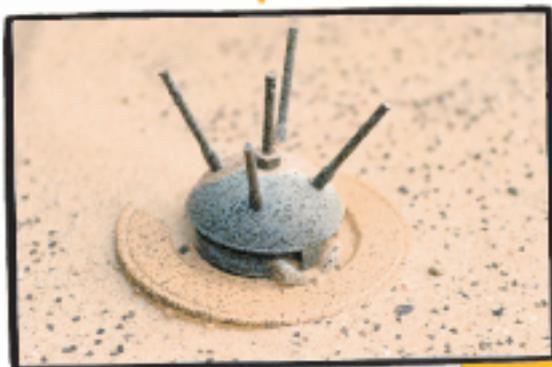


# The Landmine Action Smart Book



# Foreword

Abandoned landmines and other remnants of war have left humankind with a terrible and deadly legacy. Tens of thousands of innocent civilians—many of them young children—are killed or injured by landmines each year.

However, the impact of these abandoned weapons—which can be found in nearly 60 countries—is even more insidious and far-reaching. Landmines keep people from leading normal, productive lives; they hinder agriculture and economic development; and they undermine the establishment of lasting peace and stability in areas beset by war and conflict.

This situation can change, however, through the concerted efforts of governments and private citizens. The first step is to understand the nature and scope of the global landmine problem, and the tools available to solve it. Providing that information is the purpose of this booklet. While our goal is to inform and educate, it is also our hope that after reading this book you will “become smart” on mine action and will be in the best position to join with other concerned individuals and groups to help make the world mine-safe.

## The Landmine Action Smart Book

This volume is based on contributions made to the first edition by experts in the field of mine action. The MAIC wishes to express its sincerest gratitude to all those who contributed their time, effort and subject-matter expertise to this first volume, including the following individuals:

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## A Call to Action

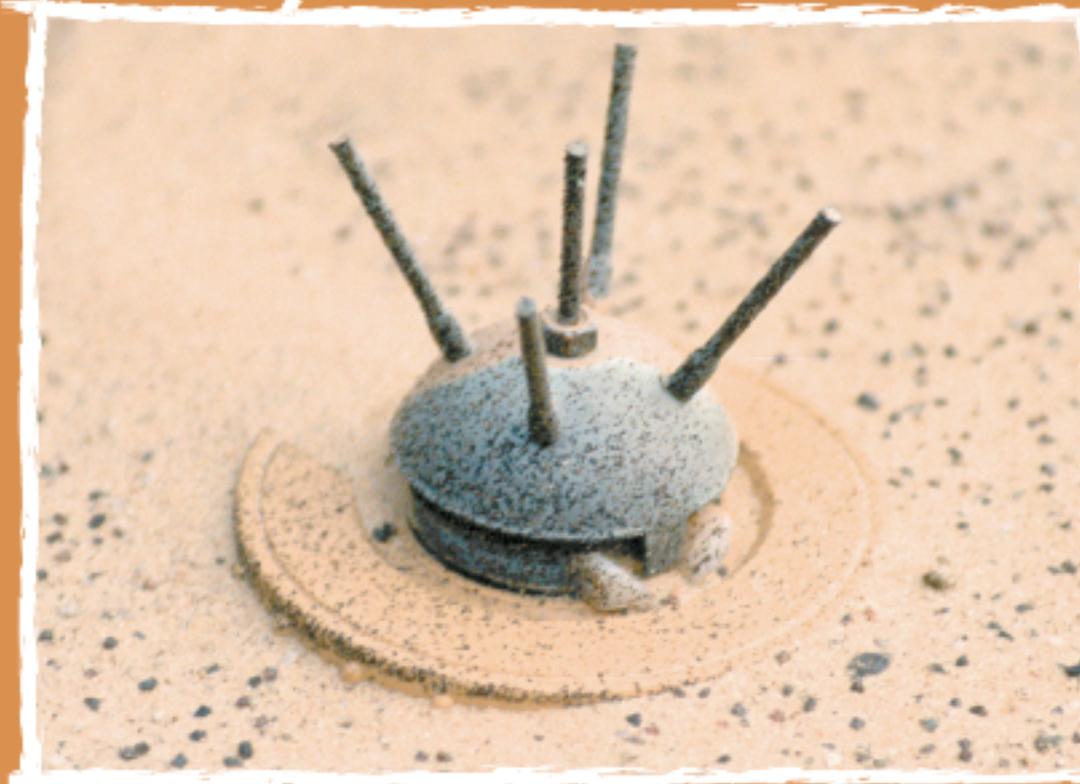
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# The Landmine Action Smart Book



## Why should I get involved?

Since you are looking at this book, you are undoubtedly someone who wants to be informed about a serious issue—one that affects the citizens of over 60 nations; one that adversely affects the health and well-being of countless civilians world-wide; and one that impedes progress and stability on virtually every continent of the globe.

People who want to add their skills, talents and energy to the global effort to eradicate landmines contact the Mine Action Information Center (MAIC) at James Madison University in Virginia continually. Lacking knowledge about the basic issues involved in mine action, they often ask: "How can I get involved?" and "Whom should I contact?"

There are a number of resources available at the MAIC and elsewhere to help people get involved. This edition of *The Landmine Action Smart Book* is perhaps the best place to start. This book was designed to give readers a basic introduction to the subject of mine action, a discipline that includes a diverse set of activities such as landmine clearance, research and development of new demining technologies and practices, mine risk education, survivor assistance, planning and coordination, and policy formulation.

Each chapter of the Smart Book provides an overview of the components involved in reaching our ultimate goal of a world that is safe from the threat of landmines. The chapter on International Diplomacy outlines the efforts undertaken by various government and non-government entities to limit the use and threat of these weapons. Other chapters will help you to learn more about the strategies employed to limit the damage to the health and welfare of civilian populations for whom landmines are a daily concern. At the end of this book you will find helpful suggestions to get you started on the road to action and a list of websites to further guide you in your endeavors.

Increasingly, professional mine action organizations and governments have recognized that they alone cannot solve the residual problems of landmines and abandoned ordnance; the problem is too complex and must compete with other humanitarian assistance priorities of donor states. Thus, the involvement of private individuals and philanthropic organizations is critical to augment government funding and help ensure significant and timely results.

Therefore, it is the goal of this publication to provide you, the reader, with the background needed to answer the most important question one can ask: "How can I help?"

## DIFFERENT TYPES OF LANDMINES



## What is a landmine?

A landmine is an explosive device activated by a person or vehicle, or command-detonated by electric wire or radio signal. Most landmines are laid on or below the surface of the ground. Normally manufactured from durable materials such as plastic, bakelite, concrete, glass or metal, landmines are designed to survive the effects of weather, seasons and time. The purpose of a landmine is to disable, immobilize or kill.



