Adopt-A-Mine-field® sites that were being cleared or scheduled for clearance when the program was suspended may no longer be high priority sites once this reassess-ment is concluded. We will inform all donors whose sites are affecred by this reassess-ment and offer them alternative sites to which they can apply their funds. All donations received for the Adopt-A-Minefield® program in Afghanistan prior to the suspension will remain in escrow with the United Nations until clearance operations resume.

Since the military strikes against Afghanistan were launched, the UN has resumed limited humanitarian aid to Afghanistan to try and alleviate some of the harsher consequences of the drought and the population displacements. MAPA for its part is developing contingency plans for addressing the probable impact of the current military strikes. They have identified three areas of critical concern to the projected 1.5 million Afghan refugees and 2.25 million internally displaced persons: the threat of existing mines and UXO; the threat of collateral damage from extensive aerial bombardment; and the threat of new mines, UXO, and munitions. MAPA's response to these threats will include strengthening existing mine awareness capacities around the country; deploying quick reaction teams to each major city; and utilizing survey teams, clearance teams, and explosive ordnance disposal teams to clear roads and essential urban areas in order that humanitarian activities can resume and that refugees and internally displaced persons can return to their homes. Currently, MAPA is training its staff and partner organizations to address Afghanistan's post-war requirements. Until it can resume operations inside Afghanistan, MAPA is focusing its efforts on providing essential mine awareness instruction to refugees and internally displaced persons along the Afghanistan-Pakistan border.

Adopt-A-Minefield® has established an Afghanistan Emergency Response Fund to accept donations to support the UN's emergency response efforts in Afghanistan. We will forward the UN one hundred percent (100%) of all donations received through this Fund. Adopt-A-Minefield® will work closely with its UN colleagues in Pakistan, Afghanistan, and New York to obtain regular updates, which will be posted on our website (www.landmines. org).

Over the long-term, the Afghan people must have their land cleared regardless of who rules their country or how hard their lives are. Afghans need help now more than ever. Prior to the current conflict, landmines affected all aspects of life in Afghanistan. Recent events have compounded the hardship that communities across the country face and significantly increased the pressures on the financially strapped mine clearance organizations that operate in the country. In the weeks to come, we are hopeful that the situation in the region will stabilize and enable the UN to resume its demining operations. In the meantime, Adopt-A-Minefield® will continue to support the UN's humanitarian work through the Afghanistan Emergency Response Fund. ■

This travelogue is excerpted from a full-length document, which can be viewed online at www.landmines.org or by requesting a copy at info@landmines.org.

**All photos courtesy of Adopt-A-Minefield.*

Contact Information

Adopt-A-Minefield
United Nations Association of the USA
801 Second Ave.
New York, NY 10017
Tel: (212) 907-1300
Fax: (212) 682-9185
E-mail: info@landmines.org

Interview with Martin Barber, Chief of United Nations Mine Action Service

The United Nations Mine Action Service has a successful program operating in Afghanistan that employs 4000 local Afghanis in mine action. Currently, they are mobilizing their efforts to respond to the current refugee situation and the new mine action situation.

by Margaret S. Busé, *Editor*

Margaret Busé (MB): Can you give a history of how you got started with UNMAS?

Martin Barber (UNMAS): I started my career with the UN working for UNHCR in Thailand and Laos in the early seventies. Then, I worked as director of the British Refugee Council, which is an NGO, for seven years. In 1988, I went to Pakistan to work on the coordination of humanitarian programs in Afghanistan and I stayed there until 1996. In 1995 and 1996, I was the coordinator for Afghanistan for the UN. In 1996, I went to Bosnia for two years as a Deputy Representative of the Secretary General. In 1998 I came to New York to work on policy issues for the Office of Humanitarian Affairs. At the beginning of this year, I became Chief of the United Nations Mine Action Service (UNMAS). My interest in mine action and UNMAS derives from my time in Afghanistan because from the time I arrived it was obvious that the very widespread use of antipersonnel mines in particular, as well as antitank mines in Afghanistan was going to be a major problem as far as the return of refugees and for the reconstruction of the country. During the time I was there we developed the first major UN humanitarian program. The program has reached a point where it employs 4000 different Afghans in different levels of mine action.

MB: What were some of the chall-enges to working mine action in Afghanistan?

UNMAS: The most recent challenge that the program in Afghanistan has been facing has been funding. In 2001 they budgeted a total of 21 million dollars for different mine action activities, the majority of which was set aside for mine clearance. Unfortunately, as of the middle of September, we received only half of the funds required. The result of that, even before the 11th, was that a number of operations had to be suspended for lack of funding, and all of the participants had agreed to take a pay-cut in order to allow the program to continue. While the number of aspects has been suspended during the current phase of activities in Afghanistan, they have developed a revised budget for the last six months, which is looking for a total of 22 million dollars in new contributions.

Over the past, ten years that this program has been going, I would say that the program has been very widely accepted in the country as one which is impartial, humanitarian, and widely respected by ordinary people in Afghanistan because it clears affected areas, it allows people to go back to their villages, it allows people to restart their activities. It has not faced insuperable political challenges, because everyone sees it as impartial.

MB: The operating government has been supportive and facilitated your operations there?

UNMAS: I think it would be fair to say that the different governments have been in power in Kabul over the last 10 years, as well as the different movements that have had control over different parts of the country at different times, have, on the whole, these governments and groups have been positive toward mine action programs, have recognized its value.

MB: What has changed for you, for UNMAS, for MAPA, in the current conflict?

UNMAS: Ammunition is being used, which has not been used before. So, the UXO, which is being left behind is unfamiliar to our mine action teams. The program is taking advantage of the current pause in operations to find out more about these new munitions and to train the various operators in how to deal with them. Our impression at this stage is that the munitions that are being used are similar to those that were used by NATO in Kosovo. We have encouraged some cooperation between the Kosovo and Afghanistan program so they can exchange information on how these munitions are being dealt with. It's not really mines that we're talking about; it's UXO being dropped from aircraft. A percentage of that ordnance, depending on where it lands, may not explode. If not properly dealt with by trained people, it can of course cause injuries and death to people who come across them, to people who pick them up when the fighting is over.

Published by JMU Scholarly Commons, 2001

MB: How else are UNMAS and MAPA preparing to go back into Afghanistan?
UNMAS: First, of all there's contingency planning. The entire major mine action program is being replanned to take into account the changed circumstances. Secondly, information is being collected about the ordnance that is being used and the location where it is likely to be found. Third, training courses for all components of mine action, including both clearance and mine awareness for the new submunitions. Fourth, operational deployment of all components including mine awareness is being coordinated. In all the major cities, we still have emergency teams available, which are being called out to deal with UXO.

As part of the new training programs, we'll have to produce new training materials; we'll have to produce new mine awareness materials to take into account the new munitions. Also, we are identifying any UN equipment and materials, which might have been lost in Afghanistan, which would need to be replaced to get the teams operational again. Then the next phase would be to prepare the procurement for replacement materials.

MB: Has there been any donor interest in supporting the projects post-conflict?
UNMAS: Yes. We, and our colleagues in Islamabad, which is the center of the operation, are talking to a number of donors who are interested in the program. We are hopeful for strong support for the program.

MB: Do you expect that you'll be expanding Afghanistan's mine action capabilities, working with other NGOs?
UNMAS: There are already fifteen NGO's operational within the mine action programs in Afghanistan. Nine are Afghan NGOs and six are international. There may be more organizations coming in to provide humanitarian aid or to provide construction service and it'll be very important that our teams work closely with them to prepare them for the environment in which they're going to work, so they're fully aware of the mines and UXO that they may encounter. So, that's going to be a major activity. A small number of experts will be in for a short period of time to work with the Afghans to assist them with the new situation, the new munitions that have been used.

MB: What about the refugees and the mine fields in Pakistan, what will you be doing to organize mine action efforts there?
UNMAS: The key point in relation to the movement of people, whether refugees or internally displaced, is that they are able to keep to well marked lanes or roads, that they're not obliged to cross over remote mountain tops in order to travel through, border points that are closed. We would support the efforts of all organizations, which are seeking to have main roads opened to travel, because that is much safer than traffic through unmarked areas with mines or UXO, which would be a danger to those who are traveling. We'll be encouraging to keep routes open and encouraging groups that are working on mine awareness to prepare the people for the dangers that they may encounter while traveling.

MB: What will UNMAS and MAPA be doing to facilitate the refugee resettlement?
UNMAS: For the last 10 years when the mine program has been doing clearance operations, priority has always been given to areas to which refugees or displaced peoples wanted to return. As soon as the program becomes aware that groups of refugees or displaced people want to return to a certain area, then, as a matter of priority then resources would be shifted to those areas, first of all to survey and mark the mined areas and then as soon as resources are available to carry out the clearance. It's always been a top priority of the mine action program in Afghanistan to respond to the needs of refugees.

MB: Is there anything else you'd like to say about the program?
UNMAS: The Afghanistan program is unique in the extent that mine clearance is carried out by organizations, managed and owned entirely by Afghans. One of its great strengths is that we have a continuity of managers who have been associated with the program for a long time, and who've really become very skilled in managing these operations. They are highly cost-effective; they've been innovative in the use of new techniques. Over 200 mine-detecting dogs are being used in the program. I think it's an extraordinary program, with a great deal of achievement behind it. Approximately 240 km² has been cleared of mines. I believe that the donors who have supported the program through the years are well satisfied with how their funds are being used. We trust that they will now commit the resources required to continue the work in the new situation. ■

Contact Information

UNMAS
United Nations
FF-360
New York, New York 10017

Returning Mine-Free Land to the Afghani People:

Afghanistan Mine Detection and Dog Center

As a result of conflicts faced over the past 23 years, Afghanistan remains one of the most heavily landmine-afflicted countries. The Mine Detection and Dog Center has built one of the world's largest mine detecting dog programs with the goal of saving lives and returning mine-free land to the Afghani people.

by Susanna Sprinkel, *MAIC*

History of the Landmine Problem in Afghanistan

Since 1978, Afghanistan has faced foreign occupation and civil wars, which have left the country one of the most heavily mine-infested countries in the world. Estimates place anywhere from five to 10 million mines from at least 38 different origins in Afghani territory, mostly surrounding the Irani and Pakistani borders. These landmines lead to an average of 10 to 12 injuries daily. Although their land is no longer occupied by foreign influence, the landmine threat prevents many Afghani people from returning to their homeland. Afghanistan is not a society prepared to handle the severe social, economic and environmental demands posed by the existence of landmines/UXO in the area.

Mine Detection and Dog Center

The Mine Action Program in Afghanistan (MAPA) is considered one of the United Nation's top mine action programs, and the Mine Detection and Dog Center (MDC), based in Peshawar, Pakistan, is an NGO responsible for all mine detecting dog clearance and surveillance activities in the country. According to the MDC Annual Report for 2000, prepared by program director Mohammad Shohab Hakimi, "the [MDC], which is at the forefront of demining operations, is using mine dogs to save the lives and return the land free of mines and UXO to the people of Afghanistan . . . . In 2000, [MDC] deployed its independent clearance teams to 14 provinces of Afghanistan and cleared an area of 12 million square meter[s] of various types and categories of mined areas. MDC deployed 33 Mine Dog Sets (MDSs) to support survey operations in 16 provinces as well."

Until 1994, the United States funded the MDC. Currently, the Center is funded by the Federal Republic of Germany, with some assistance from the United Nations Office for the Coordination of Humanitarian Assistance for Afghanistan (UNOCHA).

Objectives

The purpose of MDC is to restore economic activity to Afghanistan so Internally Displaced Persons (IDPs) can return to their native lands. The main goals of MDC are to clear high-priority land using Mine Dog Groups (MDGs) (consisting of four dogs with handlers and 12 deminers) and to provide MDSs to survey teams. Additionally, the group aims to further develop a program for breeding mine dogs and to enhance the use of dogs in mine detection, with hopes of teaching other organizations effective mine dog training, clearance and surveying techniques.

Clearance Activities

When implementing activities, MDC follows the guidelines of the Mine Action Center for Afghanistan (MACA). In most cases, the MDGs concentrate on "clearance of roads and mine fields containing 'minimum metal mines' (e.g., Type-72 mines, TC-6 and M-19) and low 'probability' mine fields." MDC is equipped to send a total of 17 MDGs (four in Central Afghanistan, four in the East, five in the South and four in theWest).

A landmine victim being rescued by members of a survey team. *c/o MCPA*

JOURNAL: Issue 5.3: Landmines in The Middle East Focus

An MCPA survey team supported by mine detecting dogs stands ready for field deployment. *c/o MCPA*

In 2000, MDC located and eliminated 80 AP mines, 379 AT mines and 1,211 UXO, clearing 10.5 million square meters in Afghanistan. With an average of 4,000–6,000 square meters cleared daily, MDC has maintained "the highest clearance ratio among the Demining Agencies working for humanitarian mine clearance in Afghanistan." A lack of funds, which halted operations for two months, prevented the group from achieving their initial goal of 16.5 million square meters cleared. Additional financing from Germany allowed MDC to commence demining operations.

In addition to conducting a significant amount of mine clearance, MDC provided 33 MDSs (15 in Central Afghanistan, four in the East and 14 in the South, which will also support the West) to assist the survey teams of various organizations. The purpose of the MDSs is to increase survey operations and to decrease the number of mine fields by pinpointing a two-meter safety zone around suspected mine fields.

Training and Breeding Activities

MDC bred 65 puppies in 2000, 20 of which were fully trained in order to replace older mine clearance dogs. They expect to breed 50 more in 2001. The remaining 45 puppies bred will continue Young Dog Training before undergoing evaluation in the field. Once a mine dog passes evaluation and is sent to a field site, it must undergo a series of Refresher Training exercises. 45 dogs displaying weakness in training activities were retired as a part of MDC's Dog Retirement Program. The dog handlers themselves must pass a series of Qualification Courses before entering the field; 16 new trainers qualified in 2000.

In addition to preparing the dogs for clearance and surveying activities, the Center has continued exploring mine dog technology advancements by conducting Mine Dog Trials with 74 dogs. These trials involve testing the dogs' effectiveness in soft land, sandy land, grassy land and hard land. The results of these studies showed the dogs to be least effective in hard land areas and most effective in sandy land areas (see Table 1 below); however, a significant difference between sandy lands and soft and grassy lands was not observed until tested with landmines residing 70 cm below the surface.

Medical Care

The MDC staff includes a veterinary department responsible for breeding and treating the puppies and mine dogs by shampooing them, vaccinating them, de-worming them and providing them with medical care. In 2000, 25 dogs were put to sleep and 10 surgeries were performed. The Center also includes a medical support staff to care for the dog handlers and deminers. Six MDC personnel were killed in demining accidents, and 26 were injured in non-demining incidents (two of them died). This medical team also assists other local deminers and Afghani people. In 2000, the medical staff treated 27,500 patients (2,500 from demining organizations and 25,000 locals and IDPs).

Problems Faced in 2000

The biggest problem that MDC faced in 2000 was the budget constraints that led to personnel waiting three months to be paid for their services from June through September. When the donor country (Germany) received this news, they supplied the proper funds, and MDC operations resumed. Another problem the Center faced was the condition of the dog gear, which was supposed to be replaced but was not received immediately. Once the teams received their gear, many pieces were absent. Additionally, three personnel (two dog handlers and one dog instructor) did not return from an Explore 2000 Exhibition in Germany, thus decreasing the Training Department staff.

Table 1: Mine Dog Field Test Results. *c/o MDC*

S.#	Depth of Mine	Result in Different Field Conditions			
		Soft Land	Sandy Land	Grassy Land	Hard Land
1	10 cm	+100%	+100%	+100%	98%
2	15 cm	+100%	+100%	+100%	98%
3	20 cm	+100%	+100%	+100%	91%
4	25 cm	+100%	+100%	+100%	82%
5	30 cm	+100%	+100%	+100%	80%
6	50 cm	+ 50%	46.6%	46.6%	30%
7	70 cm	+11.2%	15%	11.2%	6.1%

This Year's Accomplishments

So far this year (as of September 2001), MDC operations have been successful. Seventeen clearance teams in 13 Afghani provinces have cleared 4,594,523 m^2 destroying at least 688 mines of diverse origins. As a result, MDC has already reached 70 percent of the goal set by MACA for 2001, and they expect to meet this goal by the end of the year. Additionally, 31 MDSs have surveyed 272,114 m^2 and cleared 379,279 m^2 of land (261,350 m^2 boundary clearance and 117,909 m^2 special task clearance). Most importantly, no mine-related accidents have occurred during MDC demining operations so far this year.

Mine Detection and Dog Center Annual Conference

MDC held its annual seminar at their training camp in Kabul in January 2001. At this seminar, Program Director Mohammad Shohab Hakimi presented conference attendees with an overview of the previous year's accomplishments pointing out many improvements that will be made to the program as a result of newfound weaknesses. Hakimi also spoke to the workers, reminding them how significant their contributions are and commending them for the risks they take to save the lives of those around them. He also reminded MDG team leaders that they should always follow the standard demining operation procedures laid out by MACA in order to ensure their safety as well as the safety of local civilians. Finally, Hakimi announced the company's goal for 2001 and the overall plan for obtaining this goal.

