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# 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 accordance 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 1<sup>st</sup> 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.

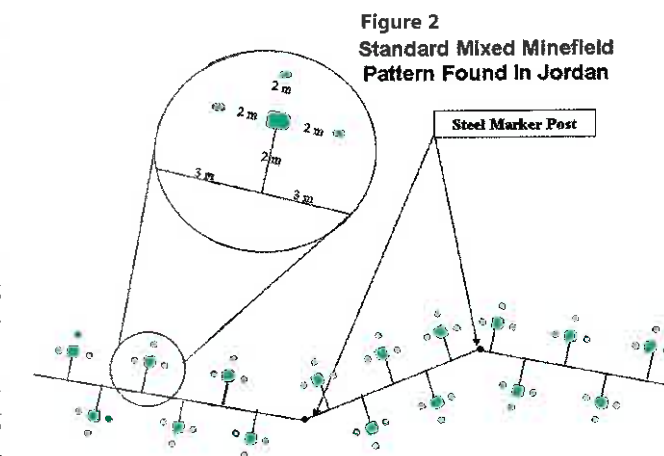
Embassy, the Department of State, other Department of Defense agencies, and the Command's implementing component, the Third U.S. Army. The country plan addressed a requirement determination site survey in Jordan and the train-the-trainer program, through refresher training and sustainment, among other planning considerations. The plan envisioned a dual phase program: 1) 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 Standards 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 4<sup>th</sup> and 12<sup>th</sup> Engineer Battalions. Twenty-seven U.S. trainers and support personnel representing the Third U.S. Army, 5<sup>th</sup> Special Forces Group (A), 4<sup>th</sup> Psychological Operations (PSYOP) Group (A), 96<sup>th</sup> Civil Affairs Battalion (A) and 52<sup>nd</sup> 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-



itarian Mine Clearance Operations. The team also established an effective mine awareness and information management capability to complement 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 4<sup>th</sup> and 12<sup>th</sup> 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 experience, 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 4<sup>th</sup> and 12<sup>th</sup> 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 4<sup>th</sup> and 12<sup>th</sup> 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 4<sup>th</sup> and 12<sup>th</sup> 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 (4<sup>th</sup> and 12<sup>th</sup> 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 4<sup>th</sup> and 12<sup>th</sup> 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 4<sup>th</sup> 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 Fayeze, 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 96<sup>th</sup> Civil Affairs (CA) cadre received contributed significantly to the success of the Information Management instruction

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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 4<sup>th</sup> and 12<sup>th</sup> 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 HDTTC 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 considerations 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 River 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.

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