*Civilians plant rice on the edge of disaster: a minefield adjacent to farm fields.*

## What are the consequences of using landmines?

Years of war have left millions of scattered and unrecorded landmines and unexploded ordnance (UXO) in scores of countries. The current nature of war and terrorism places the threat of landmines squarely on the doorstep of civilians. Civilian men, women and especially children, who often mistake mines and UXO for toys, make up the bulk of all mine accident victims in peacetime. Sadly, countries recovering from conflict are ill-prepared to address the following problems associated with landmines:

## A Place in History

Mines activated by pressure first appeared in the American Civil War. Brigadier General Gabriel J. Bains of the Confederate Army designed the devices. Though used on a limited basis, the mines caused panic and fear among Union troops. General William Sherman of the Union Army stated that landmines "were not war, but murder." Several of these first mines survived the elements and were discovered near Mobile, Alabama, in 1960.

**Unusable Land:** Consider the effect that a few mines can have on a village. "In 1996, Norwegian Peoples Aid cleared a village in Mozambique after it had been abandoned by the entire population of around 10,000 villagers due to alleged mine infestation. After three months of work, the deminers found four mines. Four mines had denied the people access to their homes and land and caused the dislocation of 10,000 people."<sup>1</sup>

**Health Problems:** Landmines impact the health of affected populations in the following ways:

### Direct Health Consequences:

- Mines kill and maim innocent civilians long after conflicts have ended.
- Mined agricultural land and water contribute to malnutrition and waterborne diseases.
- Mined public places and roadways prevent food delivery and make it difficult for mobile health and vaccination teams to access the area, which can result in an increase in childhood killer diseases that are otherwise preventable.
- Amputation and injuries requiring blood infusions drain local blood supplies.



White tape and danger signs warning of landmines, written in Portuguese and English, cover the entrance to a building in Kuito, Angola.

**Indirect Health Consequences:** Landmine accidents affect entire families and communities. Death, or the disability of a parent, takes an economic toll on the family and emotionally scars the widow or widower and children. Caring for the injured survivor can put enormous stress on a family. Medical treatment, transportation and rehabilitation costs can further impoverish a family.

**Developmental Consequences:** If landmines are present or are suspected, no economic development can occur. In order to develop an area successfully, people need access to roads, water, markets, schools and facilities. Landmines also hinder travel and inhibit the mobility of teachers, technicians and employers, restrict the availability of goods and services—particularly food—and impede the restoration of normal community services.

## What is mine action?

Mine action involves reducing the social, economic and environmental impact of mines and UXO. Mine action is not just about demining, removing mines and destroying UXO. It is also about people and societies and how they are affected by landmine contamination. The objective of mine action is to address victims' needs and to reduce the risk posed by landmines so that people can live safely and so that economic, social and health development can occur freely.

Mine action has five recognized components:

- Humanitarian demining
- Survivor assistance
- Mine risk education
- Stockpile destruction
- Diplomacy

By addressing the full spectrum of mine action activities, the goal is to develop a comprehensive and systematic way of dealing with UXO and mine problems in a societal context, while meeting the needs of individually affected people. *The Landmine Action Smart Book* summarizes many of the critical components of mine action.

*An Angolan woman carrying wood walks next to a minefield on the outskirts of Kuito.*



# Landmine Surveys



## Why is the survey so important?

Surveys provide information about the socio-economic impact of mines and UXO. Determining the impact of mines and UXO on a community requires a clear understanding of community needs and individual requirements for basic survival.

Surveys generate the information required to effectively manage a mine action program. Surveys help mine action programs to:

- Assess the situation
- Mobilize and prioritize resources
- Acquire data
- Manage information
- Develop training programs
- Produce management structures
- Procure and employ appropriate and safe equipment
- Develop strategic and operational action plans
- Measure and evaluate performance

## What kinds of surveys are conducted?

The Impact Survey, the Technical Survey and the Post-clearance Survey are three types of surveys based on the International Mine Action Standards (IMAS).

**The Impact Survey** ensures that resources are allocated where they will do the most good. It is used to develop strategic national plans and priorities based on economic and social requirements, to set program size, and to establish a baseline for performance and to review progress. Culturally sensitive survey teams visit all mine-affected communities to assess the extent and type of impact, record general minefield area locations with sketch maps and photos, and collect basic demographic and economic data. Rigorous safety and quality control measures are in effect and the UN certifies results.

**The Technical Survey** ensures that clearance assets are allocated where they will be the most efficient. More specifically, the



*A community interview in the Al-Nadera district of Yemen helps deminers locate possible minefields.*

**Technical Survey** is used to reduce immediate hazards by marking the boundaries of known mined areas and to provide information needed to select the most appropriate priority and method for clearance. Skilled deminers, using metal detectors and mine dogs and/or mechanical devices, mark the perimeter of a minefield, firmly establish the types of mines present and estimate the degree of clearance difficulty.

**The Post-clearance Survey** is used to establish that the land has been properly cleared and is safe to turn over to local populations. This step is critical to ensure the full use of cleared land. Demining teams, upon completing clearance, will conduct a post-clearance inspection of the site, take corrective action, if required, and emplace permanent survey markers for future reference.



# Detection and Clearance



## Why is it so difficult to identify a minefield?

Before a deminer can identify a minefield, he or she often has to face the danger of war debris. Shrapnel, barbed wire, corrugated iron and empty shell casings are a few in a long list of debris left by combatants. Over time, these contaminants are no longer visible on the surface of the ground and can complicate detection methods. UXO, including bullets, grenades, rockets and large aircraft bombs can also litter former battlefields. Deminers must work through this debris, discerning the location of landmines and UXO among the clutter—no easy task. Technical surveys are conducted to define the perimeters of suspected mined areas and to emplace boundary markers. Drawing this line between "mined" and "not mined" areas is a difficult and hazardous task. Mistaking the precise location of the perimeter can result in wasted resources and further suffering for the local population, and can culminate in a loss of confidence in the entire operation. However, if successful, the information gained through the various levels of surveying becomes the basis for prioritizing which areas and people are most affected, in order to deploy appropriate mine clearance assets to remove the hazards.

## How do deminers find landmines?

There are two main methods used to locate mines: Distance (or Stand-off) Detection and Close Proximity Detection.

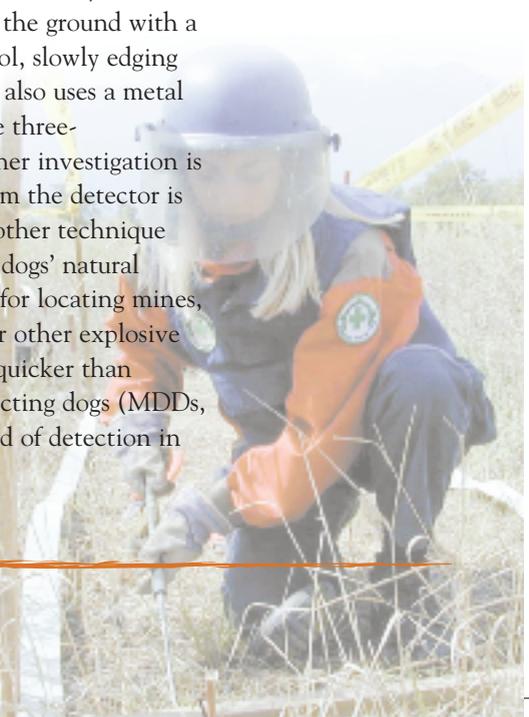
**Distance Detection** involves using devices that pinpoint landmines and UXO from a safe distance, either overhead or at ground level. Once the threat is located, a close detection device that analyzes the threat and provides multi-dimensional information provides the ideal risk-reduction capability. Distance Detection is performed by trained surveyors who gather information from many sources, including aerial photos, battle maps and terrain analysis techniques. New sensor systems under development seek to reveal the location of landmines using infrared, thermal, ground penetrating radar and other



*Typical scrap metal removed from a minefield. Everything from ammunition casings to nails to bicycle parts will be removed in clearance.*

technologies. These technologies detect changes or anomalies in the terrain, for example a change in temperature or density between the soil and a mine casing.