Once Hakimi had finished addressing the crowd, UNOCHA program manager Richard Kelly recognized the MDC as the largest mine dog clearance program, which makes up nearly 50 percent of the 350 dogs serving landmine-infested countries around the world. Kelly also announced a proposal by the United Nations for a two-year study of mine dog clearance teams in Geneva and his hopes that the MDC will contribute to the study. Finally, the conference closed as Kelly distributed the certificates of program completion to new dog instructors and handlers.

MDC Expansion

As a result of continued disputes in the region, MDC has been unable to provide services in northern Afghanistan. Recently, however, MDC provided a regional office in Mazar-e-Sharif, a city in the northern region, in order to implement a demining program in the area using MDC survey and clearance teams.

Additionally, an MDC team consisting of nine workers has been sent to conduct mine detection dog field tests in Yemen. The purpose of these studies is to find out if mine detection dogs are compatible with field conditions in Yemen. If these tests yield positive results, the Yemen National Mine Action Program will implement a mine dog program in their lands as well. ■

Contact Information

Mohammad Shohab Hakimi
Program Director
Mine Detection and Dog Center
Box 1324 GPO-G.T. Road
Pabbi Station-Peshawar Post
Saddar, Peshawar
Pakistan
Tel: +92-91-229236
Fax: +92-91-229179
E-mail: mdc@brain.net.pk or
mdc@liwal.com

So far this year, MDC has sent out 17 mine dog clearance teams and 33 mine dog survey sets. *c/o MDC*

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

A Pioneer in the Field of Humanitarian Mine Action:

Mine Clearance Planning Agency (MCPA)

The Mine Clearing Planning Agency (MCPA) aims to effectively contribute to humanitarian mine action and advocacy activities in Afghanistan and other landmine-infested countries in order to make the hometowns of refugees and displaced people land-mine free and to implement essential rehabilitation and development activities in mine-affected communities.

by Qadeem Khan Tariq, *MCPA*

Background

The Mine Clearance Planning Agency (MCPA), an Afghanistan based international NGO, was incorporated under the rules and regulations of the United Nations Office for the Coordination of Humanitarian Assistance to Afghanistan (UNOCHA) in March 1990 as an implementing partner of the United Nations Mine Action Program for Afghanistan (MAPA). MCPA is also registered as an international NGO in Afghanistan and the Republic of Yemen. MCPA specializes in the field of humanitarian mine action including General (Level One) Survey, Technical (Level Two) Survey, Battle Area Survey, Socio-economic Impact Survey, Mine Detecting Dogs Use and Mine Clearance Training. In addition, MCPA concentrates on the development and maintenance of information management systems for mine action.

The mission of MCPA is to effectively contribute to humanitarian mine action and advocacy activities in Afghanistan, in particular, and worldwide, in general. In doing so, MCPA contributes to making the land clear of the land mine threat, thus enabling safe return of refugees and displaced people to their hometowns, resumption of normal life and essential rehabilitation and development activities in the mine-affected communities.

Surveying and Clearance

In Afghanistan, MCPA is responsible for all types of mine surveys across the country. MCPA operates through its head office in Kabul and three regional offices located in Kandahar, Jalalabad and Herat with more than 300 staff members. The current operational capacity of MCPA in Afghanistan consists of 30 five-member technical survey teams, three five-member battle area survey teams and one quick response survey team. The survey output of MCPA is used by all mine clearance organizations in Afghanistan with exception to HALO Trust, which conducts survey operations for its own clearance teams. All the technical survey teams of MCPA are supported by a set of two mine detecting dogs from the Mine Detection and Dog Center (MDC). Each MCPA survey team consists of four surveyors and a team leader, with one surveyor or team leader trained in first aid.

Since its establishment in 1990, the survey teams of MCPA have identified, marked and mapped more than 280 million square meters of mine contaminated area and about 199 million square meters of former battle area contaminated by UXO. While MCPA is primarily engaged in landmine surveys, it also undertakes clearance as part of the two-meter minefield boundary clearance and reduction of suspected mined areas. So far, MCPA has reduced/cleared about 3 4 million square meter mine-contaminated areas as part of the two-meter minefield boundary clearance and reduction of suspected mined areas and destroyed 4,052 anti-personnel mines, 624 anti-tank mines and 4,200 UXO.

An MCPA Team Leader is briefing his team about operational saftey just before the start of field operations.

Reduction of suspected mined areas during the survey process is an important element of the technical survey as it saves significant mine clearance resources. The clearance/reduction of the 34 million square meters suspected mined areas by MCPA has resulted in a direct saving of about $20 million (U.S.) for MAPA, calculated at the rate of $0.60 per square meter clearance cost in Afghanistan.

Management Information Systems

In addition to conducting survey operations in Afghanistan, MCPA provides data management and planning support to MAPA at its headquarter and regional level. The management information system (MIS) developed and maintained by MCPA comprises of two main parts: a well-developed and practical database and a geographical information system (GIS). The MIS is mainly used to:

- maintain accurate and reliable records of mine action operations for planning and coordination of action activities and prioritization of mine affected communities at a regional and national level.
- ensure appropriate/efficient allocation of mine action teams and other mine action resources.
- provide mine action data and GIS information of mined and cleared areas for the use of MAPA and other concerned organizations as required.
- evaluate performance of individual mine action teams or organizations.
- facilitate research and development of new demining procedures and mine clearance technology.

The database is capable of recording and analyzing the data for all aspects of the mine action operations in Afghanistan and can produce outputs of a very wide range as required. The GIS can provide geographical information from an individual minefield level to national level. However, in order to be contemporary and compatible with other mine action information management systems in the world, MCPA and MAPA plan to replace the current mine action information management system with the standard Management Information System for Mine Action (IMSMA) developed by Geneva International Center for Humanitarian Demining (GICHD).

Research

Given MCPA's experience in the field of mine action surveys, in 1994 it entered an agreement with Vietnam Veterans of America Foundation (VVAF) to assist in the research on the socio-economic impacts of landmines in Afghanistan as part of the global landmine impact survey. Results of the survey published in the form of a report titled " When the Guns Fall Silent, the enduring legacy of landmines."

MCPA successfully executed the Training and Monitoring Project, quality assurance component, of MAPA from 1993 to 1997. As part of this project, MCPA trained mine clearance personnel, monitored mine action operations and investigated demining accidents in order to find new, safer and cost effective methods for mine action operations. During the execution of this

An MCPA survey team during the technical survey of a mine field.

JOURNAL: Issue 5.3: Landmines in The Middle East Focus

project, MCPA trained more than 1,200 field staff of various mine action organizations operating within MAPA's structure. The training included fresh and re-fresher training on various aspects of the mine action activities.

Socio-economic Impact Study

In 1998, MCPA conducted Socio-economic Impact Study of landmines and mine action operations in Afghanistan. The study measured the socio-economic impact of landmines and mine action operations and registered national indicators on various aspects of the socio-economic impact of landmines as well as mine action operations. Report for this study was published and distributed in late 1999. The findings/results of the study indicated that the mine action operations in Afghanistan have brought a significant improvement in the life situation of people in the communities where mined areas were cleared. In addition, the study indicates that the mine action operations have contributed in several ways to the overall rehabilitation and reconstruction process of the mine-affected communities. This project was carried on in 1999-2001 by UNDP and the World Bank as part of the Afghanistan Watching Brief project to build on the initial findings and resulrs of the study.

Outside Programs

Yemen

As part of its international involvement in mine action, MCPA executed a Landmine Impact Survey in the Republic of Yemen under a sub-agreement from the Survey Action Centre (SAC) and United Nations Office for Project Services (UNOPS) during July 1999-July 2000. The survey determined the socio economic impact of landmines and the scope and size of the landmine contamination in the Republic of Yemen. The Yemen Land-mine Impact survey is the first of its kind implemented to internationally recog-nized and accepted standards that re-ceived the certification of the United Nations Certification Committee in August 2000. In a joint project with SAC and Cranfield Mine Action, MCPA also provided technical support to the government of Yemen in the effective and proper utilization of the survey results and developing a strategic national mine action plan.

Northern Iraq

In 2000, MCPA entered an agreement with UNOPS to develop local mine action capacity in Northern Iraq. The end product of the project was supposed to be two functional local mine action non-governmental mine action organizations. However, the project, expected to be implemented in January-December 2001, was cancelled in July 2001 pursuant to non-issuance of Iraqi visas for the international staff of the project.

A camel injured by an anti-personnel land mine is being rescued by members of an MCPA survey team.

Additional Activities

Being an active member of the Survey Working Group (SWG) and chair of the Working Group on Mine Action in the frame-work of the International Campaign to Ban Land-mines (ICBL), MCPA shares its experience and lessons learnt with other mine action organizations through participation in the international meet-ings, conferences, seminars and work-shops and provides policy advice to the ICBL on humanitarian mine action.

In addition to being an active organization in the field of humanitarian mine action, MCPA has been playing a key role in the establishment and goal accomplishment of Afghan Campaign to Ban Landmines (ACBL). Being the founding member and coordinating agency of ACBL, MCPA, in consultation with the ACBL steering committee, implements all the executive functions of the ACBL. The ACBL is a non-political and non-governmental national forum with the membership of more than 40 national and international organizations campaigning for a total ban on anti-personnel landmines at a national and international level. ACBL was officially launched on 5 August 1995 in Kabul, Afghanistan in order to represent Afghanistan, one of the most heavily mine-affected countries, in the international efforts for achieving a total ban on anti-personnel landmines.

Through the wide range of activities including public meetings/seminars, walks/rallies and publications, undertaken since its launching, ACBL has been able to obtain wide-spread public support for achieving a total ban on anti-personnel landmines and educate the authorities regarding the devastating impacts of landmine use in the country. As result of these efforts, one of the major achievements of ACBL was the issuance of a decree by the Supreme Leader of Taliban authorities imposing a total national ban on the production, stockpiling, use and transfer of landmines at a national level. Recent studies of ACBL could not find any evidence to the violation of the decree by Taliban forces. ACBL is also in the process of persuading the Northern Alliance to stop the reported use of landmines and follow the suite. In addition, ACBL is an active member of the Coordination Committee (CC) of the International Campaign to Ban Landmines (ICBL) and provides all possible support to it in achieving a total ban on anti-personnel landmines at international level.

A surveyor has just discovered an anti-personnel land-mine.

Conclusion

MCPA has successfully developed practical, accurate and cost effective mine survey techniques and procedures after more than a decade of practical fieldwork. In addition, MCPA is an organization experienced in developing and maintaining information management system for mine action. Both these components are considered essential elements of a successful mine action program. Therefore, MCPA would be pleased to share its experience and expertise with other organizations involved in humanitarian mine action activities worldwide by providing technical advice and by undertaking mine survey, mine clearance and mine training projects in the mine affected countries. ■

All photos courtesy of MCPA.

Contact Information

Qadeem Khan Tariq
Mine Clearance Planning Agency (MCPA)
House # 58, Street 4,H2, Phase 2
Hayatabad, Peshawar
Pakistan
Tel: + 92 91 810803/810194
Fax: + 92 91 812541
E-mail: mcpa@psh.paknet.com.pk
qadeem@hotmail.com

Two landmine survivors with double amputations have received wheel chairs from ACBL.

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

What the Dog's Nose Knows

Mine clearance is an ongoing process that is both tedious and expensive. Mine detection dogs are one tool in the toolbox. These dogs are far from foolproof, yet they are constantly making strides in assisting demining efforts worldwide.

The Kharga site being cleared prior to laying of test mines.

by Ian G. McLean, *Research Analyst, GICHD*

Introduction

Over 100 million landmines scattered across the planet block access to productive land. Such access creates food, an economy, a community and a life. Just the possibility of one mine can prevent the return of entire communities to their homelands. The mines must therefore be found and removed. Removing mines is necessarily a hazardous occupation. Unfortunately, mines are secretive by nature and design. A mine that cost $5 (US) to buy, 10 seconds to arm and two minutes to lay will take a 12-person team a full day to locate and remove. The cost will be about $1000. Clearly, any method for reducing that cost must be explored and exploited.

One solution is that most mysterious of mammalian senses: olfaction. The skills of dogs as odor-detection devices are well known. Their ability is exploited in many different roles, ranging from drugs and bomb detection to search and rescue. So why not mine detection? Why not indeed! Today, about 400 dogs are used globally to search for mines with impressive success. The biggest program is in Afghanistan, where 130 dogs work six days a week on the daunting problem of detecting the undetectable. How mine detection dogs in Afghanistan achieve that task is the subject of the first study ever to link searches by dogs to the availability of odor signals given off by mines.

Processing the Signals

Listen to a person speaking a foreign language. The sounds are easily detected, but without an assigned meaning, the signals are just a stream of noise. Learning the language involves a two-stage recognition process: first, the sounds must be broken down into defined units; second, each unit must be assigned a meaning. The process is one of plucking sense from nonsense, or of linking signal detection to meaning. Once the two are joined, recognition has occurred.

For a dog, learning to detect a mine involves the same process. Its nose is constantly bombarded with chemical signals, or what we call odors. Most of those odors are noise—they have no meaning and are of no interest. The dog will already have a simple odor language, consisting of simple concepts such as "rabbit" or "the female dog who lives next door" and can effortlessly separate those recognizable odors from background noise.

Odor Signals

The problem in mine detection is for the dog to assign meaning to the odor signals given off by a mine. Unfortunately, mines have no interest in communicating with dogs. Compounding the problem is that the main explosive substance used in mines, TNT, has very low volatility. The problem can be compared to listening in on a whispered conversation in a foreign language at a cocktail party; not only are the signals hard to recognize, but they are swamped by a noisy background and are not intended for you anyway.

Dogs can do it. Asking dogs to find mines pushes their detection skills to the limit. A significant unknown factor in the detection process is the availability of signals to detect. Just what odor signals does a mine provide, and are there conditions when signal availability falls below the recognition threshold for the dog? Clearly, such conditions might cause the dog to miss the mine and must be avoided.

The Afghanistan study is addressing these questions. The dogs are tasked with searching for mines in test mine fields (the mines are real, but triggers have been removed) under carefully controlled conditions. Immediately after the dog has found (or missed) a mine, soil samples are taken and weather conditions are recorded. The behavior of the dog is continuously filmed for later analysis, and the handler is interviewed.

A camel crossing a test field. Wildlife and domestic animals are at serious risk from landmines, with about 300,000 having been killed in the last 10 years.

Soil

Why soil samples? TNT molecules that leak out of the mine migrate slowly to the surface, assisted by soil moisture and electrostatic processes. Once at the surface, they remain bound to dust particles. How they enter the dog's nose is not yet understood, but it is known that detection is improved if the dog's nose is at ground level—the dog must sniff the ground rather than the air. The availability of TNT molecules in each sample will be assessed by chemists. The dog searches at the ground/air interface, thus the chemists should similarly measure TNT in the surface layer of soil. The study will run for two years, during which dogs will be asked to search for mines in all typical weather conditions.

Worldwide, mines are still being laid at higher rates than they are being cleared. However, clearance rates are improving, due in large part to the use of dogs for mine detection. Increased understanding of how dogs detect mines and the limits to that detection skill will serve to improve the quality and safety of clearance operations globally.

Conclusion

Currently, 5000 Afghans work in mine clearance programs. At great personal risk, they return thousands of hectares of mine-contaminated land to economic productivity every year. They work towards a vision of a safe and productive environment, a functioning economy, and a stable socio-political landscape for Afghanistan. That vision is ambitious enough. But beyond even that, they hope that the dog's nose project will allow others to benefit from the devastation wrought in their country. Their extraordinary commitment must be applauded and supported. ■

**All photos courtesy of the author.*

Contact Information

Dr. Ian G. McLean
Research Analyst
Geneva International Centre for Humanitarian Demining
Av. de la Paix 7 bis, P.O. Box 1300
1211 Geneva 1, Switzerland
Tel: +41 22 9061676
Fax: +41 22 9061690

A dog signals the presence of explosives during the preliminary clearance of one of the test fields. Another clearance site can be seen in the foreground.

JOURNAL: Issue 5.3: Landmines in The Middle East Focus

Interview with Miriam Coronel Ferrer of the Non-State Actors Working Group

The challenges and success of the Non-State Actors Working Group are discussed with Miriam Coronel Ferrer.

by Margaret Busè, *Editor*

Margaret Busé(MB): Why was it necessary to form the Non-State Actor Working Group (NSA WG)?