**Close Proximity Detection.** To perform close proximity detection, a deminer must systematically probe the ground with a sharp stake or metal prodder and excavation tool, slowly edging forward until the mine is located. The deminer also uses a metal detector, which unfortunately does not indicate three-dimensional information about the target. Further investigation is therefore required to determine if the signal from the detector is caused by a piece of scrap metal or a mine. Another technique involves using mine detecting dogs. Because of dogs' natural abilities in tracking and sniffing, they are ideal for locating mines, and also for identifying areas where no mines or other explosive threats are present. Dogs can cover large areas quicker than standard manual searching methods. Mine detecting dogs (MDDs, see p. 11) are considered to be a reliable method of detection in many circumstances.





Steel wheels capable of absorbing the effects of anti-tank mines enable this machine to cut vegetation safely.

## Why not use machines to make demining faster and safer?

Numerous mechanical systems, ranging from flail systems to soil grinders, are operational worldwide. However, no mechanical system has reached 100-percent clearance reliability due to the complex nature of the mine/UXO threat and variable terrain conditions. The term "mechanical assistance" explains that these systems, while complementary to manual deminers and mine detection dog teams (MDDTs), cannot yet replace them in their hazardous tasks. By using mechanical means to clear vegetation and process the ground, the perimeter of the mined area can be ascertained quickly, thereby making it possible for the MDDTs and manual deminers to focus on locating and destroying individual mines and UXO in a safer, quicker and more economical manner.

## In a country littered with landmines, how do you know where to start?

A series of analyses and decisions is necessary before mine clearance assets are deployed. Answers to questions such as "Who will benefit?" and "Who will be at risk?" are prime considerations when deciding to continue with mine clearance operations. Prioritizing needs, ranging from emergency relief to infrastructure development, is necessary to reduce risk and exposure to the threat while returning communities to a state of normality. The commitment of valuable demining resources demands careful analysis of the need to clear an area. (See chapter on Landmine Surveys, p.7.)



Common tools needed for mine removal.



*Probing is the safest way to locate a mine.*

### How does the environment affect landmine clearance?

The nature of vegetation and soil has a profound effect on clearance operations. Thick vegetation hinders the deployment of dog and man. Whether the detecting sensor is a dog's nose or a metal detector, getting the sensor to ground level is all-important to ensure maximum efficiency of the detection system. Soil variables also influence the detection of mines; for example, hard, compacted soil or highly ferrous (iron) soil can hinder detection of mines.

### How do you prepare the ground for demining?

Removal of vegetation is the first step in preparing terrain since vegetation prevents close inspection of the ground to locate landmines. Manual deminers can spend up to 80 percent of their

time gingerly removing vegetation while exposed to landmines. This hazardous task can be accomplished with greater efficiency and safety using mechanical brush-cutters to remove vegetation. The use of armored brush cutters achieves two aims: the removal of vegetation and the activation of tripwires, detonating mines. Both of these activities contribute to identifying the actual location of mines or the minefield perimeter and preparing the terrain for deployment of manual deminers and MDDTs.

### What's all this I hear about dogs?

"Man's best friend" has found a noble role in humanitarian mine clearance. Natural hunting characteristics and an extraordinary tracking and sniffing capability make the dog an excellent sensor or mine detector. Dogs can detect vapors emitted by mines and UXO under difficult conditions and cover large areas faster than standard manual searching methods. Dogs can also locate mines where metal detecting technologies fall short, such as on railway lines. MDDTs are used in survey, mine clearance and quality assurance operations. After machines have removed vegetation, MDDTs can cover suspected areas quickly.



*Man's best friend joins him to form a MDDT.*

Creating a man-dog team is a complicated process. While the dog must be screened and tested for above-average working characteristics, careful selection of a dog handler with suitable patience and temperament to work with animals is also critical. The training and bonding process takes six months. Perfect unison of the team is vital to its safety and to locating landmines.

The most common breeds of dog used in mine detection are Dutch and German Shepherds and Belgian Malinois. These dogs are prized for their keen sense of smell, robustness, temperament and ability to “stay on task.” MDDs are now considered to be a reliable component in the deminer’s toolbox.

### What is it like to be a deminer?

Mine clearance usually boils down to an individual effort. In a minefield, the deminer is alone; his sole audience is his partner or supervisor located at least 25 meters away. The deminer cannot see the mine that he must find before it finds him; mental concentration is focused on survival.

**The Clearance Operating Sequence:** Systematic procedures establishing the start lines for clearance are laid out in detail. Areas where no mines are reported or suspected are marked with colored tape denoting safe areas and the perimeters of mined areas. Deminers are closely supervised, working either alone or in pairs, deployed on or near the edge of the suspected area. Following is a description of a type of "One-Man" manual demining drill.

- 1) The deminer approaches the baseline wearing personal protective equipment (PPE) consisting of a face shield and body armor. The deminer is equipped with vegetation-cutting tools, probe and excavation tools, tripwire feeler, metal detector, mine tape and mine markers.
- 2) The deminer visually scans an area approximately one meter wide by half a meter deep, looking for evidence of landmines: exposed fuses, mines, UXO, tripwires or surface scrap metal.
- 3) Satisfied that no mines are present on the surface or in the vegetation, the deminer sweeps the area with his/her tripwire feeler, looking for wires barely visible to the naked eye.



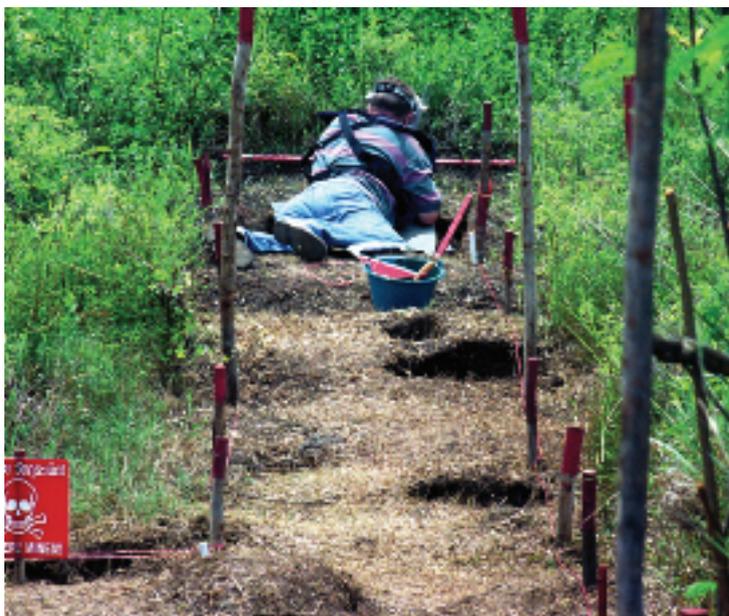
*Removing vegetation to ground level.*

### What is the difference between a minefield and a mined area?

**Minefields** are designed and laid by professionals using conventional methods. The location of each mine is carefully recorded and the perimeter of the minefield is marked with warning signs. If a minefield record is made available and the markings are still in place, locating and neutralizing landmine hazards becomes very simple. However, few of these types of minefields exist today.

**Mined areas** are undefined in size, shape or content. Determining the actual boundaries of suspected mined areas is difficult and requires both interviewing knowledgeable persons living nearby and developing maps.

- 4) The deminer carefully removes all vegetation to ground level, using a variety of cutters to ensure no piece of brush falls onto the ground, and gently places the cuttings behind him in the safe lane.
- 5) The deminer calibrates his/her metal detector for sensitivity and ground compensation. Moving the detector head in overlapping patterned sweeps, he/she covers the search area, listening for the signal indicating the presence of landmines. If a signal is heard, the sweeps will be oriented to identifying the center and edge of the target and a marker is placed at the target location.
- 6) The deminer then backs off from the marker approximately 20 cm and begins probing for the suspected mine at a 30° angle. He continues in this manner until his probe hits something solid, at which time he will carefully



This deminer is working to help turn the minefields into agricultural fields so that civilians can use them again.

excavate a small trench, removing soil to expose enough of the object to determine whether or not it is a mine. If a mine is found, he then excavates sufficient space to place a demolition charge.

- 7) Deminers prefer to destroy the mine in place, using an explosive charge at the end of daily operations. Neutralizing or defusing mines is avoided to reduce risk exposure. However, under extreme conditions, mines can be neutralized by specially trained personnel and moved elsewhere for destruction.

This painstaking process is repeated meter by meter, clearing ground to "metal-free" status. If a mine is overlooked or missed, it is normally the deminer who will pay the price, since his work requires him to walk repeatedly up and down his lane. Missing a mine exacts a heavy—usually lethal—penalty.

**Documentation, Data and Information:** The task is not complete until the paperwork is done. Careful recording of the mine action process is necessary to document the effort, record the standard of clearance and exact boundaries of the cleared area and residual hazards to the community.

*Using overlapping sweeps with a metal detector, a deminer listens for signals from metal or suspected landmines.*

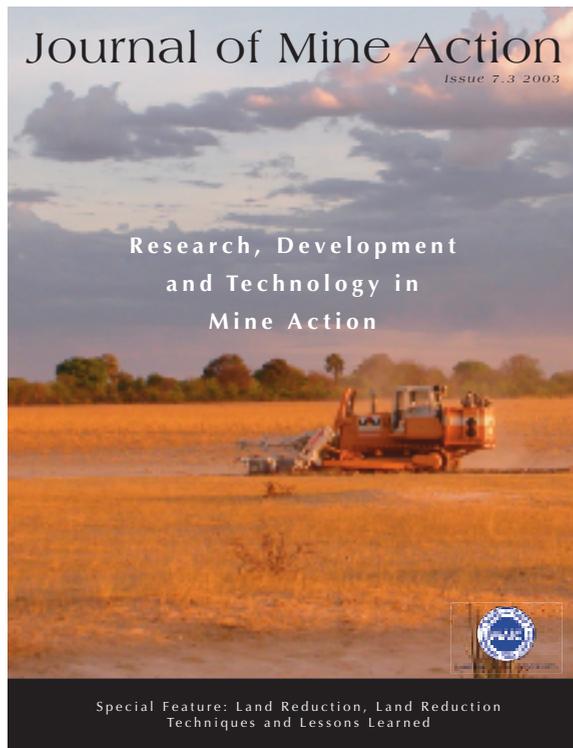


# Research and Development



## Why is research and development so important to the field of mine action?

Current demining technologies and practices can be slow and laborious. Many research institutions are working on projects that could potentially increase the efficiency, speed and safety of demining, thereby accelerating efforts toward a mine-safe world. Researchers have focused both on developing new technologies and on making improvements to old ones; each has yielded advances that show significant potential for the future.



The *Journal of Mine Action* provides an avenue for exchange of information between users and developers of technology.



Japan Alliance for Humanitarian Demining Support (JAHDS) member Tetsuya Kanazawa demonstrates "Mine Eye," a new landmine detector. The "Mine Eye" can produce three-dimensional images.

## What improvements have been made to the metal detector?

Metal detectors detect anything metal beneath the surface, including bottle caps, tin cans and other non-explosive debris and litter, which can significantly slow the work of the deminer. Additional sensors have been added to metal detectors that create images of the object being detected. For example, the HSTAMiD system recently developed by the US Army combines a hand-held ground penetrating radar (GPR) device and a metal detector.

## What is the potential for using GPR to detect landmines?

Radio waves are used to measure the distance and size of objects located beneath the ground. By measuring the radio waves that are reflected back from the ground, an image can be created that represents the relative density of all elements in the target area. GPR is an area of great interest to researchers in the field of mine action.

## How is infrared technology being used to detect landmines?

Infrared sensors measure the difference in temperature between an object and the ground surrounding it, and absorb and disburse heat at varying rates. An infrared camera can be mounted on an aircraft to take photos of suspected areas. This methodology can be used to mark the boundaries of a suspected minefield.



*Amanda Aker, a chemical engineer with Nomadics, examines an amplifying fluorescent polymer under a black light. The polymer exhibits a dramatic reduction in fluorescence when exposed to traces of nitroaromatic explosives such as TNT. The polymer was engineered by research partners at the Massachusetts Institute of Technology (MIT), and is a key component of Nomadics' Landmine Detector and Advanced Sensors.*

## What kind of research is being done using plants in detecting landmines?

Research being done by the University of Alberta (Canada) has found that genetically engineered plants can detect landmines if they are planted in the area of landmines. The leaves or flowers of modified plants change color when planted in the vicinity of certain explosive elements. Chemicals in the landmines leak into the soil around them, which changes the soil composition; this changes the chemical processes in the plant and activates the modified gene in the plant, making it look different.

## What is Remote Explosive Scent Tracing?

Remote Explosive Scent Tracing (REST) is a detection method in which filters are placed in vehicle-mounted vacuuming systems which collect air samples from the road. The filters are replaced periodically and taken back to base where they are "analyzed" by MDDs to determine if an explosive scent is present. A positive reaction by a MDD indicates that landmines might be present and other MDD and manual deminers are used to more thoroughly search the area.