Miriam Ferrer: (MF): From the beginning, the Working Group (WG) has served as the mechanism to get together country campaigns and individuals who saw the merit of engaging NSAs in a landmine ban, despite the fact that such work is sensitive, dangerous and largely unchartered terrain. The group has become the lead group in the ICBL to see through this newest agenda in the ICBL— from convincing the rest and especially the leadership of the ICBL to adopt this area of work as equally legitimate as the other branches of work already established (treaty work, mine clearance, victim assistance) to developing its concept, strategies and program of action.

The WG continues to undertake such planning and coordination of efforts of country campaigns and works closely and supportively with other programs and institutions that have evolved to advance NSA engagement (e.g., the NSA Database hosted by the International Alert, the Geneva Call led by Swiss campaign's Elisabeth Reusse Decry) Interestingly, these other programs were also initiated by WG members who saw the merit of enjoying autonomy from the WG/ICBL procedures/processes, but certainly find congruence in purpose and objectives.

MB: How do you go about engaging NSAs in a dialogue?

MF: I'm sure others will have their stories to tell — whether because they live with NSAs in their midst, or they may be based in another country but their work requires them to deal with one or more NSAs.

I will talk largely about our experience in the Philippines, which you may say is a relatively open society because political negotiations are in place; rebel leaders have come out in the open as spokespersons, negotiating panel and technical support staff for negotiations. They also have websites, e-mail addresses, fax/telephone/cell phone numbers etc. that make contacting them and accessing their positions possible. There are also legal groups that more or less openly support these armed groups. Then we have the traditional connections of family/kin, school contemporaries, hometown friends, and personal friends. Through these various connections we are able to pass on letters, appeals and documents, set appointments for face to face meetings, exchange e-mails, etc. We've also held relatively formal small-group meetings with NSA representatives, attended peace negotiation ceremonies, and arranged the attendance of two groups to the pioneering conference held in Geneva. All these activities and occasions can be considered part of the dialogue process.

It's also quite important to note that we are able to do this because we have developed the trust and confidence of these NSAs as well as the state, because of relations (or perhaps reputation or image) built over time not only on the landmine issue but on other peace/national issues as well. They trust our impartiality and at the same time know where we stand on the landmine (and other) questions.

MB: What was the catalyst for engaging Non-State Actors in the landmine issue?

MF: The push started in late 1996/early 1997 from three country campaigns — Colombia, Philippines and South Africa. These three countries have a long history of internal conflict and are aware of the need to develop such a complementary process to the main thrust of ICBL work that has emerged (a focus on states towards coming up with a treaty). This initiative was led by Colombian Eduardo Marino who at that time sat at the Coordinating Committee of the ICBL and steered the formation of an ad hoc NSA WG, drawing up its initial concept and bringing together country campaigns to thresh out the mechanics.

One of the initial concerns was that the treaty text "criminalized" all such mine use, and of course put all such acts under the jurisdiction of the state. But experience with working with NSAs and knowledge of NSA dynamics showed that criminalizing NSAs may not necessarily be the best way to deal with revolutionary/insurgent groups, and that some states in any case do not have the capacity to exercise such jurisdiction, having no actual control over portions of the territory.

Country campaigns in the south (like Pakistan, Afghanistan, Nepal, Kenya, Zimbabwe, India) with their own NSAs easily saw the validity of this need and were supportive of the initiative. Some northern campaigns (e.g., Canada, Australia, Italy, New Zealand, UK, Germany, Ireland) were equally supportive upon learning of this new agenda. The Swiss Campaign, through its chair Elisabeth Reusse Decry, was there almost immediately from the beginning, especially to deal with the problem posed as to how to see through NSA compliance given the fact that NSAs may not be state parties to international treaties. Eventually, the mechanism of the Geneva Call, a Swiss-registered NGO, was put up precisely to deal with this argument/problem. Thus, the ICBL assembly in Maputo in 1999 (at the time of the First Meeting of State Parties) approved the regularization of the WG, despite continuing wariness/opposition of some key ICBL personalities/groups.

European Parliament resolution on measures to promote a commitment by non-State actors to a total ban on anti-personnel landmines

The European Parliament,

having regard to its resolutions of 17 December 1992 on the injuries and loss of life caused by mines[1], of 29 June 1995 on landmines and blinding laser weapons[2] and on anti-personnel landmines: a murderous impediment to development[3], of 18 December 1997 on the 1997 Convention on the prohibition and destruction of anti-personnel mines[4] and of 25 October 2000 on anti-personnel landmines[5],

- having regard to the communication from the Commission to the European Parliament and the Council on action against anti-personnel landmines: reinforcing the contribution of the European Union; and the proposal for a European Parliament and Council Regulation concerning action against anti-personnel landmines (COM(2000) 111),

A. whereas the use of anti-personnel landmines, in addition to resulting in the loss of human life, especially among the civilian population, represents a serious obstacle to the social and economic recovery of affected countries,

B. whereas today the majority of landmines are laid in the context of armed conflict and/or civil war where both State armed forces and non-State armed groups may be involved in the use of landmines,

C. whereas the 1997 Mine Ban Treaty has been ratified by 119 States and signed by 141,

D. whereas 52 States have not yet signed and ratified the Ottawa Convention,

E. having regard to the importance of the Conference of States signatories to the Ottawa Convention to be held from 18 to 22 September 2001 in Managua,

F. whereas the international community has a moral duty to seek commitments from all the parties involved in such conflicts, States and non-State actors, to ban the use of anti-personnel landmines, in order to achieve a truly universal ban on these inhumane weapons,

G. whereas this does not imply support for, or recognition of the legitimacy of, non-State actors or their activities,

H. recognising the efforts made by governments, international institutions and specialist NGOs to encourage non-State actors to ban the use of anti-personnel landmines,

1. Asks the European Union to consider all possible means of putting pressure on those non-State actors openly reluctant to undertake to adhere to a total ban on anti-personnel landmines;

2. Calls for the elimination of the use, production, stockpiling and transfer of anti-personnel landmines by non-State actors;

3. Urges the Council and the Commission to identify the sources of supply of anti-personnel landmines to non-State actors;

4. Calls for increased resources for humanitarian demining and mine awareness and landmine victim rehabilitation and assistance programmes;

5. Welcomes proposals to seek commitments from non-State actors, for example through a Deed of Commitment for Adherence to a Total Ban on Anti-Personnel Landmines and for Cooperation in Mine Action;

6. Calls on the Managua Conference to support the efforts to obtain strong commitments from non-State actors;

7. Calls on the States party to the Ottawa Convention to give closer attention to the problem of anti-personnel mines in relation to non-State actors and to support the efforts made by specialist NGOs and international institutions to commit non-State actors to the mine ban process;

8. Instructs its President to forward this resolution to the Commission, the Council, the governments of the Member States, the Secretary-General of the United Nations, the International Committee of the Red Cross, the Committee for the International Campaign to Ban Landmines, the ACP-EU Joint Parliamentary Assembly, and the governments of the United States of America, the Russian Federation and the People's Republic of China.

[1] OJ C 21, 25.1.1993, p. 161.
[2] OJ C 183, 17.7.1995, p. 44.
[3] OJ C 183, 17.7.1995, p. 47.
[4] OJ C 14, 19.1.1998, p. 201.

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

MB: Why do you feel it is important to engage NSAs?

MF: The reasons are very basic. One is that you cannot universalize the ban without getting this other set of users, producers, traders and stockpilers into the mine ban camp. Another reason is that some states use their NSAs as a reason not to join the mine ban regime. Equally important, NSAs and the communities where they operate are victimized by landmines and would also need humanitarian assistance.

MB: Who are the terrorism or insurgency experts that advise the NSA WG?

MF: Individually, as country campaigns, we benefit from advice of people (government/non-government) in our own communities, among them former combatants. The WG itself lists the following advisers: London-based Eduardo Marino, Mary Foster currently based in Germany, Rae McGrath and retired Indian Maj. Gen. Dipankar Banerjee.

MB: Will the recent world events have an impact in the way NSAs may be engaged now and in the future?

MF: I think the basic strategy and framework would continue to hold. There is, however, danger that current action against Afghanistan, especially if prolonged, would fan the flames of radicalism among Islamic groups in various countries, including the Philippines. In our case, this would set back current negotiation and rehabilitation efforts — sort of bringing us to a square one position once more. It is obviously more difficult to talk in a situation of high-intensity conflict.

Of course, this consideration is already operative even before the current global conflict — e.g., one Islamic group talking to another Islamic group about a ban is definitely more effective, especially since such a dialogue would be founded on Islamic principles. But perhaps such unifying — or is it dividing? — lines will become more crucial if this conflict ends up polarizing the whole world.

MB: What has been the response by state parties in engaging NSAs? Do you expect this to change?

MF: We are working in different contexts. As I said the Philippine campaign has the benefit of working in a more open society. We will not get arrested for talking to our NSAs. We can even perhaps expect our government to assist us if we get into trouble for talking to other countries' NSAs. This is not the same situation for the other campaigners in South Asia, Burma.

Of course, one would expect that a state party to the Ottawa Convention would be supportive of such efforts — e.g., Colombia, Philippines. But then again, this may not necessarily be the case because the state (or elements of the state such as the military/certain military officials or foreign affairs officials) may fear that doing so would legitimize the NSAs. In countries with large-scale demining operations and victim assistance programs underway like in Sudan, Afghanistan (until recently), the approach and responses have also been different. Basically positive cooperation from the ruling authorities was sought and established to make possible such programs.

Other states and NSAs that cannot be approached in their own country by the country campaign (or perhaps in the absence of a country campaign) are being approached by country/individual campaigners in other countries through their embassies/consulates in the case of states, or through their exiled leaders or foreign offices in the case of NSAs. WG members in some of the North countries are doing this as their contribution to the effort.

MB: Because of a constantly evolving political/military climate in many NSAs operating countries, is it difficult to monitor their compliance with a landmine ban?

MF: For monitoring, we rely on reports of country campaigners on the ground, and reports finalized and published in the Landmine Monitor. Follow-ups/verification/appeals are then made with the concerned parties by country campaigners, but the more established mechanism being developed is through the Geneva Call.

For example, the Moro Islamic Liberation Front in the Philippines signed the Deed of Commitment of the Geneva Call in 2000 but subsequently planted mines when they were forced to retreat from their camps by the Philippines army several months later. Geneva Call is currently organizing a fact-finding mission that will look into the reported violation and recommend subsequent courses of action.

MB: Do you see a risk that states parties combating internal NSAs may change their position to signing the Ottawa Treaty if being engaged in the process legitimizes NSAs?

MF: The opposite seems to be truer. I understand from the dialogues conducted by ICBL/WG campaigners that the signing of the SPLA of the Deed of Commitment is actually facilitating the ratification of the Treaty by the Sudanese government. States may not want their NSAs to be legitimized in this manner, true, but getting their NSAs to commit to a ban actually puts states in a defensive position because they lose some of their justification for resisting the ban. To react the opposite way would be irrational and hard to defend from a moral/political plane. I also imagine that real "hardline" states would not even merit these NSAs by crediting these NSAs for any position/policy that they adopt.

MB: Have you seen a demonstrable benefit or drawback to engaging NSAs in the issue of landmine use? How so?

MF: The benefit is really more evident not in the political gain of getting commitments, but in the impact on the ground. NSA cooperation, as our colleagues in the UK Landmine Action Group have experienced, greatly facilitates demining operation, which contributes to preventive action and victim assistance programs, in all to make the world a safer place [see Rae McGrath's, Aleyu Aleu's and SPLA/M representative's input in the NSA Conference Proceedings (chapter 7,4, & 5 respectively)]. We hope also to reach this point — though the scale of our landmine problem is much smaller, in our lobby for joint mine clearing operation in Mindanao between our army and the MILF.

You may say that the universality principle is the most important advantage of the landmine campaign compared to the small arms lobby. We are asking all state and non-state actors to stop use, production, trade of landmines whereas the regime envisioned in the small arms campaign is one where use and production would be mediated only among states. This can be problematic for people living under rogue states/illegal or repressive regimes and for NSAs, fighting what they perceive as state terrorism. It would be very hard to ask NSAs to accede to the terms of such a campaign. But the landmine ban comes across as more impartial, fair and just in that everyone is being asked to stop using landmines.

Also, while we have not yet achieved this, the other benefit of engaging beyond the terms of the Treaty is that through other mechanisms — such as unilateral and bilateral declarations — not only APMs but other mines and potentially other weapons can be the subject of such a ban.

MB: Do you feel the "Declaration of Non-Use" has legitimized NSAs in the political arena?

MF: In undertaking this work, we adopt the position of the Protocols to the 1949 Geneva Conventions, that compliance with international humanitarian law does not affect the legal status of the parties to the conflict.

At the same time, one cannot be naive not to see that NSAs engage in order to earn political points, just like states. But engaging also creates demands on them and puts them at risk, should they go against their commitments, of losing more points — again, just like states.

Depending on the scale of the landmine problem, humanitarian considerations rather than political tactics may in the end be the bigger consideration of some NSAs — e.g., of some Burmese groups. It perhaps may not be avoided that in engaging NSAs, we antagonize some governments. After the NSA Conference, we had to face the ire of two such governments. This is, in fact, understandably, one source of fear on the part of some ICBL colleagues whose work has been to get the support of governments/states. Even among governments, thinking has changed quite fast on this matter. Only last June, the European Parliament passed a resolution recognizing this necessity. The Managua Declaration at the Third Meeting of State Parties likewise acknowledged this need. Certainly, we are slowly making states have a broad-minded attitude about peacefully engaging NSAs.

MB: Do you see this declaration by NSAs as a possible step by NSAs in following humanitarian law?

MF: Yes. But perhaps our lawyers in the campaign like Sol & Saliya and IHL experts like Eduardo can elaborate more on this point.

MB: Given that even horrible war crimes have difficulty being prosecuted in international criminal courts, what leads you to believe prosecution of an NSA, or anyone else, for APL use is viable?

MF: This possibility was considered in the NSA Conference, particularly in the workshop on tools of engagement. We have not really extensively discussed this as a WG and have no unified position on the matter as yet. Prosecution at the national level is already possible under the Ottawa Convention as operationalized in State parties' implementing legislation.

MB: Are there any types of NSAs that are more likely to engage in the declaration than other NSAs? If so, why?

MF: I don't think we have enough cases to draw up a typology. Also, we work on a very pragmatic basis — we are engaging these NSAs because we have people who could do it or have already been doing it in the past. Also, you may have noticed that although NSA is a very encompassing term, we most of the time refer to insurgent/rebel/revolutionary groups, rather than armed syndicates engaged in criminal activities (though they may have links with the former).

One type of NSA that will engage in this arena is the politically astute/sophisticated ones. Another type would be those who may or may not be politically sophisticated in global politics but because of humanitarian considerations see the benefit of joining the ban.

MB: The Taliban has issued a declaration that was read at the NSA working group meeting held in Geneva by the ICBL. Many say they have carried out crimes against humanity. Do you feel that by engaging certain NSAs, that it can undermine the NSA working group and/or the ICBL?

MF: The Afghan campaign was instrumental in getting the Taliban to this position and in doing so was crucial for them to get about their mine clearance work. The Taliban statement on "landmines as un-Islamic" was also supportive of our work with other Muslim groups toward a landmine ban. We did not consider it as promoting the Taliban but supportive in advancing our own dialogues with our Muslim rebels because of its foundation in Islam.

All these approaches support our humanitarian goal and benefit the most affected people. The landmine question will remain no matter the outcome of Afghanistan's or other countries' civil war or the current global conflict. And it would be important to deal with whoever is in power — or the new NSAs that would emerge from these conflicts — and to engage them first in their own terms, if we are to have a stepping-stone towards a universal ban. Of course, approaches on such sensitive cases vary. The same dilemma applies to dealing with states. Take the case of Burma — to engage or not to engage Burma not only on the landmine question is a big debate in the international community.

Does this work undermine the WG/ICBL? It might have an initial consequence of doing so in some cases but this is all part of the dialogue process. This consideration highlights the need for coordination within ICBL, the WG and among partners, as well as parallel initiatives that can complement work with states and non-states at the same time.

MB: How does your definition of the "Law of War" apply to NSAs when there is no clear definition of a "combatant"?

MF: From my understanding of IHL[International Humanitarian Law], certain criteria/qualifications exist to define a combatant. In any case, the status of combatant may not be a big question if we recognize that our current effort in engaging NSAs largely utilizes the "soft" persuasive approach even as all these initiatives are founded on the principles of international humanitarian law.

MB: Overall, have the priorities of the NSA Working Group changed since September 11, 2001?

MF: I guess not, except to be very particularly concerned about the safety and setback in the work of our campaigners in Afghanistan and Pakistan.

MB: Would the NSA WG refuse engagement with an NSA based on past behavior?

MF: If they are ready to commit, then we welcome their commitment and ask them to validate this by compliance in the future and cooperation on action to deal with existing landmines stockpiled or on the ground. I do not think the ICBL has refused engagement with a state based on past behavior.

MB: What are the future plans for the working group?

MF: Continue work in the field; consolidate research on NSA landmine use, production, etc.; continue advocacy on the need to engage NSAs within ICBL, with states and other NSAs; build strength, capability, resources to continue with the work.

MB: Are any follow-up workshops/conferences planned?

MF: Yes, but small, low-key ones where NSAs within/across countries can continue/start the dialogue process. ■

Miriam Coronel Ferrer is co-chair of the Non-State Actors Working Group and president of the Geneva Call.

Contact Information

NSA DBA
c/o IA, 1 Glyn Street
London SE115HT UK
E-mail: nsadba@international-alert.org

Published by JMU Scholarly Commons, 2001

New International Standards Debut October 1, 2001

UNMAS unveils new *International Mine Action Standards* after a two-year review and revision process.

By Suzanne C. Eckenrode, MAIC

On October 1, 2001, the United Nations Mine Action Service (UNMAS) officially released 22 documents that comprise the initial set of new *International Mine Action Standards* (IMAS).[1] The standards replace the *International Standards for Humanitarian Mine Clearance Operations*. The new standards represent the culmination of two years of work to revise and expand the old standards based on changes in practices, procedures and norms that emerged from the continuing operations of mine action programs around the globe.

Origins of the Standards

In March 1997, UNMAS issued the *International Standards for Humanitarian Mine Clearance Operations*, which were developed from recommendations made by participants at the *International Conference on Mine Clearance Technology* held in Denmark in July 1996. These standards addressed aspects of the "mine clearance" process such as surveys of landmine contamination, mine field marking, mine clearance and mine/UXO disposal. They also covered related "enabling subjects" required of mine clearance operations: safety, medical support and communications. The standards were issued with the provision that they be reviewed and revised as necessary every two years.

As a first attempt at developing standards for an emergent field of operations, they were far from perfect and not universally applied. The 1997 standards, nevertheless, provided a starting point for a far more ambitious endeavor to draft effective standards by soliciting input from those who would apply them in the field.

The Revision Process

UNMAS tasked the Geneva International Center for Humanitarian Demining (GICHD) to direct the review process, which began in July 1999, by drafting the terms of reference. The review was launched in October through the meeting of a Users' Focus Group (UFG), as stipulated in the terms of reference.[2] The Mine Action Information Center (MAIC) at James Madison University (JMU) hosted that meeting, which initiated a two-year long process of reviewing the existing standards and drafting revisions.[3] The release of the standards was delayed a few times as the project expanded to encompass not only the revision of the 1997 clearance standards but to include the development of a series of standards relating to a broad range of mine action components. The standards were renamed the *International Mine Action Standards* to reflect their comprehensive treatment of the subject. They also were written to be compatible with the format used by the International Standards Organization (ISO).

During the first phase of the review process, technical committees based at the GICHD revised the standards and developed new standards for aspects of mine action, such as the use of mine detecting dogs, not included in the 1997 version. The committees incorporated input from members of the UFG via extensive e-mail communication about the early drafts.[4] The first project manager at the GICHD, Alastair McAslan,[5] worked with JMU's MAIC to issue a questionnaire to solicit input from mine clearance operators. MAIC faculty associates analyzed the results of the questionnaire and presented a report to the second meeting of the UFG. The report on the questionnaire, minutes of both UFG meetings and other information on the review process were posted on a website maintained by JMU to facilitate communication during the review.

During the second phase of the process, the project managers conducted an outreach program to introduce the draft standards to the mine action community through various meetings, five regional workshops and the website. Beginning in October 2000, draft standards were released to UN programme managers and senior technical advisors, members of the Mine Action Support Group (MASG) and other interested parties in the mine action community. A draft version was first posted for public comment in November 2000.

Comments received during the outreach phase were incorporated into new draft versions, each of which was posted on the website, with draft version 7.0 emerging in August 2001. Meanwhile, work continued on additional standards for components of mine action not yet addressed, such as mechanically assisted clearance, management and training.

The project managers produced a "Framework of International Mine Action Standards" that indicates all of the planned components of the

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

standards.[6] Several components have yet to be released but continue to be developed. UNICEF's *International Guidelines for Landmine and UXO Awareness and Education*, issued in 1999, are undergoing their own review process in 2001 and will be incorporated into the IMAS framework as IMAS 12.10-20, *Mine Risk Reduction Education (MRRE)*. A tentative decision was reached in February 2001 at an UNMAS meeting in Geneva that the field of victim assistance already had "sufficient international guidelines and standards" and "there was no real need to develop IMAS for this area."[7] However, as of now, a final decision still has not been made.

The review process was not without its controversies and disagreements, both within the Users' Focus Group and among members of the larger mine action community. But by August 2001, a consensus was reached that the latest version of the draft standards was clearly a substantial improvement over the previous standards and that it was time to begin using them. Plans were laid for a formal tri-annual review process involving a Review Board composed of a variety of representatives of the mine action community. It was agreed that the formal review process scheduled for every three years did not preclude "essential amendments being made within that period for reasons of operational safety or efficiency."[8] The UFG also agreed that unresolved issues remaining from the drafting process would be on the agenda of the first meeting of the Review Board, tentatively set for March 2002, to coincide with the UNMAS Programme Managers/CTA Meeting scheduled for Geneva.[9]

The standards review website has now been redesigned to serve as the repository of the new IMAS. All of the documents posted on the site during the review process have been retained as a public record of the process, and the 1997 standards also are archived on the site (see: www.mineactionstandards.org). The site is part of UNMAS' recently developed Electronic Mine Information Network (E-Mine) (www.mineaction.org) that links together various mine action Internet sites.

The New International Standards

The 31 documents released by UNMAS on October 1 include 22 completed standards and nine draft standards. Combined, they encompass the vast majority of the standards slated for development. If all areas of mine action-related activity are addressed as indicated in the "Framework," then some 45 documents will eventually emerge from the process. They cover all of the principal areas of mine action such as mine clearance, mine/UXO destruction and mine awareness as well as just about every conceivable aspect of the "enabling subjects," including safety, training, monitoring and medical support.

The development of the new standards represents an impressive attempt to devise standards that capture the entirety of the humanitarian demining process. Martin Barber, Chief of UNMAS, when releasing IMAS, stated: "The adoption of the IMAS represents a leap forward in the maturity of mine action, and can serve as an example to international initiatives in other fields."[10]

Universal agreement on the content of the standards, of course, could not be achieved. Furthermore, the standards still must meet the test of being applied to operations in the field. The establishment of a formal review process and a Review Board are viewed as ways to continue to refine the standards so that they can be appropriately applied by those in the field to improve the safety and quality of mine action programs.

Another step in the process of refining the standards to meet the needs of an evolving field of operations are *Technical Notes for Mine Action* (*TNMA*). The IMAS project office released the first *TNMA* in early 2001. The *TNMA* are deemed advisory documents to supplement an IMAS or to provide additional information useful to mine action operators. They do not carry the same status as standards but may eventually emerge as standards at a later date.[11]

Adrian Wilkinson, the IMAS project manager, reports that UNMAS has approved an IMAS Review Board whose members "will review all IMAS for technical content and accuracy, and will consider whether they are still appropriate and achievable…Each IMAS will be reviewed on a tri-annual basis. All comments received by the Project Team will be considered by that Review Board." He also notes that the "Review Board will also assess which, if any, of the Technical Notes for Mine Action (TNMA) should migrate to full IMAS."[12]

As IMAS 01.10 *Guide for the Application of IMAS* notes (sec. 4), the international standards do not replace standing operating procedures (SOPs): "They do not define the way in which mine action requirements are to be achieved in the field—that is covered in national and local SOPs, rules, instructions and codes of practice." IMAS, however, does provide guidance to those designing and operating mine action programs, although this guidance is predicated on the principle that national governments have ultimate authority over their national demining programs.[13]

The challenge for the application of the standards is to ensure that the guidance provided is relevant, understandable and usable by those directing mine action programs. Those directing the review and revision process at the GICHD have worked to incorporate input from field operators. How well they succeeded in producing effective standards remains to be seen. Demining operations, whether they are run by commercial contractors, NGOs, IGOs or governments, already have adopted many of the procedures and practices included in the standards. Upon being briefed about the proposed *International Mine Action Standards*, the international supervisors overseeing the demining operations in Central America reported that their SOPs already reflected the content of the new standards.[14] The hope is that the worldwide application of the new standards will foster a safer and more effective process of eliminating the lingering negative effects of landmines. ■

1. Martin Barber, Chief, UN Mine Action Service, "International Mine Action Standards Publication Notice," October 2, 2001, distributed via e-mail from Crispin Stephen at UNMAS.
2. The government of the United Kingdom was the project donor.
3. The MAIC's work in support of the standards revision process was funded through grants from the US Department of Defense and the US Department of State. The Department of Defense also funded the "Standards and Measures of Success" conference hosted by JMU at the Wintergreen Conference Center in October 1998. This humanitarian demining conference helped focus attention on the 1997 standards and their need for revision and expansion.
4. The first draft issued to the public was draft version 4, which was posted on the review process website in late November 2000. For more details of the review process, see pp. 3-6 of the *Review and Revision of International Mine Action Standards*, issued by the GICHD on 1 August 2001, available at: www.mineactionstandards.org/imas.htm (25 September 2001).
5. Adrian Wilkinson took over as project manager in February 2001.
6. The "Framework of International Mine Action Standards" is included on p. 8 of the *Review and Revision of International Mine Action Standards*. It also can be accessed directly from the IMAS page on the website.
7. See p. 5 of the *Review and Revision of International Mine Action Standards*.
8. See p. 7 of the *Review and Revision of International Mine Action Standards*. Section 10 of IMAS 01.10 *Guide for the Application of International Mine Action Standards*.
9. See e-mail message sent by project manager Adrian Wilkinson to UFG members and attendees, 10 August 2001 and e-mail message from UFG chairman, Havard Bach, to UFG members and attendees, 8 August 2001. Also see e-mail from Adrian Wilkinson to the author 4 October 2001 in which date and place of Review Board's first meeting was set forth.
10. Martin Barber, Chief, UN Mine Action Service, "International Mine Action Standards Publication Notice." 2 October 2001, distributed via e-mail from Crispin Stephen at UNMAS.
11. See "Technical Notes for Mine Action" available at: www.mineactionstandards.org/tnma_list.htm (4 October 2001).
12. See e-mail message from Adrian Wilkinson to the author on 4 October 2001.
13. Section 4 of IMAS 01.10, *Guide for the Application of International Mine Action Standards*, notes the purpose of international mine action standards, section 5 sets forth the guiding principles and section 7discusses the application of the standards.
14. Author's discussion with MARMINCA (OAS/IADB) supervisors during a field visit to Juigalpa, Nicaragua on 26 June 2001.

Adrian Wilkinson
GICHD
P.O. Box 1300
7 bis Ave de la Paix
CH-1211, Geneva 1
Switzerland
Tel: (+41) (22) 906 1687
Fax: (+41) (22) 906 1690
E-mail: a.wilkinson@gichd.ch

Suzanne L. Fiederlein
MAIC
James Madison University
1 Court Square, MSC 8504
Harrisonburg, VA 22807
Tel: (540) 568-2718
Fax: (540) 568-8176
E-mail: fiedersl@jmu.edu

NOTES FROM THE FIELD

Middle East

Cost Effectiveness of the Ethiopian and Eritrean Demining Programs

The United States provided funding for demining programs in both Ethiopia and Eritrea. Based on an analysis of the results, it is clear that some demining programs are more cost-effective than others.

by Michael P. Huitman,
Assistant Professor of Military Science and Wayne D. Ferris,
Professor of Public Policy and Operations Research, George Mason University

Long after AP were planted to gain military advantage in battle, they continue to destroy lives by killing and maiming civilians and livestock, inhibiting productivity and preventing economies from developing in poor, third-world countries. Landmines contribute to political instability in regions vital to the United States. The U. S. Department of State (DOS) claims that there are approximately 85 to 200 million mines in 63 countries, producing approximately 15,000 casualties per year, an average of 70 people per day, or 500 people every week, most of them innocent civilians (DOS 1994). Of these, an estimated 9,500 people are killed each year (GHE 1995). Both Ethiopia and Eritrea have approximately 500,000–1,000,000 landmines according to the Department of State's "Hidden Killers." According to Mintz, "20 percent of mine victims are children, with about half the victims of the world's estimated 100 million landmines non-soldiers" (Mintz1996), although Bonnie Benwick claims that the estimated number of landmines may be overinflated (Benwick 1998). This paper will attempt to analyze the available data to perform a cost-effectiveness study of the U.S.-sponsored Ethiopian (ET) and Eritrean (ER) Demining Programs. This analysis may eventually be used as evaluation criteria to help determine if the United States should maintain its current level of operations or continue to expand demining into more countries.

Introduction and Goals of U.S. Demining Programs

In 1993, the National Security Council directed the DOS to establish an Interagency Working Group on Landmines and Demining. This directive marked the beginning of a coordinated U.S. government program to address the problems landmines pose to the stability and development of nations recovering from conflict (USG 1997).

The overall goal of the demining program was to relieve suffering from the adverse effects of landmines while promoting American interests. There are two main goals:

(1) Promote human welfare through mine awareness and training, which focuses on the health, safety and economic well-being of the host nation's population; and

(2) Promote U.S. foreign policy, security and its economic interests.

A key objective of the first goal was to encourage international cooperation and participation. Currently, little flexibility exists in the international community for ridding the world of AP landmines in order to protect innocent civilians from the social and economic dangers of landmines. One hundred forty-one countries have now signed the 1997 Treaty to Ban Landmines. It calls for an immediate stop in production and deployment of AP landmines. The U.S. policy provides protection for civilians who are threatened from landmines by implementing humanitarian demining programs. In this way, America proposes to fulfill its international obligations associated with protecting life and property and prevents injury to innocent civilians.

Mines can be easily made with inexpensive materials and are not difficult to acquire. They are currently being located and destroyed by the old slow "probing" method. If the ban on existing landmines remains permanent, the landmine problem could continue to exist for the next 100 years. Demining programs are an option to rid the world of many of these mines. America has been involved with demining programs that have eliminated hundreds of thousands of landmines. As technology is being developed by the United States that would serve as substitutes for landmines in combat, new technology is also being developed that will make it easier to demine areas. The United States has implemented demining operations in some of the countries suffering the most from landmines in regions that are vital to U.S. interests, i.e., the Horn of Africa (Ethiopia and Eritrea) and the Middle East.

Characteristics of Countries Experiencing Landmine Problems

Traditionally, landmines have been used to protect military bases, missile sites and demilitarized zones. During the last two decades, they have been used increasingly by belligerent groups to achieve political and economic objectives. Most landmine injuries are the result of increasingly indiscriminate use of small AP mines by irregular or poorly disciplined armies in the developing world rather than between nation-states.

As conflicts intensify, parties in the conflict tend to seek and acquire the means to forcefully resolve the situation in their favor. These conflicts kill and injure thousands of people. They are manifested by the deliberate use of inhumane weapons against civilians (Strada 1996). While producing an expansion of civilian casualties, landmines tend to generate large numbers of displaced persons and refugees (Clements and Wilson 1994).

Bourantonis and Weiner believe that in-action by the United States and the international community could make matters worse. The refusal of the largest states to extend their commitment and leadership in trying to resolve these problems contributes to global instability (Bourantonis and Weiner 1995). These internal conflicts in developing nations could also have far-reaching consequences. As an example, they may eventually affect American national security and economic interests in such vital areas as the Middle East.

Regional and World Importance

In close proximity to the Middle East, the Horn of Africa (specifically Ethiopia and Eritrea) sits astride one of the world's key shipping lanes, the Red Sea. This route for Middle Eastern oil to Europe and America is of considerable geopolitical interest to Western powers. "The East African coastline is similarly important for communications with the Indian Ocean. African ports and bases, particularly those close to the major sources of Middle East oil, are growing in importance" (Jordan and Taylor 1985).

Another matter of regional interest in the Horn of Africa is the fact that Ethiopia currently has by far the largest army on the African continent. The United States has recently begun training this army to assume a leading role in peacekeeping and humanitarian assistance operations for all of Africa. The U.S. involvement has persuaded the Ethiopians to accept this peacekeeping role (Bartholomew 1997). America has also sought to use Ethiopia and Eritrea as front-line states to contain the expansion of Islamic fervor from Sudan to the oilfields of Saudi Arabia and the Persian Gulf (Singlaub 1996).

Jordan and Taylor believe that the growing consumption of oil throughout the world, particularly in industrialized nations, has made this region one of the most important areas of the world in terms of U.S. interests. American interests in the Middle East were elevated to the level of vital national interests in the last decade (Jordan and Taylor 1984). These authors suggest that the Middle East is by far the most important source of world oil.

U.S. Policy for Demining Programs

The purpose of American demining programs is to "relieve the plight of civilian populations of developing countries experiencing adverse effects from uncleared landmines while providing valuable training benefits to U.S. military personnel . . . [to] educate civilian populations on the dangers, identification and notification of landmines; [and to] promote economic stability by returning mined areas to a condition that can support infrastructure, transportation and agricultural needs" (Office of Humanitarian and Refugee Affairs 1994–95).