## Other than dogs, are there other animals that might be used for locating landmines?

A research project in Tanzania trains Giant African Pouched rats to detect landmines. Results have shown that the rats are as capable as dogs at detecting low concentrations of explosives. Rats are quick and easy to train and require less one-on-one handling than dogs. They are small and easy to house, transport, and feed. They have also proven to accommodate repetitive behavior, which typically results in better endurance



*Giant African Pouched Rats are now being trained to detect mines in Tanzania.*



*Scientists are studying how bees might assist in detecting landmines planted in fields through their ability to transport scents collected on their furry bodies while gathering pollen.*

and longer search. Their small size and lack of robustness and response to human commands limit their general applicability.

### How can bees be used to detect landmines?

Using bees to detect landmines is a new and promising area of research. Bees are known to follow certain scents. If bees are trained to find TNT or other substances, areas where they cluster may be explored as the possible location of a landmine. The bee's fur also attracts a variety of particles in different forms (liquid, gas or solid), which can be tested for the presence of certain chemicals. Bees are much less expensive to maintain than dogs and easier to train, but can only follow one scent.

### How can bacteria detect landmines?

Bacteria can be genetically altered and spread across an area, becoming fluorescent when they interact with elements in an explosive. Mapping concentrations of the bacteria using stand-off illumination and GPS technology can help identify potential locations of landmines. This method is somewhat time-consuming, as it takes time for the chemical to incorporate into the bacteria. Bacteria that can degrade explosive chemicals have also been studied.

### Besides the metal detector, are there other promising mechanical devices that might aid detection and clearance?

Yes. There are many kinds of machines, such as rotary flails and robots that have been developed and that may be useful in certain circumstances. Flails are devices that are attached to a cylinder and beat the ground as they roll over the land to detonate pressure-sensitive explosives. Machines of this type may not be suitable to all terrain or minefield locations. Robotic machines have also been used to detect and/or destroy landmines. Some robots are designed to roll over the ground and detonate the mines in advance of other techniques. Other robots are more sophisticated and prod the ground in the place of a human. This kind of equipment is expensive to repair or replace.



*The TEMPEST works by remote control without exposing the operator to danger.*

# Survivor Assistance



## What's the difference between a landmine "victim" and a "survivor"?

Landmine victims are individuals or groups of people who have been killed or "have suffered physical, emotional and psychological injury, economic loss or substantial impairment of their fundamental rights through acts or omissions related to mine utilization."<sup>2</sup> This is a broad definition meant to encompass families and communities affected by landmines. A survivor is a person who has non-fatal injuries caused by a landmine.

***The International Campaign to Ban Landmines identified 11,700 new reported landmine casualties in 2002.<sup>3</sup> There are more than 300,000 landmine survivors worldwide, and to rehabilitate these survivors could cost more than \$3 billion (US) over the next 10 years.<sup>4</sup>***

## What is meant by survivor assistance?

Survivor assistance is not restricted to providing medical treatment for initial traumatic injuries or the provision of prostheses. Survivor assistance also includes ongoing physical therapy and mental and emotional rehabilitation of survivors and their families. This can include rehabilitative care, psychological and social counseling, vocational training, broader public advocacy for disability rights, and judicial reform aimed at removing barriers that persons with disabilities face while reintegrating into society.

## What is involved in prosthetic rehabilitation?

For someone who has lost a limb, the amputation is a chronic problem; an amputee will spend the rest of his or her life missing a limb. Quality of life and social acceptance may depend upon having indefinite access to prosthetic care. For amputees to function effectively with prostheses throughout their lifetimes, they need permanent access not just to devices, but also to services. Regardless of how well-made it is, a prosthesis will need ongoing repairs and adjustments. At some point, the device will wear out and need to be replaced. Additionally, the wearer's body will change over time, as will his vocational and recreational needs. For manual laborers or those who live in harsh environments, repairs and replacement will be more frequent.

## I'm healed...now what?

When areas contaminated with landmines and unexploded bombs have been cleared or cordoned off; when the maimed survivors of an explosion are healed; when the provision of necessary prostheses, medical rehabilitation and psychological adjustment is completed—what then is the newly disabled person to do? What



Artificial limbs at a prosthesis clinic.

has become of his or her educational and vocational opportunities? Is there employment to aspire or return to? Will he or she be able to support him/herself and/or his/her family? Will he or she be able to fully participate in the social, political and economic life of his or her community and country? Will he or she be economically self-sufficient? These are all questions addressed by experts in the field of survivor assistance.

### What kind of special economic hardships face landmine survivors?

A bilateral amputee using a wheelchair faces stiff challenges: how to get a job if he/she lacks transportation to get to the job site; how to educate the employer about his/her capabilities even as he/she works from a wheelchair; how to work within national labor laws that may limit options for the disabled. All these issues need to be addressed in a comprehensive, coordinated continuum of programs, policy reform and serious attitude adjustment.



*Amputees practice using their new prostheses at a rehabilitation center in Mozambique.*

***In Vietnam, over 75 percent of children with disabilities, many of them landmine survivors, receive no education whatsoever, a major factor contributing to the 90 percent plus unemployment rate of people with disabilities in Vietnam.***

### What is the ultimate goal of landmine survivor assistance?

A comprehensive landmine survivor assistance program aims to provide individual economic self-sufficiency for the disabled survivor and any dependants for whom he/she may be responsible. In order to create meaningful programs that will contribute to the achievement of this goal, there have to be comprehensive assessments of the individual with the disability, the local situation in which he/she lives, and the national cultural, political and economic situation. People with disabilities should be evaluated in terms of their age, disability, educational background, vocational skills, work experience, and personal desires and goals. These individual profiles need to then be integrated into the reality of the locality's educational system, employment support system, vocational training opportunities, area employer needs, employment opportunities, transportation infrastructure and economy. In completing these assessments, the service provider (non-governmental or local agency) must respond to the individual desires of people with disabilities, seeking their input and honoring their personal aspirations.



*A health worker helps a small child who lost both legs in a landmine explosion learn to walk with two prostheses and arm crutches at an orthopedic workshop run by the International Committee of the Red Cross in the war-devastated city of Kabul.*

## What can organizations do to help landmine survivors?

Service providers have many options. Some concentrate on children and youth as they work with local authorities or the national government to ensure that mainstream educational opportunities for people with disabilities are accessible, relevant and available. Other areas in which service providers may want to develop programs include vocational rehabilitation and training, development of self-employment programs and micro-loan funds

to support them, and development of relationships with local employers and employment services to increase job opportunities.

## What factors contribute most to the success of survivor assistance programs?

The most successful programs have:

- Integrated rehabilitation into existing social systems.
- Employed staff with recognized credentials.
- Been responsive to patient suggestions and recommendations about how to improve service.
- Exploited public-private sector partnerships.

Recent experiences with humanitarian activities also suggest that advocacy, legislation and policy reform, which includes the participation of, and focus on, people with disabilities, is as essential for their social and economic reintegration as a prosthesis.

Traditional beliefs and attitudes can be the greatest obstacle to the social and economic well-being of people with disabilities. Programs that have not addressed the issues of the culture, morals and belief systems of inhabitants can demonstrate little if any real success.