The entity responsible for developing, coordinating and setting U.S. policies for demining initiatives is the Interagency Working Group (IWG). The IWG approves a list of candidate countries for assistance, and the DOS determines the level of U.S. interest in countries nominated for demining assistance. The IWG also establishes the priority of those countries eligible for U.S. humanitarian demining assistance (Office of Humanitarian and Refugee Affairs 1994–95). In 1995, Ethiopia and Eritrea satisfied the criteria for U.S. demining assistance. That is, both countries have a functioning government, hostilities had ceased, landmines were recognized as a problem for economic recovery, they asked for assistance, they lacked necessary resources to conduct an organized program, and they had the capability and willingness to support a demining program.

Table 1: Comparison of cost effectiveness in Ethiopia and Eritrea

Ethiopia	Eritrea
Costs: $ 6,089,000	Costs: $ 6,005,000
Benefits:	Benefits:
325,625 mines destroyed	4,750 mines destroyed
159 villages cleared	43 villages cleared
285 km roadway cleared	35 km roadway cleared
15,102 acres cleared	645 acres cleared

Source: Special Operations Command, Central, MacDill Air Force Base, Tampa, Florida. 1995–1999.

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

Middle East

Implementing Demining in Ethiopia and Eritrea

General William Tangney, the former commander of Special Operations Command Central (SOCCENT), established a Demining Operations Cell at MacDill Air Force Base (AFB) that planned and executed the CENTCOM Demining Program. National Demining Headquarters were established in Ethiopia and Eritrea, which directed the demining program and allocated all demining assets. SOCCENT deployed a Special Forces Company, augmented by Army Combat Engineers and Explosive Ordnance Disposal Detachments, that implemented demining training and executed demining operations throughout the HN. An Information Fusion Cell established and maintained a database on mine fields. It contained Public Awareness, Historical Research and Technical Data Collection Teams (Tangney 1994). The Public Awareness (Psychological Warfare) team from Fort Bragg, North Carolina, operated in conjunction with the HN information and defense ministries, established and operated a mine awareness campaign. They used print, radio, television and other media to warn and educate the population about mines and their location, informed the population of the hazards of mines and how to detect and avoid mine fields, and solicited information from the population on mine field locations. The Historical Research (Military Intelligence) team from Fort Hood, Texas, conducted analyses of existing maps, battlefields and fortifications plans, and mine field recording forms conducted interviews with appropriate participants on all sides of the conflict, conducted reconnaissance of mined areas and gathered pertinent information on the employment of mines in the host country (Tangney 1994).

Cost-Effectiveness Analysis of Demining Programs

This section analyzes data to perform a Cost-Effectiveness Analysis (CEA) of the U.S.-sponsored Ethiopian and Eritrean Demining Programs. Eventually, CEA may be used as a methodology to help determine whether the United States should continue its existing demining programs. The Ethiopian and Eritrean demining programs can serve as a model for the expansion of future demining programs in other areas that are important to American interests.

Enumerated costs and their effectiveness, which are compatible with any demining effort, will be listed and quantified as much as possible. The United Nations and NGOs have been involved in landmine programs, and some research has been completed on the effects of landmine injurieson personnel in a few of the countries with landmine problems, e.g., Cambodia, Mozambique, Afghanistan and Angola. However, there has not been a study of the cost-effectiveness when the United States has solely initiated, sponsored and maintained a humanitarian demining program.

The demining operations in Ethiopia and Eritrea were significantly different from the experience of previous efforts in Afghanistan (Operation Safe Passage). In Ethiopia and Eritrea, the instructors implemented a longer and more complete training program from the outset. The U.S. demining efforts in Eritrea and Ethiopia were strictly a matter between the United States and the host nations, without UN assistance. The programs were long-term, continuous processes that required a substantial transfer of equipment from the United States to the two countries. Demining training programs in these two countries provided a way for America to establish demining programs without UN assistance.

This study analyzed costs and effectiveness of the U.S.-sponsored Ethiopian and Eritrean Demining Programs. The purpose was to determine its applicability as a model and to assess how the United States should decide to expand demining into other countries.

Cost effectiveness was calculated for ranking program alternatives since they were relatively similar and there is a single dominant objective whose attainment can be measured directly. Cost encompassed all those items valued in money terms, such as its inputs and outputs.

In the case of the demining program, the prime benefit was to eliminate landmines in order to prevent injury and death to the populace. To accomplish these objectives, the United States provided funds (inputs) to help restore a national infrastructure (benefits) that had been rendered unusable by landmines. The objective was to return mined areas—including villages, farmland and roads—to productive use.

Table 2: Cost, Effectiveness and Significance for Eritrea

Operation	Total Cost*	Effective Index (eq. 1 / eq. 2)	Significant (eq. 1 / eq. 2)
DE	$522,000	1.462 / 1.879	yes/no
PA	$45,000	1.775 / 3.229	yes/no
HR	$65,000	.481 / 3.146	no/yes
DE/HR	$587,000	2.082 / 6.620	yes/yes
PA/HR	$110,000	3.604 / 1.576	no/yes

**Cost based on cumulative fiscal years of 1995–1999.*

Table 3: Cost, Effectiveness and Significance for Ethiopia

Operation	Total Cost*	Effective Index	Significant
DE	$513,000	1.041	Yes
PA	$111,000	0.523	No
HR	$60,000	1.598	Yes
DE/HR	N/A	N/A	N/A
PA/HR	N/A	N/A	N/A

** Cost based on cumulative fiscal years (1996–1997).*

The Cost-Effectiveness Analysis sought to measure:

(1) costs of two or more program operations, i.e., demining, public awareness, historical research in each country; and

(2) the cost effectiveness of demining in Ethiopia compared with Eritrea. In terms of comparing the cost effectiveness of the demining programs in Ethiopia and Eritrea, the benefits or outputs of the programs were much greater in Ethiopia than Eritrea, as Table 1 clearly indicates.

The Ethiopian demining efforts were more cost-effective than Eritrea's. Both countries received almost the same amount of dollars, but the benefits were much greater in Ethiopia than in Eritrea. Eritrea had started a costly (in terms of deminers lost) program in the early 1990s, at the time when U.S. assistance was requested. The conclusion is that benefits are going to be much less for a country that had an existing demining program such as Eritrea. The analysis suggests that equity in funding may not be cost effective.

Regression Results

Table 2 summarizes the total cost of each program and its effectiveness, where effectiveness means the B coefficient associated with the program components for each of the estimated regressions is significant.

For the above results, although demining/historical research (DE/HR) costs more, it was the most effective operation. It was highly significant for both estimated regressions. When using any of these independent variables (demining (DE), public awareness, historical research (HR), DE/HR, public awareness/historical research (PA/HR), only DE/HR has a significant impact on villages affected (cleared and surveyed). When all five independent variables were included, DE/HR had the greatest impact on the villages.

For the country of Ethiopia, because of data limitations, one regression model was estimated. For Ethiopian demining, there were little or no recorded combined demining operations. There is a limited integration of Ethiopian demining operations.

The coefficient for DE is 1.041 in Table 3 and is considered highly significant. For every demining operation, at least one village was cleared. For PA, the B coefficient is .523 and is not significant. HR's coefficient is 1.59 and is considered highly significant.

Results from the demining programs in Eritrea indicate that combining demining and historical research produces the greatest impact on the overall mission of the program. Although the ideal dependent variable would be the population affected directly by the demining, public awareness, or historical research operations, the number of villages cleared was shown to be a good proxy of the population affected.

Concluding Comments

This paper has emphasized that the worldwide landmine policy and demining operations consist of two main issues: humanitarian and security. Humanitarian efforts are concerned with saving lives and preventing injuries to innocent civilians. Three goals of humanitarian demining and landmine policy include: reducing the death of innocent civilians, reducing injuries, and restoring land that was mined in order to expand the nation's agriculture economy.

Deploying landmines is considered by the United States as a legitimate military objective to be used in combat situations. There exist overlapping concerns that converge both humanitarian and military objectives. A non-quantifiable measure of effectiveness, for example, is the altruistic benefit of humanitarian intervention. This intervention casts the United States and other industrial nations (e.g., Canada) in the role of global good citizens. The concept of international

"good citizens" is critical for the development of a secure global community (Clements 20 April 2001).

This paper suggests the United States has a role to play in demining operations. America is good for the action role, such as starting up the demining programs. Equal funding of an existing program and new programs appear not to be cost-effective. The United States should begin contracting out some of the training and logistics during the demining programs' sustainment phase. It could gradually integrate the program using other key players, such as the United Nations, NGOs and private contractors. Finally, demining efforts combined with historical research are more effective than public awareness.

Demining is more expensive than public awareness and historical research, but the landmines are destroyed forever. Public awareness of the locations of landmines is less expensive, but the mines are still present and could eventually harm or kill.

Although DE/HR was the most costly, it was clearly the most effective operation for both the Ethiopia and Eritrea demining programs. ■

This research was part of Dr. Litzelman's recently completed Ph.D. at George Mason University. He served in the U.S. Army-sponsored Ethiopia and Eritrea demining programs in 1995. Professor Perry supervised his dissertation in the School of Public Policy. Much of the data was provided by the demining centers located in Ethiopia and Eritrea; the U.S. Army Central Command, MacDill Air Force Base, Tampa, Florida; the U.S. Embassies in Ethiopia and Eritrea; and non-governmental organizations, in particular the International Committee of the Red Cross, Human Rights Watch, The U.S. Department of Defense, Humanitarian Demining and the U.S. Department of State.

Michael Litzelman
9801 New England Woods Court
Burke, VA 22015
Tel: 703-250-2234
E-mail: mlitzelm@hotmail.com

Wayne D. Perry, Ph.D., Professor
School of Public Policy
4400 University Drive
MS 3C6
Fairfax, VA 22030-4444
Tel: 703-993-2276
Fax: 703-993-2284
E-mail: wperry@gmu.edu

Efficient Level 2 Surveys Using Mechanical Detonators:

Returning More Land, Creating More Wealth, Saving More Lives

In a recent article,[4] Daniel Wolf and Steven Barmazel discussed a public health approach to demining. Here, they clarify and expand on some of the major points in that article.

The biggest problem facing demining enterprises is this: productivity of individual deminers is so low that total labor costs per unit of land cleared remain exorbitant—despite minuscule wages in mine-affected countries. Clearing agricultural land in developing countries typically costs many times the land's expected mine-free annual revenues. Most remediation is uneconomic for public and private parties alike, and *funding is never enough.*

Some demining agencies have responded with a triage system—classifying mine clearance operations into three levels of intensity and corresponding expense and limiting expensive clearance to critical areas.

In Level 1 (general location) Surveys, civilian employees gather anecdotal evidence to identify danger zones. *They do not enter suspect areas.* Though relatively cheap, they may be costly to local residents. According to Col. Alastair McAslan, former United Nations Demining Technology Assessment Officer, 100 suspect acres typically include only five acres with mines, but all 100 are put off limits because no one is sure exactly where the mines are. Worse, foragers learn to disregard danger postings because the odds favor them—even though losing the gamble means losing big.

Level 3 (complete clearance[1]) is at the opposite end of the scale from Level 1 Survey: it reduces risk as much as humanly possible, but is correspondingly expensive.

Level 2 (area reduction) Surveys in theory fill the gap between general location and complete clearance. Demining personnel enter suspect areas to delineate actual mine field perimeters, then mark or fence off the smaller mined areas, declaring areas outside to be *not mine fields* and releasing them for use. By greatly reducing quarantined land, Level 2 surveys slash economic burdens and lessen the need of foraging residents and livestock to enter suspect areas.

Most demining authorities would gladly fence off lower-priority mine fields, if they only knew their locations. But can they find the locations at a price they can afford? Unfortunately, the answer is usually no. Funding shortfalls have forced demining agencies to leave thousands of people exposed to unmarked mine fields while they devote themselves to clearing just a few. Faster, cheaper and more reliable Level 2 Surveys would allow officials to escape this dilemma. Mechanical substitutes for slow and vulnerable deminers can make this possible.

Unless reliable maps or warning signs still exist, a mine field surveyor has to choose between two options: 1) Clearing an entire suspect area, finding the mine field but wasting considerable resources on unmined land; or 2) Taking samples, which is cheaper but inevitably runs the risk of missing mines. Not surprisingly, the latter is the usual choice. This transforms the Survey manager, like it or not, into a statistician, and the survey into a statistical problem.

The statistician's greatest concerns are randomness and sample size. All samples produce only approximations of the truth of the universe being sampled; the laws of probability dictate that larger, more random samples are more reliable than smaller, more selective samples; and very small samples run the risk of being dead wrong.

Great surveyors are familiar with local military tactics that help them focus on likely mine field locations. Traditional sampling involves cutting paths[2] through suspect areas. The pace is very slow because their tools are slow and they are trying to locate every mine in their way. Because the paths are narrow and not numerous, they

Journal of Conventional Weapons Destruction, Vol. 5, Iss. 3 [2001], Art. 1

sample only a tiny portion of the surveyed area.

To increase their odds of finding the mine field, surveyors cut multiple sample paths, eventually finding a mine field or satisfying themselves that none exist. As paths multiply, however, costs approach those of Level 3 clearance—reducing or even eliminating the cost advantage of Level 2 Surveys.

How Reliable is Reliable Enough?

Though mechanical detonators detect a lower proportion of mines than do skilled deminers, locating a mine field requires finding only *some* mines, not *all* mines. The critical question is: Are the lower detection rates nevertheless sufficiently reliable for Level 2 Surveys?

The key to reliability is to increase area coverage to compensate for decreased detection rates. By design, detonators withstand blasts from AP mines, so in the same amount of time that deminers can sample only small strips (at significant risk), detonators can sample nearly all open areas and substantial amounts of vegetated areas (in safety). In fact, under many conditions, mechanical detonators will find mine fields faster than manual probing or detection.

Some mine clearance officials agree. Col. McAslan, commenting on Terra Segura's Armadillo™ landmine detonator system, said, "I could just run this back and forth until it encountered mines. I could map the blasts and thereby the mine field. I could do with a half-dozen men in two days what it presently takes me three platoons [about 100 deminers] and three weeks to do."[3] That's 96 person-hours versus 14,400—only 1/150 as much time.

What detection rate is sufficient for Level 2 Surveys, given the larger areas sampled? In general, an effectiveness rate (the proportion of mines detonated in one pass) of 40-60 percent should be adequate to inspire confidence. To illustrate, assume a detonator with 50 percent effectiveness, i.e., coin-flipping odds. On a single pass, it will cover a high proportion of the suspect area and cause every other mine (on average) to betray its position by exploding. Detonating half the mines on a field's perimeter is sufficient to delineate approximate mine field boundaries. Numerous overlapping samples, meaning multiple passes, will further increase the probability that the sample findings approximate the "ground truth" (which, of course, cannot be known).

Every additional pass will detonate more mines, although detonation rates will fall with each pass as the "easy" mines disappear. But even a one-pass rate of 40 percent would reveal more mines—approximately 40 percent of mines encountered—and greater pattern detail, than completely cleared test paths cut across four percent of the same land.

Empirical research will improve understanding of what is required to assure adequate confidence in mechanical detonation sample findings, taking into account variables such as expected mine type (and other ordnance), soil composition, moisture content, vegetation, terrain, climate, infrastructure and the economics of the project. Just as the U.S. Navy develops algorithms that help marine minesweepers decide how many passes is enough to protect the fleet, so algorithms will be developed to help land operators choose the right equipment to use, the right way to use it, and where not to trust it, given local conditions.

To reiterate, where local knowledge and tactical speculation are unreliable, the larger sample sizes from detonators will produce information that is more dependable. At the other extreme, where mines have been emplaced according to accepted military doctrines and knowledge of location is good, traditional trench (path) samples can find mine fields effectively.

Let us be clear, mechanical detonators will not always be the best technique to apply in all situations. Operators will have to account for conditions when deciding where and how to use detonators. Once it is determined that terrain, infrastructure or other local variables do not contraindicate sampling by mechanical detonation, however, the large samples permitted by imperfect detonators will be superior to the small samples obtained by "perfect" human detectors.

The Operational Limitations of Demining Alone

Most mines are planted where people tend to walk. When emplaced according to military doctrine (as opposed to random sowing to induce terror), the logic of their placement helps the surveyors. Because belts of mines tend to be laid at set distances, about three feet apart, with a line behind and offset, a detonator likely would hit a mine with one side of its detonator array and a few feet along might hit another mine with the other side. When used only for finding a belt perimeter, the machine would be advanced until a detonation occurs, then withdrawn and advanced in another direction, as many times as necessary to confidently demarcate the boundary.

Perimeter delineation will be all that is required in areas where human incursions are infrequent and the best use of demining resources dictates marking or fencing but not clearance. It is also the least expensive, because it is faster and causes the least wear on the equipment.

In more populous areas it may be desirable to reduce potential risk still further by detonating as many mines as possible. We call this *density reduction*, in contrast to the *area reduction* of a normal Level 2 Survey—a Level 2.5 Survey, if you will. One would never declare such mine fields "cleared," and they would still require marking or fencing, as well as local education about the remaining danger. But if most exposed mines have been detonated (which is not possible using traditional survey methods), and most remaining mines are relatively inaccessible or insensitive, children, foragers and livestock ignoring mine field markings will be much more likely to walk out alive.

Clear Surveys Increase Results and Well-being

Mechanical detonators, by cutting Level 2 Survey costs ($1,250—2,500 (U.S.) per hectare is quite plausible) for a given national budget, could allow geometric improvement in effectiveness as measured by the number of casualties avoided and hectares of land returned to use, even if many mine fields are left marked and uncleared. A simplified example will serve to illustrate. See table 1.

The Cambodian Mine Action Center in its heyday cleared 10 square kilometers a year, spending on average almost $7,000/hectare. Let's assume, using high numbers, that Level 2 Surveying with mechanical detonators costs $2,500/hectare, and that 10 percent of a Level 1 surveyed parcel actually contains mines. For the same $7,000 that CMAC spent clearing a single hectare, mechanical detonators could locate mine field perimeters in 2.8 hectares. They would find mines in 0.28 hectare, which would be marked or fenced. So, for the cost of clearing one hectare, the Level 2 Survey would free for productive use more than 2.5 hectares.

If we use lower survey costs and a smaller proportion of suspect land actually mined, the result is even more remarkable. At $1,250 per hectare and only five percent of suspect land actually mined, that $7,000 frees up 5.32 hectares (5.6 hectares surveyed less 0.28 hectare that remains quarantined). So, simply by using mechanical detonators to conduct Level 2 surveys, mine clearance projects could return to use three to five times more land for the same money.

Mine-afflicted countries need to lower unemployment and provide work to ex-combatants. Won't labor-saving technology put local people out of work and delay economic recovery? Though superficially compelling, this objection does not withstand close examination because high productivity in mined area reduction would more quickly induce more employment than it displaces. A comparison of three scenarios (shown in the table).

Scenario 1, the CMAC scenario, maximizes employment in Year 1, using demining jobs. During Years 2–5, normal economic forces produce normal employment. In this example, 3,000 workers clear 10 square kilometers of land each year. Employment impact in Year 1 is 3,000. In Year 2, the 10 square kilometers of land released for agriculture employs 2,000 farmers (100 hectares/km^2 x 10km^2 x 2 farmers/hectare). With an economic multiplier effect of 1.5, the 2,000 farmers induce another 1,000 jobs elsewhere, for 3,000 jobs in Years 3–5. The total five-year impact is 14,000 job-years, assuming nothing else is happening to change the employment picture.

Scenario 2 maximizes the number of hectares freed, even at the cost of minimum Year 1 employment. In this case, 500 workers with mechanical detonators free 30 unmined square kilometers. Employment in Year 1 is only 500, but in Year 2, the newly-released land employs 6,000 farmers. With the economic multiplier effect, the employment impact in Years 3–5 is 9,000 jobs. The total five-year impact is 33,500 job-years. This is, in fact, the program that maximizes employment for the five years.

Scenario 3 balances Year 1 postwar employment—1,500 in demining and 1,500 in paid apprenticeships to train farmers and artisans—after which they go to full-time jobs. In this case, we assign 300 workers to Level 2 surveying because a substantial part of the budget is going instead to employment generation and training. Deminers will release and clear more land than in Scenario 1 but less than in Scenario 2. If 300 workers with mechanical detonators free up 18 square kilometers, and the other 1,200 clear four square kilometers (straight proportions of prior figures), then employment in Year 1 will be 3,000 (including trainees). Year 2 employment will be 4,400, and Years 3–5 employment will be 6,600 per year. The total five-year impact will be 27,200 job-years. Not surprisingly, this result falls between the other two scenarios.

Obviously, a hundred variables could affect actual results. But as the example illustrates, conducting Level 2 surveys with mechanical detonators could create great employment benefits.

Arguments for Objections to Employing Level 2 Surveys with Mechanical Detonators

Mechanical detonation has many adherents, but the arguments of opponents persevere. One objection is that all technologies must achieve 100 percent in a single pass because

Table 1: Number of job-years created under three different scenarios.

	Year 1	Year 2	Year 3	Year 4	Year 5	Total Job Years
Scenario 1	3,000	2,000	3,000	3,000	3,000	14,000
Scenario 2	500	6,000	9,000	9,000	9,000	33,500
Scenario 3	3,000	4,400	6,600	6,600	6,600	27,200

there are personnel in the mine field. Another is that even during surveys all mines must be eliminated; leaving any number is irresponsible. A third is that flails can damage mines, or rollers can push them deeper into wet soil, creating serious problems for the deminers who encounter them later, or even miss mines altogether if the ground is uneven. An objection occasionally heard is that spreading additional metal around mine fields makes subsequent detection more difficult and expensive. Finally, some deminers fear that local people who see mines cleared during a survey may conclude that the land has been made safe when it has not.

Valid concerns underlie these objections, but defining and conducting the surveys properly can alleviate them. Unmanned mine-resistant devices, for instance, keep personnel out of harm's way. If a survey's objective is to quarantine the land for an indefinite period of time, then the obvious risk of leaving mines behind must be counterpoised not against the low consequent safety risks to surveyors, but against the high risks to the local population if the survey is not done because cheap methods are prohibited.

Concern about breakage, displacement and misses can be met by using the right machine: avoid flails if breakage is unacceptable; use heavy rollers only when the ground is fairly firm and flat; use ground-conforming disks or flails if the ground is very uneven. There is not one mechanical technology but many, each with its own particular virtues and flaws.

Spreading shrapnel around is a concern only when shrapnel-loaded mines are prevalent and metal detectors are the primary detection tool. Many mine fields have mainly blast-effect (low metal content) AP mines, however. If blow-in-place neutralization is acceptable, mechanical detonation usually will also be acceptable.

Finally, the responsible way to address the fear of local misunderstanding of the level of clearance is not to abandon cheap Level 2 Surveys, but to make local populations strongly aware that *only some mines* have been neutralized and that the mine fields remain extremely dangerous, albeit less so than before. The savings realized by the fast surveys will more than compensate for the additional costs to the local mine-awareness program.

Complete elimination of *found* mines and UXO is a valid requirement for surveys in two cases only: 1) The survey is being combined with the creation of safe paths through the mine field, in which case *of course* all mines must be removed from the paths (but only the paths); and/or 2) the site is scheduled for complete clearance in the near future, so any found mines may as well be neutralized.

Conclusion

Threat reduction is maximized when resources are used optimally across the entire national demining enterprise. Complete clearance would always be preferred over surveying and density reduction if it were as cheap and fast. But clearance is so costly that *clearing a few mine fields completely* may actually endanger more people because scarce resources are diverted from lessening the risk in *all mine fields*. We argued this point at length in the last issue of this journal.

No technology by itself has demonstrated 100 percent effectiveness, yet deminers continue to use their favored technologies, with which they are familiar and which they know how to use safely, shortcomings notwithstanding. Mechanical detonators likewise will produce a body of expertise governing the safe and effective use.

Level 2 Surveys are expensive now, but judicious use of mechanical detonators will make them more reliable and cheaper. In particular, they can slash labor costs—drastically. We'd like to see demining become so cheap that even poor landowners in developing countries can afford to have the job done. We may never see that. But each step demining takes toward such economic viability means that we can free more land, create more wealth and save more lives. And that's worth some fireworks. ■

Notes

[1] Clearance of miscellaneous unexploded ordnance conceptually occurs at Level 4, but as a practical matter is commonly included in Level 3 mine clearance.

[2] We used the term "sample path" instead of "sample trench" to avoid giving non-deminers the impression that the surveyor is actually digging a trench through the ground.

[3] Conversation with Daniel Wolf at demining policy conference, Sanford School of Public Policy, Duke University, Raleigh, North Carolina, USA, May 1, 1998.

[4] See *"The Necessity of Adopting a Public Health Approach to Demining," Journal of Mine Action*, Summer 2001.

Biography

Daniel H. Wolf is President and Steven Barmazel is Publications Director of both Terra Segura International and Ploughshare Technologies. This article is based on a paper Mr. Wolf presented to the UXO/Countermine Forum, New Orleans, April 9–12, 2001.

Contact Information

Daniel H. Wolf
Terra Segura International
1846 Granada Avenue
San Diego, CA 92102 USA
Tel: 619-231-1320
Fax: 530-660-8054
E-mail: TerraSegura@compuserve.com

Steven Barmazel
Terra Segura International
1846 Granada Avenue
San Diego, CA 92102 USA
Tel: 707-528-2438
E-mail: swbarm@sonic.net

Published by JMU Scholarly Commons, 2001

Comments on the "Detonation" Approach

Daniel Wolf and Steven Barmazel discussed the Public Health approach to demining in an article entitled "The Necessity of Implementing a Public-Health Approach to Humanitarian Demining,"[1] making some very valid points. However, Robert Keeley points out some problems with this approach that he feels need to be addressed before this method can be successful.

by Robert Keeley, French Lieutenant Colonel

Daniel and Steven are right to point to the ideal of a Level Two Survey that defines the boundary of a contaminated area and properly reduces the area that is believed to be contaminated, so that the area freed up by the process is cleared to the same level of confidence as could be expected by a clearance process. This does seem to be a way to improve the overall cost benefit of mine action, rather than simply hunting for mine fields. However, I'm not sure that this approach automatically endorses the Level Two Survey technique that they promote in their article, and I'd like to discuss these points in more depth.

A Common Approach?

First, I'd like to endorse the inclusion of this type of cost-benefit analysis approach. Belinda Goslin and I helped introduce similar ideas in Croatia in 1996 (with the help of Norwegian-Croat public health specialist Branko Kopjar), and since then, I know that several other people have considered this issue, such as Eric Filipino in his recent publication at GICHD, "A Study of Socio-Economic Approaches to Mine Action." (I wish that it was on a website somewhere, as it would be easier for other people to get copies of it!)

I raise these examples not to make any sort of "Yah boo, we thought of that before you did!" comment, but rather to make the point that many people in many places have similar ideas. Although it could be an example of "if you put enough chimpanzees in enough rooms with enough typewriters, eventually you'd get a copy of Hamlet," I hope these examples of "parallel processing" really mean that many of us are thinking the same sort of thing, which (hopefully) means that we are making some sort of progress.

The public health/socio-economic/cost-benefit analysis approach also applies to the areas of R&D—many of the cries in the separate article in the same edition about the DTIF conference[1] bring eerie feelings of *déjà vu* when I read about the eternal question of balancing resources for R&D against allocating some of these resources for projects using existing methods. The cost-benefit question will come up again later in these notes.

It was the point about using "detonators" as a Level Two Survey technique that caught my eye. First, we need to unpick the linguistic confusion—as Oscar Wilde said, the English and Americans are "two nations separated by a common language," and to us users of British English, a "detonator" is what I believe those on the other side of the pond call a "blasting cap." I'm assuming that Daniel and Steven are talking about the use of a mechanical impact device (such as a flail or roller) to initiate mines—so perhaps "Level Two Survey by Detonation" would be a term we could all agree on. Sorry to be so picky.

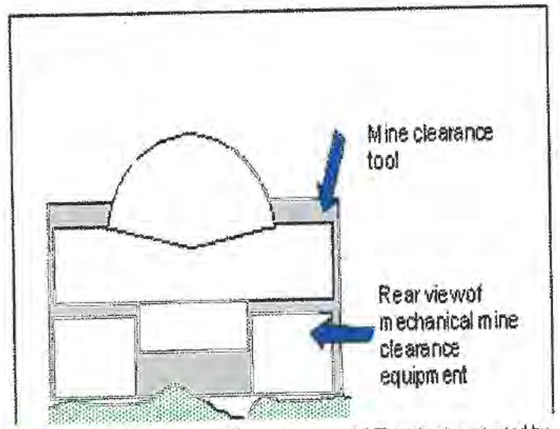


Figure 1: Problems caused by uneven ground. The mine is protected by being at the bottom of the undulation.

NOTES FROM THE FIELD

Middle East

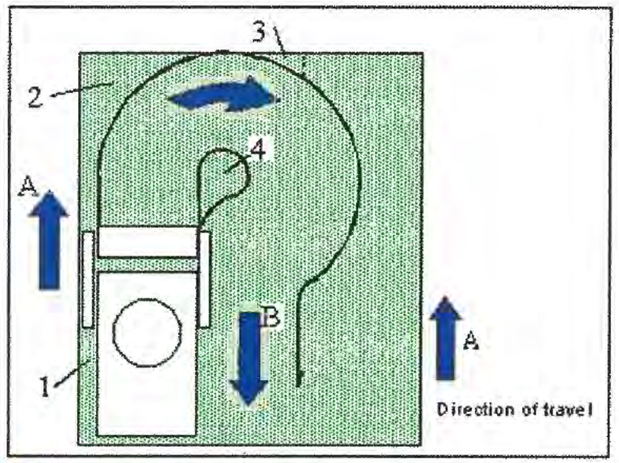


Figure 2: Common problems in the guidance of mechanical clearance devices (areas 1–4 are the areas missed).

but in my experience of the last 10 years in this industry, it's always worth the effort to get the definitions correct as early on as possible!

This basic idea—that you drive a machine in as far as possible until something goes *bang*, then use the location of the bangs to define the perimeter—has been around for a while. We were certainly talking about it in UNPROFOR (the UN mission in Bosnia and Croatia) and the follow-up humanitarian demining missions with representatives of NPA and Technopol in 1995–6. The Slovak manufacturers of the Bozena, and both Hendrik Ehlers of MgM and David Hewitson of ELS have been conducting work on the same ideas for years now (another example of parallel processing). The motivation for this technique was simple: bayoneting our way in from the Croatian coast wasn't an option, and how could we use machines *that had already failed as total clearance devices* to help reduce the total area that we might have to clear? In other words, could machines, used in this way, help us improve the overall cost-benefit ratio of demining and help us target our resources against priority targets more effectively?

I think that, five years later, the answer is still—at best—"Yes, well, maybe," and so I don't think it's fair for Daniel and Steven to state so categorically that "mechanical deronators are more than adequate for this task" or that "mechanical detonators allow quick area coverage . . . thus increasing survey speed while reducing cost." I'll explain why I think this below.

Problems

There are two main problems with such enthusiastic and categorical endorsements of the "Level Two Survey by Detonation" technique. These are:

- The machines do not detonate 100 percent of the mines—let alone UXO—that they cross.
- Machines are not necessarily more cost-effective.

Not 100 Percent Effective

This first came up in my experience in Kuwait, though some of the lessons (not) learned by others in Afghanistan were directly relevant. The representative of a company selling and operating machines on contract in Kuwait endorsed the use of a flail machine for clearance of a beach mine field, even though one of the junior managers of the company who hired the flail had had personal and unsatisfactory experience with the same machine used in this way in Afghanistan. He said that the machine had failed to detonate at least 50 percent of the PMN2 mines it had encountered there—and as many readers are aware, the PMN2 includes a cunning mechanism that was intended to protect the mine against explosive overpressure. The junior manager postulated that the flail would have the same problem against the Italian VS-50 mines in the beach mine field in question, as the VS-50 has a mechanism with a similar protective effect. He suggested that the soft sand and the smaller mine size would exacerbate the problem. He then went on to prove this by disarming some VS-50s, removing the main charge, painting the mine bodies orange and replacing the detonators. He then re-armed the mines and invited one of the flail crews to drive over the mines—50 percent did not detonate. Now, only a small sample was used—he had had to recover the mines himself and therefore only had four—but, given that the aim was to remove ALL of the mines, this gave serious room for doubt. I won't go on with this story (which had a sad ending) except to say that a similar test based on this story, which we conducted in Cambodia, with a different flail, had very similar results against the PMN2, corroborating the Kuwait and Afghanistan experiences and helping us prevent injury in that case.

Rollers proved even less effective in Croatia, where they had the unexpected side effect of knocking down crops on top of mines and masking the mines from the rollers when they passed over them. These results, and others elsewhere, have led us all away from the idea of using rollers and flails as "one stop shops" in the demining process. However, the point of these examples in the context of these notes is: if we can't be sure that

Comments on the "Detonation" Approach

the first bang made by the machine is as a result of it successfully detonating the first mine that it has passed over, how do we then use this result to determine the boundary of the contaminated area?