## Appropriate Technologies

The development of appropriate technologies in developing countries is an essential requirement of any successful, sustainable orthopedic service delivery system. Appropriate technologies can be natural or synthetic. They can be imported or produced locally. However, they must be accessible, affordable, durable, easily repairable and functional. An ill-fitting or poorly aligned prosthetic limb can result not only in limited use but also in physical harm to the patient. The measure of success in prosthetics is not how many prostheses are provided, but how many are actually used on a regular basis.

# Mine Risk Education



## Who is injured by landmines?

It is often assumed that people step on mines because of bad luck. In fact, the reasons for mine accidents vary greatly from place to place and audience to audience, but they tend to fall into four basic categories:

**Unaware:** A person knows nothing about mines or safe behavior.

**Uninformed:** A person knows about landmines, but not about appropriate safe behaviors.

**Reckless:** The person knows about mines and appropriate behavior, but approaches mines or UXO anyway; for example, a child throwing stones at a mine or adventure-seeking teenagers entering a dangerous area.

**Forced:** The person knows of the risk and the appropriate behaviors, but must enter a dangerous area as a survival necessity (the most common cause of accidents).

## What is mine risk education (MRE)?

MRE seeks to alter people's perceptions of the land and their relationship to it. The aim is to change the high-risk behavior of those living or working in areas affected by explosive weapons of war, especially landmines, booby-traps or UXO (e.g., unexploded bombs or shells).

## How do you change people's behavior?

Changing behavior in an at-risk population is a complex problem. The process must begin, however, by learning from community members how they survive from day to day and helping them find alternatives to entering dangerous areas or touching UXO.

## Why is MRE important to mine action?

MRE has an important role to play within mine action as a whole. As MRE personnel work in close collaboration with affected communities, they collect large amounts of information that can help to set priorities for mine clearance, marking, and



removal of minefields and ensure that the victims of these weapons receive the assistance and support they need. MRE is not a 100-percent solution, but when done properly and in close conjunction with the other disciplines of mine action, it can provide much-needed protection to the civilians who suffer most from these weapons.

*A mine risk education team teaches children the dangers of landmines in Amran-Aden, Yemen.*

## How do educators determine the best way to reach a given group of people?

A great deal of assessment is required when determining the feasibility of MRE projects, and it is extremely important to analyze a myriad of factors before committing to a strategy. A proper needs assessment is the first step in the establishment of an ongoing information collection system. Once a thorough analysis is conducted, the information collected in the needs assessment phase is used as the basis of program planning and strategizing. Posters and radio and TV ads are sometimes used but they are only part of the solution. Education in its purest form requires a two-way exchange and acceptance of information; ideally, it is



Mine risk education in Lahej, Yemen.

participatory and active rather than passive. The MRE messages must be not only disseminated, but also absorbed.

### What communication approaches are used in MRE?

There are many different techniques that can be used in a community-level program, depending primarily on the experiences and the style of learning of the target audience. MRE campaigns variously employ training, lectures and participatory activities. Puppet shows, role playing, board games and poster contests are just a few interactive approaches that have been used successfully.

### Who does MRE?

Many programs focus on training community workers or local MRE instructors that will have the widest impact. Training can be done in a somewhat short period of time at relatively low cost, and a community educator will be far more valuable than a mine clearance professional. Since training marks the first step in a continuing relationship between the community and the program and represents the single biggest effort in program management, it

should be allocated the time and resources it deserves.

### What are the advantages and disadvantages of traditional classroom-style instruction?

Sometimes known disparagingly as "chalk and talk," this method is by far the most common educational process in the developing world. It represents the simplest form of communication, but discourages participation and development of problem-solving skills, and tends to result in only marginal retention. That said, however, it will undoubtedly be the approach most familiar to and comfortable for the audience. Therefore, classroom-style

### Challenges for MRE

**LITERACY:** Among the most challenging aspects of community education in the developing world are low levels of literacy and lack of familiarity with a variety of communication approaches, especially among agrarian populations, which are often most vulnerable.

**GEOGRAPHY:** In areas where there are few roads and even fewer vehicles, the ability to spread information is drastically curtailed and becomes one of the largest impediments to a successful campaign. This increases the need for programs that use local networks and patterns and are not overly reliant on outside intervention.

**CONFLICT:** Ongoing conflict can disrupt transportation and draw away resources for MRE. It also commonly restricts access to affected populations and disrupts mine action in general. Conflict in an area also affects the educator's ability to provide risk-reducing information, particularly if new mines are being used.

**MOVEMENT:** Internally displaced people and refugees are often the most needy and at greatest risk. Often on the move, these groups usually lack critical knowledge about local conditions, presenting a unique challenge for MRE.

instruction should not be discounted entirely, but used in the introduction phase to put people at ease and then slowly diminished.

### What is the best way to engage people in MRE?

Participatory approaches to learning and the use of visual aids are the most effective ways of transferring knowledge about safe behavior in dangerous areas. Participatory approaches are especially important for settled communities facing a long-term mine threat and exhibiting high-risk behavior. When properly conducted, participatory approaches can mobilize the community, including children, through locally acceptable modes of communication. However, they require highly skilled and well-trained staff and significant human and financial investments by program donors and supporters.

### What messages are used in MRE programs?

Messages must be targeted to the populations most at risk and focused on the reasons for mine incidents, rather than merely adapted from those used in a previous mine risk program—even in a neighboring country. Messages may include the following:

- Be able to identify mines
- Keep out of mined areas
- Do not touch mines/UXO
- Stay on the safe path
- Avoid areas likely to contain mines and UXO
- Recognize warning signs
- Recognize warning clues
- Whom to report the location of mines/UXO for safe removal

### MRE in Action

In Nagorno Karabakh, Azerbaijan, a working group on mine/UXO issues that includes representatives of the local media and the relevant ministries (defense, education, health, etc.) meets regularly to plan and coordinate mine action activities. Community-based steps, focusing on identification of solutions by the community in relation to its mine/UXO problem, are being developed in affected villages. In collaboration with the Ministry of Education, MRE is included in the school curriculum.

In Kosovo, a community-based program was launched in which special attention was placed on building a capacity in the local community. This included close integration with clearance agencies and working with children through interactive projects, including an open-air play based on the story of Little Red Riding Hood. Many communities benefited from these programs, and activities in dangerous areas are ongoing.

*A billboard next to a village pond warns children not to play with unexploded bombs.*



# International Diplomacy



## How has the international community responded to the threat of landmines?

Decades of conflict around the world have left a deadly legacy in some 60 countries, a legacy sown in the form of landmines intended not only for strategic purposes but also as instruments of intimidation and terror. Although this legacy is unknown to most Americans, addressing its consequences is an important component of the US government's efforts to promote peace and stability around the world.

The international community has responded to the challenge of eliminating landmines in a number of ways. In addition to making a commitment to educate and assist landmine victims and to remove or destroy landmines, two international instruments now restrict or prohibit the use of landmines.