It has been suggested occasionally (though not in Daniel and Steven's article) that the number of passes made by the machine can increase the effectiveness of the result, but let's be clear that that is *not* a valid conclusion to draw in this case. If the mechanical impact isn't going to set off the mine because of a protective mechanism in the mine, then more repetitions of the same technique do not guarantee an eventual success. We are not hammering in a six-inch nail! In fact, if anything, this is more likely to disrupt or mechanically destroy the mine (perhaps a good result in itself, but also contributing to the uncertainty about where the edge of the contaminated area is). There is also the problem, rarely encountered in the land of brochures and sterile trials, that we are not demining football pitches and that the ground in mine fields is usually uneven. Mines at the bottom of undulations (see Figure 1) aren't going to be hit by the wheels or hammers, no matter how many times the machine drives over, and the more energetic techniques—such as flails or soil mills—can even contribute to burying the mines further by redistributing soil on top of them. Furthermore, anyone who has ever had to supervise any sort of construction plant will know that it seems to be impossible to make the plant operators drive in a straight line (construction engineers all over the world believe that bulldozer operators are united in a common bond to knock over all the site markers that the engineers put up on a construction site), and this problem is only exacerbated by the use of remotely operated plants, so we really can't be sure that the machines have covered all of the ground that we want them to (see Figure 2).

The Cost-Effectiveness of Machines

The second problem with Daniel and Steven's endorsement of "Level Two Survey by Detonation" is with the implied generalization that machines will always reduce costs. Unfortunately, this is not necessarily the case. At least one machine tried in Asia recently consumed more dollars per day in diesel fuel (let alone maintenance and transport) than it cost to fund the deminers it was claimed that it could replace. Now, while it may be easier to make the case for machines in the Balkans (where deminers are comparatively expensive), the fact that we can't trust them to clear all of the mines means that (a) while the Level Two Survey finds mines in an area that we need to clear for the project involved, we still need to use the deminers (i.e., the total cost is machine + deminers, NOT machine instead of deminers), and (b) even if we could use the machine to determine the boundary of the mine field, what happens if the first mine found is only one meter from the start line?

What Does This Mean?

While I agree with the general thrust of David and Steven's support for "Level Two Survey" and that machines can have a part to play, I feel that this deserves to be predicated on the basis of several caveats, including something along the lines of:

- Where a machine is used to determine the actual perimeter of contamination within a suspected mined area, the use of the technique involved must adequately demonstrate how the boundary of the contamination is determined given the limitations of the machine involved. Where this is not possible, a second method, such as dogs or manual clearance, must be used.
- Planning the use of machines in Level Two Survey *can* have valuable benefits in terms of improvements in speed. The cost of the machines must be offset by the benefits in demonstrated reduction in deminer hours.

This *can* be done. For example, a machine that is used to clear vegetation and prepare ground ahead of manual deminer teams can speed up a project (though not always—think of trying to clear up mines when you're working behind a mine plough that's just buried mines in heavy clay!). That's why we talk about "mechanical ground preparation" (and I believe Hendrik talks about mechanically assisted demining). It comes down to that old slogan: "Are we making it faster, cheaper or safer?"

Conclusion

Am I being picky? Perhaps. I certainly don't want to detract from the overall thrust of the article and its illumination of the cost-benefit analysis approach to demining. However, I hope my comments will be taken in the light of helping us all reach the goal of good Level Two techniques and so improving our productivity. ■

**All figures courtesy of the author.*

1. See *The Journal of Mine Action*, issue 5.2, Summer 2001

Author Information

Robert Keeley
Landmine Solutions (Thailand)
Level 43
323 Silom Road
Bangkok 10110
Thailand
Tel: +66 2 631 2372
Fax: +66 2 631 2473
E-mail: als@loxinfo.co.th

(Asian Landmine Solutions is part of the ELS Group of Companies)

Response to Bob Keeley's Letter to the *Journal of Mine Action*

By Daniel Wolf and Steven Eastman
September 25, 2001

We appreciate Bob being "picky" in examining our article on applying a public-health approach to demining. The lives at stake in demining are worth the extra care. As it happens, we generally agree with his views.

First, let's *do* get our terminology straight. Thanks, Bob, for the lesson in British diction. We had hoped that placing the modifier *mechanical* before *detonator* would make our intentions clear. That it did not, we apologize to our readers. More substantive issues await us.

As Bob rightly points out, our ideas are not new. The public-health/cost-benefit approach predates the birth of everyone reading these words, and using detonation devices to map mine fields is likewise not fresh. Plenty of deminers apply both of these techniques. Our purpose in writing the article was to memorialize the principles involved, and thereby educate and even convince people who have not joined the choir, of whom there are many.

On the other hand, we're not sure we appreciate being likened to a pair of chimps with typewriters . . . .

Bob argues that mechanical detonation is not appropriate because it is less than 100 percent effective. This is valid for complete clearance but beside the point for Level Two Surveys (mine field detection) because 100 percent clearance is not part of the job specification. The crucial question, addressed in our article in this issue, is "*If not 100 percent, then how much?*" Bob's assertion that "machines are not necessarily more cost effective" is absolutely true. Many machines exist, however, and each varies in terms of productivity and costs of purchase and operation, so no general statement can truthfully be made. A machine that would break the budget of one project may be economical in another.

Bob takes us to task for endorsing mechanical detonators *categorically*. That is not our intent, and in fact, we don't find any such endorsement in our article. To clarify, we *don't* assert that mechanical detonation is the most appropriate, effective demining method under every set of conditions. Our article in this issue discusses mechanical detonation at length. Here is what we say:

"In fact, *under many conditions*, using detonators will find mine fields better than manual probing [emphasis added]."

So, under what sorts of conditions do we think mechanical detonators offer advantages? Well, again, let's look at what we say:

"[W]here local knowledge and tactical speculation are unreliable, the larger sample sizes from detonators will produce information that is more dependable. At the other extreme, where mines have been emplaced according to accepted military doctrines and location knowledge is good, traditional trench samples can find mine fields effectively.

"*Let us be clear, detonators will not always be the best technique to apply in all situations.* Operators will have to account for conditions when deciding when and how to use detonators. Once it is determined that terrain, infrastructure or other local variables do not contraindicate sampling by mechanical detonation, however, the large samples permitted by imperfect detonators are superior to the small samples obtained by 'perfect' human detectors [emphasis added]."

This is hardly a categorical endorsement of mechanical detonation as a panacea for what ails demining operations. Bob's example in which crops could flatten and thereby mask the presence of mines, would be one of those situations where, depending on the crop, mechanical detonation may not be appropriate.

We definitely do not promote flails or rollers as "one stop shops" for demining. Though it would be unfair to draw firm conclusions from the experiment Bob cites (the sample size—four—is just too small), we share his low opinion of flails.

Most of all, Bob points out the need for us to expand on our shorthand notes we made regarding mechanical detonation. We hope our article in this issue clarifies our points sufficiently.

Geneva Diary: Report from the GICHD

The GICHD has been assisting the ICRC with technical information on both AT mines and submunitions. GICHD also addresses other areas of special concern to mine action.

by P.M. Blaydon, Technical Director, GICHD

Explosive Remnants of War

Among the many hazards encountered by deminers worldwide are the various unexploded munitions left on the battlefield, in storehouses and bunkers, and even in the villages and homes of local participants in internal conflicts. These have always been accepted as part of the deminer's clearance task, and most munitions can be disposed of fairly simply. These Explosive Remnants of War (ERW) are neither covered by the Mine Ban Treaty, nor by the Amended Protocol II of the Inhumane Weapons Convention (known as the CCW). Explosive remnants can pose a significant clearance burden—in the British Clearance Sector in Kuwait, for instance, there were an estimated 16,000 tons of material that either had to be moved into proper storage areas or disposed of. Recent unwelcome additions to the range of ERW have been the explosive submunitions or bomblets. First used extensively in the Vietnam War, some types are more sensitive than many other munitions and, according to ICRC figures, were responsible for as many deaths and injuries in Kosovo as were AP mines (16 percent).

In 1999, the ICRC took the initiative to examine the feasibility of establishing a new Protocol under the CCW to cover ERW, and this move has met with widespread international endorsement. The Geneva International Center For Humanitarian Demining (GICHD) has been assisting the ICRC with technical information, both on AT mines and on submunitions. The GICHD has special concerns in a number of areas, all highly significant to demining groups.

Fuel Air Munition, a never before seen munition, hindered mine removal in Kuwait. *c/o GICHD*

INFORMATION ON EXPLOSIVE REMNANTS OF WAR NEEDED BY MINE/UXO ACTION ORGANISATIONS

Information Type	Use in Mine Clearance	Use in Mine/UXO Awareness
~Types of mines and munitions used (e.g., source of supply, age and original shelf-life).	~Needed to prepare demining "toolkit", including tools to remove fuses, making safe, etc.	~Mine/UXO recognition by population. ~Training for awareness trainers. ~Development of support materials and media.
~Dimensions and visual characteristics of mines and munitions used (e.g., size, shape and marking).	~Needed to recognize mines and munitions during survey and clearance.	
~Dimensions and visual characteristics of packaging or transporting material.	~Needed for recognition of likely mined areas or munition strike zones.	
~Location information for mine fields (as per CCW Protocol II)	~Mine field maps, laying patterns and depth info needed for mine survey and clearance.	~Information on dangerous areas for population. ~Training for awareness trainers. ~Development of support materials and media. ~Better targeting where mine/UXO awareness is needed.
~For air-, gun- or rocket-delivered sub-munitions or conventional bombs, details of the munition (e.g., type, fusing and warhead), delivery direction, drop height and target area.	~Needed by clearance teams to estimate of the likely spread of sub-munitions.	
~For air- or rocket-delivered submunitions, details of delivery canisters, including markings.	~Needed for recognition by clearance teams to indicate types of sub-munitions released.	
~Details of any anti-disturbance or anti-handling devices, any self-destruct or self-neutralisation systems (e.g., munition "life" and active period).	~Needed for safety of clearance teams to estimate safety of movement, disarming or destruction.	~Training for awareness trainers.
~Details of all munition propellants (e.g., nature—solid or liquid and composition).	~Needed for safety of survey and clearance teams to establish method of clearance and destruction.	Not needed
~For fuel-air explosives (FAE), details of the explosive composition.	~Needed by clearance teams to estimate of handling and disposal hazards.	Not needed

NOTES FROM THE FIELD

Middle East

GICHD Brief Facts and Figures

Established:	**April 1998**
Started:	**May 1999**
Current staff:	**24**

Three main functions:

- **Support the MBT**
- **Support field operations, including IMSMA**
- **Carry out enabling studies**

The major concern is that information on all types of munitions, including submunitions, is made available to demining groups before they have to start the clearance operation. This information was not provided at the start of the Kuwait operation, which added an unnecessary danger to the deminers. A number of munitions had never been seen before by any of the teams working in the area, which added to the hazards of their removal. At a recent workshop, the GICHD prepared a table of deminer's requirements for information, which is reproduced on the previous page. We firmly believe that deminers have the right to know the nature of the ERW they are called upon to clear.

Another concern is that the arming systems of all munitions are made as simple and foolproof as possible. Self-destruct mechanisms that fail to function leave potentially lethal submunitions with an unknown active life, dangerous to both the deminers and the local population. The GICHD has made some technical suggestions on self-destruct mechanisms.

Although the safe storage of ERW is not the subject of any protocol or treaty requirement, it is vital that national governments that are left with stocks of unused munitions know how to store these munitions in a safe way. Careless storage has led to major fires and explosions in storage areas. In one case, a storage facility burned for eight hours, flinging burnt and half-burnt material over a five-km radius. This not only represents a major hazard to local villages, but also presents a further clearance problem, as many of the ejected munitions will still be live and possibly even more sensitive than before. The GICHD has knowledge of correct methods of ammunition storage where required, both under regular and emergency conditions.

GICHD Activities in the Middle East

The GICHD has perhaps fewer links with the Middle East than with other parts of the demining world. That said, IMSMA has been installed in Eritrea, Yemen, Somalia, and Lebanon, and a recent International Standards outreach session was held for the Middle East, which was attended by representatives from Eritrea, Lebanon, Northern Iraq, Somalia and Sudan. The GICHD also has contacts with the programs in Afghanistan, although the dog-training program in that country is now on hold until further notice.

Recent Updates

Support for the Mine Ban Treaty

At the Third Meeting of States Parties to the Mine Ban Treaty in Managua in September, the GICHD was given an expanded mandate to give greater support to the Convention and its Intersessional Standing Committees through the formation of an Implementation Support Unit (ISU). This Unit will increase the flexibility and efficiency of the work done by and for the co-chairs of the Standing Committees. The ISU will be formed at the end of this year.

International Standards

The first tranche of 28 International Standards (IMAS) was officially endorsed by the UN Inter-Agency Coordination Group on Mine Action on 26 September, and six IMASs have been translated into French. Full details are available at www.mineclearancesrandards.org. The final outreach session of the IMAS program took place in Cambodia in early October. This brings the total number of country programs briefed to 29. Nearly 300 people have received instruction on IMAS, coming mainly from National Mine Action Authorities, Mine Action Centres and NGOs. ■

Contact Information

P.M. Blagden
GICHD
CP 1300
Avenue de la Paix 7 bis
CH-1211 Geneva, Switzerland
Tel: 41-22-906-1660
Fax: 41-22-906-1690
E-mail: p.blagden@gichd.ch
Website: www.gichd.ch

Geneva International Centre for Humanitarian Demining
Centre International de Déminage Humanitaire - Genève

https://commons.lib.jmu.edu/cisr-journal/vol5/iss3/1

U.S. Humanitarian Demining in the Middle East

Through generous contributions of money and personnel, the U.S. has enabled five Middle-Eastern nations to institute and maintain national demining programs.

By Laura L. Smith, U.S. Department of State Fellow

Abstract

The United States seeks to relieve human suffering caused by landmines and unexploded ordnance (UXO) while promoting U.S. foreign policy interests. U.S. objectives are to reduce civilian casualties, create conditions for the safe return of refugees and displaced persons to their homes, and reinforce an affected country's stability. The U.S. seeks to accomplish these objectives by helping to establish and support sustainable indigenous mine action capabilities in mine-affected nations, where appropriate. Since fiscal year 1993, the United States has committed almost $500 million (U.S.) to global mine action initiatives, including research and development and survivor assistance. Nearly $90 million more will be provided in fiscal year 2002.

U.S. Involvement in the Middle East

The U.S. government (the Department of State's Office of Humanitarian Demining Programs (HDP) and the Department of Defense's Office of Peacekeeping and Humanitarian Assistance) provides mine action assistance to five of 11 Middle Eastern countries reporting landmine and/or UXO contamination. U.S.-assisted countries include Egypt, Jordan, Lebanon, Oman and Yemen. These countries are estimated to contain approximately 22 million landmines and UXO left over from internal conflicts between warring factions and external conflicts with neighboring countries. Although approximately 147,623 landmines/UXO have been destroyed, allowing over 14.4 million sq. m of land to be returned to productive use, the threat of landmines remains.

Egypt

The government of Egypt estimates there are 5–5.75 million landmines and 15–15.25 million pieces of UXO in its territory. The largest landmine/UXO contamination sites exist in the northern part of the Western Desert, along the coast of the Mediterranean Sea and between the Nile Delta and the Libyan border. Within these sites, the most heavily mined areas are Alexandria, El Alamein, Ras-Al-Hekma, Marsa Matruth, Sidi Barrani and Salloum. Post-World War II mines and UXO exist in the east, in the Suez Canal area, along the western coast of the Red Sea and in the Sinai Peninsula. These landmines and UXO affect 2,800 sq. km of Egyptian land, 2,539 sq. km in the west and 261 sq. km in the east. According to the Egyptian Army, landmines and UXO have killed 696 people (including 418 civilians) and injured another 7,617 (4,599 civilians) since the end of World War II.

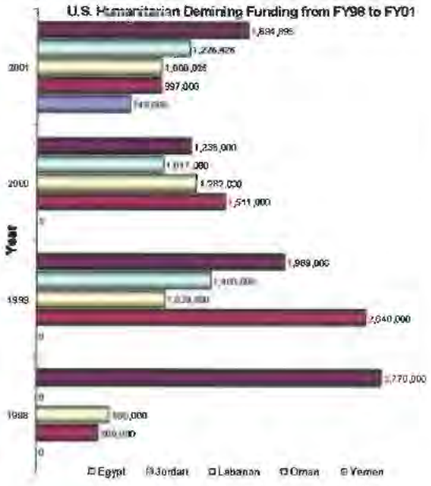
Jordan

According to the Jordanian Armed Forces (JAF) Royal Corps of Engineers, there are 222,637 landmines in Jordan affecting an area of approximately 100 sq. km. Most of the mines were placed in the ground during the 1967 Arab-Israeli conflict, with the majority located in two discrete areas in the northwest region of the Jordan River Valley. One area is toward the northern end of the Valley on the Syrian border, near Lake Tiberias, while the other is farther south, near the northern end of the Dead Sea. Israeli-laid mine fields are located mainly in the southwest part of the country in the Araba Valley in areas restored to Jordan after Israeli occupation. UXO is not a serious problem in Jordan. The JAF Medical Services reports that 636 Jordanians, including 370 civilians, have become landmine victims since 1967. Ninety-two victims died from their injuries. The majority of civilian casualties were farmers, shepherds, hunters and children. In 2000, landmines injured nine military personnel and three civilians.

Lebanon

The French Mandate period (1923-1943), the Lebanese Civil War (1975-1990), and the time during which Israel occupied south Lebanon (1978-2000) have left Lebanon with an estimated 130,000 mines and UXO in the former occupied zone and 150,000 mines and UXO in the rest of the country. The UN Intervention Force in Lebanon (UNIFIL) claims that 50,644 AP landmines are located in 108 mine fields along the Lebanon-Israel border, 7,730 APL and AT mines in an additional 48 mine field clusters, and 107,200 APL elsewhere in the country. As of July 2000, landmines and UXO had killed 1,168 Lebanese and wounded 1,546 more; 15 of the fatalities and 99 of the injuries occurred between May 2000 and May 2001. More than 40 percent

of victims suffered their injuries while engaged in agricultural activities, the major source of income for Lebanese villagers. In South Lebanon and West Bekaa, there has been a noticeable decrease in agricultural production because of the presence of landmines.



Lebanon

Oman has a small landmine and UXO problem. The vast majority of the landmines are found in the Dhofar region in the south. They are the result of the 1964-1975 internal conflict between the government of Oman and the separatist group, the communist Popular Front for the Liberation of Oman and the Gulf (PFLOG). The Royal Omani Army (ROA) and its allies (Jordan, Iran, and the United Kingdom) used landmines to protect defensive positions and to inhibit the movements of separatists, while the PFLOG used landmines to ambush ROA and allied units. The ROA states that it mapped, marked and then cleared some of its mine fields at the conclusion of the rebellion. The PFLOG did not map, mark or clear their mine fields. Heavy seasonal rains, terrain and soil conditions have caused several of the mines to migrate from their original positions. According to the government of Oman, landmines and UXO have killed 12 people and wounded 84 since the end of the Dhofar rebellion. Almost 50 head of livestock have become landmine casualties. In March 2001, there were two UXO incidents, resulting in serious injuries.

Yemen

Landmines have been used in Yemen during three main periods: 1962-1969, 1970-1983, and in 1994. Unconfirmed reports indicate that approximately 100,000 landmines litter the Yemeni landscape as a result of these conflicts. A Level One Survey, based on victim data, has identified 592 mine-affected communities in 95 districts in 18 of Yemen's 19 governorates. Approximately 828,000 people, about six percent of the population, live in these communities. Of the almost 1,100 identified contaminated areas, there are mines in 859 of them, affecting 799 sq. km, and UXO in 200, covering an area of 200 sq. km. Combatants laid these landmines in an arbitrary and haphazard fashion, in sand dunes and fields and along roads, without marking their location. The mines block access to grazing land and to water for drinking and irrigation. For that reason, herders and children who do not attend school are the most vulnerable to landmine injuries. According to the Level One Survey, in 1999 and 2000, landmines and UXO killed at least 57 people and wounded 121 more; all but two of the victims were civilians. Estimates for landmine and UXO casualties prior to 1999 are more than 2,500 killed and over 2,200 injured.

Mine Action

Since 1998, the United States has provided approximately $21,632,146 in humanitarian assistance to Egypt, Jordan, Lebanon, Oman and Yemen (see chart). This allocation of funding has supported mine action initiatives such as mine detection, deminer training, mine clearance, mine awareness and survivor assistance in each of the five countries.

Mine Awareness

Mine awareness initiatives are sponsored in most of the Middle Eastern countries. In Yemen, mine awareness teams began educating the local populace on demining efforts in 1999. In addition, the United States Agency for International Development (USAID) sponsors a mine awareness program in Lebanon with the support of community-based organizations and NGOs.

Mine Detection

Surveys, intended to gather information on the nature and extent of the landmine problem, have been carried out in three of the five U.S.-assisted Middle Eastern countries. Currently, Jordan is conducting Level Two Surveys along the Syrian border to assist in further developing demining strategies. Additionally, a survey conducted by Lebanon's Landmines Resource Center in 1998 and 1999 confirmed that mine fields and suspected mine field locations include agricultural areas, former battlefields and cities and villages located along old demarcation lines. Although some mine fields are marked and fenced off, many others remain unmarked. In 2000, the Vietnam Veterans of America Foundation (VVAF) conducted a Level One Survey in Yemen. The survey identified 592 mine-affected communities in 18 of Yemen's 19 governorates. The results of the survey proved to be effective in determining demining priorities.

Deminer Training and Mine Clearance

Egypt

In April 2000, the government of Egypt signed a decree officially establishing a civilian-led National Demining Committee. From May 17 through August 15, 2001, the Department of Defense's train-the-trainer program in Egypt focused on mine detection and disposal, survey and information management. Training also included a leadership and operations seminar for battalion and company commanders. Mine clearance operations are continuing in the Red Sea area at Hurghada.

Jordan

Training conducted by the U.S. Special Operations Forces (SOF) has improved the capabilities of Jordan's Royal Corps of Engineers in mine detection and disposal, survey and information management. There are currently 100 deminers in the field on a daily basis. In addition, Jordan and Israel are now discussing a strategy to remove remaining landmines after initiating a joint effort to clear 10 Israeli-laid mine fields in the Araba Valley. As of February 2000, Jordan's Royal Corps of Engineers had cleared 83,823 mines from more than 200 mine fields, restoring more than 3,000 acres of land to safe use.

Lebanon

The United States has supported a demining program in Lebanon since 1998 and has contributed a total of almost $4 million to the program. The U.S. military assisted in establishing a National Demining Office and supported further development through training and provision of equipment. The U.S. military also conducted a train-the-trainer program to provide an indigenous company of deminers capable of sustaining operations.

Oman

In 2000, U.S. funds enabled the government of Oman to develop a survey and information management capability to define mined areas effectively and to archive mine field data efficiently; to enhance the curriculum at the engineer school, which will enable it to train deminers to international standards in demining survey, marking and clearance operations; to purchase modern detection and protective equipment; to develop a mine awareness capability to support demining units at the regional and local levels; and to train ROA medical cadre to improve initial response, medical and trauma capabilities.

Yemen

U.S. assistance has funded a national demining program infrastructure and a train-the-trainer program, conducted by U.S. Special Operations Forces (SOF) soldiers. In December 1998, the first 150 Yemeni deminers graduated from the Humanitarian Demining Training Facility in Aden. Demining and UXO removal operations began in 1999 with the fielding of two U.S.-trained Yemeni demining companies.

Survivor Assistance

Through the World Rehabilitation Fund, USAID implements programs aimed at preventing landmine-related accidents and improving the physical, social and economic conditions of people suffering from landmine-related injuries. One of these programs established in Lebanon will create a mine victim rehabilitation center in Jezzine, the site of the highest concentration of landmine survivors.

Accomplishments

Since 1993, humanitarian efforts by the United States have led to an increase in the area of land restored for productive use and in the number of landmines/UXO destroyed during demining operations. With over 600 U.S.-trained deminers, an estimated 14.4 million sq. m of land have been cleared in the Middle East and approximately 147,623 landmines/UXO have been destroyed. The table below indicates this significant reduction in the threat of landmines/UXO in Egypt, Jordan, Lebanon, Oman and Yemen.

Country	Landmines/UXO Destroyed	Land Cleared (sq. m)
Egypt	Demining training underway	N/A
Jordan	83,823	12,500,000
Lebanon	2,500	Not reported
Oman	Demining training underway	N/A
Yemen	61,300	1,920,000
TOTAL	**147,623**	**14,420,000**

Future Endeavors

In 2001, the U.S. Humanitarian Demining Program will have allocated over $5,667,346 (U.S.) to support mine action initiatives in Egypt, Jordan, Lebanon, Oman and Yemen. With continued assistance from the U.S. government and other international donors, the goal of achieving a qualified, trained and equipped country program capable of sustaining its own mine action initiatives is attainable. ■

Contact Information

Stacy L. Smith
Fellow, U.S. Department of State
Office of Humanitarian Demining Programs (PM/HDP)
2201 C Street, N.W., Room 3328-NS
Washington, D.C. 20250-3817
Tel: (202) 647-4998
Fax: (202) 647-4537
E-mail: smith@hdp.org

From the Director's Desk

Let's Go About Our Work!

by Dennis Barlow, *Director, MAIC*

The partnerships and spirit which develop within the context of mine action activities sometimes seem almost as important as the remediation of landmines itself.

I am reminded of a time earlier this year when James Madison University was hosting a landmine conference. At a working supper, I was having a wonderful time enjoying the fellowship and camaraderie, which had enveloped the diners at my table. It suddenly struck me that my dinner companions were Albanians and Nicaraguans. Ten years ago, we would not even had been allowed to meet with each other, much less plan cooperative ventures together. But it went beyond that—in these new friends I discovered a kind of kinship, understanding and humor that has become the norm for those of us involved in the thorny world of mine action.

In the aftermath of the tragic events of September 11, and in preparation for this issue of the MAIC Journal, I tried to assess new feelings and dynamics which might now bear on mine action in the Near and Middle East.

The first thing I realized was that, possibly without knowing it, those of us involved in mine action have been wonderfully — perhaps uniquely—blessed. We have developed such a singleness of purpose within a complex environment that we have not allowed ourselves the luxury of dwelling on, or even being aware of, cultural or racial differences. They simply do not matter when the goal is to preserve lives, limbs and eyes and to facilitate a very basic form of human happiness. A concern for landmine victims and the plight of peoples assailed by this menace have carried us far beyond a cognizance of religion or ethnicity and into a single desire to improve the lot of innocent people whose very existence is threatened by a hideous and frustrating foe. While it may sound maudlin, it is a simple indelible fact that in all of my travels, and without exception, in the six years in which I have been involved in mine action, I have never, ever heard anyone in our global community differentiate among any racial, national or cultural group. Donor countries, corporations, NGOs, military units, regional and international organizations, policy makers, tacticians, logisticians, health organizations; none have ever postulated that a people or region at risk from landmines is more or less deserving of aid than another.

I also recalled how many wonderful mine action practitioners are from Middle or Near Eastern countries. Maybe it would be best if I never thought of my compatriots in terms of their nationalities, and maybe I never would have had it not been for the events of late summer. But this mental review has awakened in me a realization of how many Muslim and Arab players there have been in the mine action programs and the enormous good that they have done. I also realized that I am in a position unlike most Americans; they do not have much of an opportunity to gain a firsthand knowledge and appreciation of the indigenous people and cultures of South Central Asia or in the Middle East.

This current issue of the *Journal* alone is testimony to the interest and energy involved in mine action in the Middle East; more articles were submitted and organizations involved in this edition than in any issue of the *Journal* over its four year existence. Regional conferences, innovative Mine Action Centers, the creation of altruistic demining NGOs and comprehensive national programs have been hallmarks of programs in this region.

One hope is that as we go forward with mine action that there will be no "chill" as global organizations continue their work in the Near East and the Middle East.

There is also a flip side to this phenomenon. Just as many Americans do not understand Muslim or Arab concerns, many in the Middle East do not understand the complex nature of the American psyche. Many people around the world, not just Arabs and Muslims, view Americans as a smug, self-centered and materialistic people who are not capable of understanding or caring about the plight of others. While most Americans are indeed fortunate to have a high standard of living, it would be most erroneous to infer that they lack a basic morality and sense of justice and caring. It is indeed this set of characteristics, along with a love of liberty, which perhaps most clearly defines what it is to be an American. However diverse Americans may be in other criteria, Americans are united in wanting to do good.

Therefore, it seems to me that the best thing that the global humanitarian demining community can do is what President Bush has asked the American people to do; to go about its work. There are those who despise aspects of Western culture, and there are those who blame entire nationalities and religions for single acts of barbarism. We cannot stop these people from being negative. But rather than curse their darkness we can light the way to better international understanding — as well as the more direct work of ameliorating the devastating effects of landmines — by continuing to work together seamlessly to give the world an example of global unity and trust. ■

https://commons.lib.jmu.edu/cisr-journal/vol5/iss3/1

Landmine News Around the World

Congratualtions to Dave McCracken for receiving the Meritorious Service Medal for humanitarian demining.

Snow Leopards in Afghanistan Threatened

The threat of military action in Afghanistan has raised fears for the endangered snow leopard of which only 5,000 remain. The creature has already seen its natural habitat threatened by war and hunting. One major problem for the snow leopards in Afghanistan has been the number of land mines left behind after decades of war.

1,000 Land Mines Unaccounted For in Korea

More than 1,000 land mines are unaccounted for after being washed out from rear-area military bases during floods, according to a Korean Defense Ministry report. The report said some 1,300 land mines have been washed away from 10 bases since 1998. Only 250 of them have been retrieved so far. These bases are located near major cities and the lost mines may cause a threat to civilians.

Serious mine accident in Mozambique

On the morning of July 16, a car with eight NPA deminers hit an anti-tank mine on a road in the Machaze District in the Manica Region of Mozambique. One deminer and all four mine dogs were killed. Seven deminers were wounded.

New Demining Machine Unveiled

A team from QinetiQ arrived in Maputo, Mozambique to demonstrate their unique mine clearance system, FireAnt, which is a high temperature pyrotechnic torch capable of destroying anti-tank, anti-personnel and blast mines. The high temperature flame burns through the thin mine casing of metal or plastic and ignites the explosive.

Red Cross Trains Chechen Refugee Children to Avoid Mines

More than 2,000 children from Chechnya have undergone training in how to avoid mines. Viktoriya Zoticova of ICRC announced that the committee had produced a puppet show on the basis of North Caucasian fairy tales specifically for the Chechen children.

Wartime Shells Kill Two by Major Russian Highway

Two people were killed and one was injured when several shells dating back to World War II exploded by the side of a major Russian highway, RIA news agency said. The agency quoted police in the northwesterly Novgorod region, site of heavy battles during the war, as saying the blasts occurred some three meters from the road linking Moscow with Russia's second biggest city of St. Petersburg.

Czech Republic: Mines in Vltava River Likely From Yugoslavia

People cleaning up the Vltava River found land mines of the type used in the territory of former Yugoslavia in the last decade. The mines, according to a preliminary examination, were used during the war conflict in former Yugoslavia. The police are investigating the possibility of the mines having been put there by some of the Czech soldiers serving in the SFOR [Stabilization Force] or KFOR [Kosovo Force] missions.

Seven Policemen Killed in India

Seven persons were killed in a landmine blast triggered by People's War Group rebels in India. A group of rebels called the police and then triggered a landmine under the responding officers' jeep. All seven officers died.

correction: The point of contact for the Canadian Center for Mine Action Technologies' Brush Demmer is Maj. Harry Burke, e-mail: Harry.Burke@dnda-rddc.dnd.ca, www.cemat.gc.ca




DEPARTMENT OF DEFENSE
HUMANITARIAN DEMINING WORKSHOP
JULY 9–11, 2001

Significant progress in enhancing the speed, safety, and cost effectiveness of demining operations will, to a large extent, depend on our ability to harness the science behind demining activities and apply it in useful and productive ways.

The U.S. Department of Defense (DoD) Humanitarian Demining Research and Development (R&D) Program office at Fort Belvoir, Virginia, develops and demonstrates prototype solutions to improve the safety and efficiency of the demining process. The R&D Program emphasizes the use of commercial off-the-shelf equipment and components to rapidly develop, demonstrate and transition equipment into the hands of international demining organizations. In addition to its internal projects, the R&D Program leverages ongoing developments in other military and government laboratories, commercial industry and academia. The R&D Program focuses its efforts in the areas of personal protection, wide area detection, individual mine detection, vegetation clearance, and mechanical mine clearance.

To ensure the U.S. program is tightly focused on the needs and requirements of field demining activities, a group of demining experts meets annually at a DoD hosted requirements refinement workshop to provide their input, experiences, and opinions on the most productive and urgently needed technologies. This provides the focus for the Humanitarian Demining R&D Program. This past year, 56 participants from seventeen countries as well as representatives from the Organization of American States and the United Nations Mine Action Service attended. In addition to presentations and informal meetings, an entire day was set aside to view the most promising demining systems and technologies under development by DoD R&D Program in an operational setting. This year's field demonstrations took place at a U.S. Army countermine test facility. The U.S. can provide this equipment to host governments and non-governmental organizations for short term (6 months to one year) in-country operational evaluations and, if deemed successful and useful, assistance can be rendered to facilitate acquisition.

For more information, contact:

Mr. Jim Dillon or **Mr. Tom Henderson**
US Army Communication and Electronics Command
Night Vision Electronic & Sensors Directorate
AMSEL-RD-NV-CM-HD
10221 Burbeck Road
Ft. Belvoir, VA 22060 USA
Tel: (703) 704-1046
E-mail: James.Dillon@nvl.army.mil
Tom.Henderson@nvl.army.mil