### What is the difference between states using landmines and non-state actors (NSAs) using landmines?

Generally, states use landmines for defensive purposes, but NSAs, such as terrorist groups, use them primarily as offensive weapons. The ideologies, objectives and strategies of these groups vary greatly. States usually try to defend territory, deny an area or disrupt an opposing force. However, terrorist groups commit violent acts that seemingly have no purpose other than to inflict terror. The purpose is to disrupt the social fabric by creating a high level of fear among the civilian population. NSAs often use landmines to disrupt economic and political infrastructure and to terrorize the local population by placing landmines around schools, trodden paths, wells, etc. This kind of indiscriminate placement means that there are few, if any, mine records or maps available. A combatant's memory and the community's victims must serve as starting points for clearance operations. The landmines used by these groups are more dangerous than commercial mines because they have a tendency to be highly unpredictable and unsafe to handle.

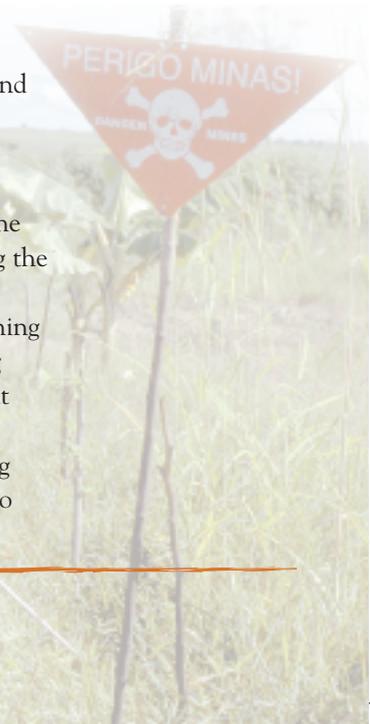
### The Convention on Certain Conventional Weapons (CCW)

In 1980, the UN adopted the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons That May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, which the US ratified in 1995. Two of the most important provisions stipulate that:

- (a) Parties to a conflict must always distinguish between civilians and combatants, and civilians must not be targeted for attack.
- (b) The use of weapons that are "of a nature to cause superfluous injury or unnecessary suffering" is prohibited.

In 1990, humanitarian organizations began to document a high number of civilian mine casualties, many of which were occurring after the cessation of hostilities. Following a formal request by the French government in 1993, a Review Conference of the CCW opened in Vienna in September 1995. Despite the successful adoption of a number of other protocols, talks to strengthen restrictions on the production, transfer and use of anti-personnel landmines (APL) became deadlocked, and the conference adjourned without placing any new limitations on these weapons. Two additional sessions were scheduled to convene in January and May 1996.

During the May 1996 session, significant improvements were made in the original landmine protocol of the CCW. They included prohibiting the use of undetectable APL, the expansion of the protocol to include internal conflicts, the tightening of regulations related to marking and monitoring anti-personnel minefields, the determination that responsibility for the proper maintenance or clearance of landmines rests with the mine-laying party, and the prohibition of any APL transfers to



*A US civil affairs soldier works with a Cambodian officer during an assessment visit.*



countries that are not party to or fail to apply the provisions of the protocol. These changes were put into a new protocol called the Amended Mines Protocol (AMP). Delegates agreed that annual meetings would be held to discuss the implementation of the protocol and that a third review conference would occur no later than 2001. The AMP has been ratified by almost 60 countries. Some of these countries, including the United States, which ratified in 1999, are key states not party to the "Ottawa Process."

### **The "Ottawa Process"**

At the same time that the international community was working to strengthen the CCW as an international legal instrument that would limit the use of APL, another process had begun to emerge. In October 1992, non-governmental organizations (NGOs) met in New York to form a transnational alliance dedicated to advocating the elimination of APL. The meeting marked the birth of the International Campaign to Ban Landmines (ICBL), an organization dedicated to seeking a total landmine ban.

Despite the improvements made in the AMP in 1996, the ICBL, representing more than 350 NGOs, concluded that the protocol had failed. At the closing session of the 1996 CCW Review Conference, they joined with the Canadian government and other

parties interested in a complete ban on APL. This set the scene for what came to be called the "Ottawa Process."

Fifty governments attended the Canadian Conference in October 1996. The International Committee of the Red Cross (ICRC), the ICBL and the UN also attended. At the close of this conference, the Canadian government issued an invitation to all governments to come to Ottawa in December 1997 to sign a treaty prohibiting the production, stockpiling, transfer and use of APL.

International support continued to build. In 1996, the UN General Assembly passed a resolution calling on all countries to conclude a new international agreement prohibiting APL. International discussion on an Austrian-drafted text began in 1997 and concluded with the adoption of the "Ottawa Convention." This Convention addresses only APL and takes no action on anti-vehicle landmines. The treaty was signed by 122 nations at a ceremony on December 3, 1997, in Ottawa. Since then the number of signatories has risen to 145, of which 132 have ratified the convention.

In 1997, the United States cited two reasons for not signing the Ottawa Convention:

- 1) The need for an adequate transition period in order to phase out APL, which it uses to protect American troops.
- 2) The need to preserve the mixed anti-tank systems the United States relies on to slow down an enemy's armor offensive in battle.

In February 2004, the US issued a new landmine policy that addresses these issues.

### **What is the US Policy on landmines?**

In February of 2004, the United States Government announced a new comprehensive policy committing itself to be the first major military power to leave no mine behind of any type on any battlefield. This policy, while not banning APL, is much more comprehensive than either the CCW or Ottawa. Within one

year, in 2005, all US mines will be detectable, and after 2010, all US landmines will be equipped with self-destructing or self-deactivating technology. The United States will continue to research and develop enhancements to the current technology of self-destructing/self-deactivating landmines to preserve military capabilities. The United States will seek a worldwide ban on the sale or export of all persistent landmines. Within two years, the United States will begin the destruction of those persistent landmines that are not needed for the protection of Korea. The U.S. Government will increase by 50 percent the State Department's portion of the US Humanitarian Mine Action Program.

### Is there a strategic impact to these treaties?

Increased awareness of the impact of landmines has evoked a significant debate on the overall value of their continued use. Arguments on both sides of the issue are beyond the scope of this book. Critical to an overall understanding of the two treaty instruments, however, is a discussion of the impact of the treaties on the strategic use of landmines.

Military forces have relied on landmines to defend the perimeters of operational areas, to impede the forward progress of opposing military forces and to channel those forces to areas targeted by more capable weapons. Both treaties have had a significant impact in altering those historic strategic purposes, although the need to deny the enemy certain space on the battlefield remains.

Such strategic changes are less obvious for parties to the CCW. The United States currently has no landmines emplaced anywhere in the world. It has limited its possible emplacement of its persistent (i.e., non self-destructing/non self-deactivating) APL, all in storage, for the defense of South Korea. After 2010, even that exception will cease. US force protection strategy, however, reserves the right to use short-duration landmines, the kind permitted under the CCW, in any future military engagement. The United States is the only producer of

such short-duration landmines that have been designed to deactivate or self-destruct after a specified time and pose little, if any, humanitarian threat to noncombatants.

Neither treaty has had a significant impact on the use of APL by rebel groups or NSAs. Reports of mine use by such groups have been made in almost 20 countries in recent years: Afghanistan, Angola, Burma, Colombia, Democratic Republic of the Congo, Georgia, India, Iraq, Lebanon, Nepal, Pakistan, Philippines, Russia (Chechnya), Senegal, Somalia, Sri Lanka, Sudan, Turkey and Uganda.

### What do the treaties amount to?

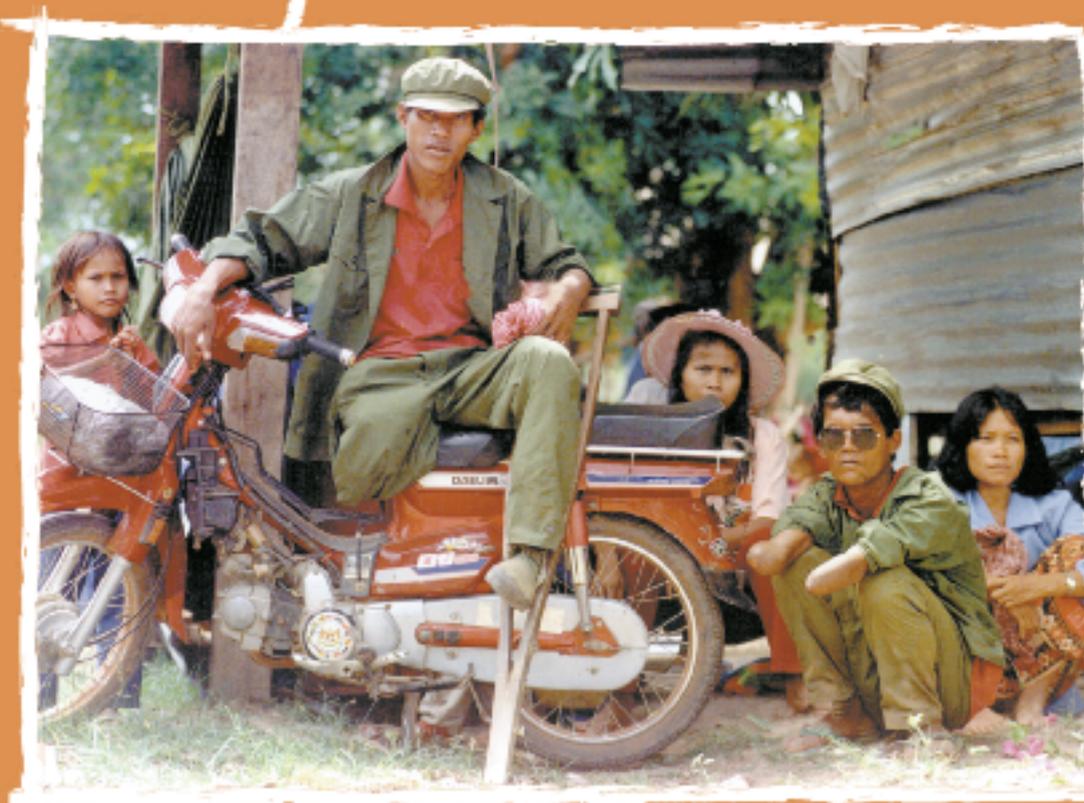
Both the CCW and the Ottawa Treaty are useful instruments in the international campaign to remove the scourge of landmines; they are complementary, not mutually exclusive. Both address problems generated by APL; they address the issue of transparency; they require the removal of mines after the cessation of hostilities; and they require the provision of humanitarian mine action assistance.

Although the focus of the international community has largely been on the Ottawa Convention, the CCW's AMP is an effective and useful alternative because it has captured and can continue to capture states not party to Ottawa. Although both treaties share similar objectives, only the AMP offers states an opportunity to protect their military interests while fostering humanitarian initiatives designed to minimize or eliminate the threat to noncombatants. When used in tandem, however, these instruments comprise useful strategic tools in the global effort to respond to the humanitarian challenges posed by landmines around the world.



*A child plays in safe land next to a minefield.*

# Milestones



**1980**

~ The Convention on Certain Conventional Weapons (CCW) is created to regulate the use of landmines and other weapons, marking the first time that there has been an attempt to restrict the use of landmines.

**1983**

~ The CCW enters into force, as does Protocol II of the CCW, which deals with the use of mines, booby-traps and other devices.

**1988**

~ Rae McGrath, founder of Mines Advisory Group, defines the survey process as an absolute prerequisite for mine action. He defines the Impact Assessment Survey (Level One) as a field assessment through interviews and questionnaires conducted among the local population, former fighting forces, hospitals and community as a prerequisite for determining the impact of landmines and unexploded ordnance (UXO) on the community. The Technical Survey (Level Two) is a mapping process to confirm the location and size of the minefield. \**Landmines and UXO: A Resource Book* by Rae McGrath.

~ The founders of HALO Trust, a private British demining organization, engage in one of the earliest private demining efforts in Afghanistan. They are credited with coining the term “humanitarian demining” to differentiate it from military demining efforts.

**1990**

~ The word “deminer” begins being used in the mine action community to describe the individuals who are removing the mines from the ground.

~ The US Agency for International Development (USAID) establishes rehabilitation centers in Afghanistan and Pakistan for training orthopedic technicians to render professional treatment to Afghan mine survivors.

**1992**

~ The International Campaign to Ban Landmines (ICBL) is formed. The ICBL brings together over 1,300 human rights and humanitarian mine action organizations in one of the most thorough information-gathering networks on mine action.

~ The United States unilaterally bans the export of its anti-personnel landmines



Mine risk education is an integral part of reducing landmine casualties and involves the entire community's efforts.

per Public Law 102-484, Section 1365; 22 United States Code, 2778. This ban currently extends until 2008.

~ The Cambodian Mine Action Center is formed and is considered the first major integrated mine action program.

**1993**

~ The United States formally establishes the US Humanitarian Demining Program, an inter-agency (US Department of State, USAID, US Department of Defense) effort to provide appropriate assistance to mine-affected countries around the world that seek US help. Since 1993, the US has spent over \$900 million on humanitarian mine action.

**1994**

~ The US Department of State's Bureau of Political-Military Affairs releases *Hidden Killers: The Global Landmine Crisis*. This is the first of many reports detailing landmine statistics, deaths and injuries in mine-affected countries.

**1995**

~ Mozambique begins demining using a non-governmental organization, Menschen gegen Minen (MgM), on its first humanitarian mine action project.

~ Geographic Information Systems (GIS) are introduced to map contaminated areas, which will eventually result in mine contamination maps to assist in risk reduction.



- ~ Princess Diana visits Angola and draws world attention to the landmine crisis.
- ~ United States Special Forces start training deminers throughout the world in support of the US “Train-the-Trainer” program.

### 1995–1997

- ~ Humanitarian demining begins on a large scale in the Balkans.

### 1996

- ~ Books by DC Comics are delivered to Bosnia. This is the first attempt to distribute mine awareness information on a large scale using the medium of comic book heroes to help expose children to the threats of mines in their communities.
- ~ United Nations Children’s Fund (UNICEF) establishes Mine Awareness Guidelines.
- ~ MgM establishes an Internet forum, which provides many in the mine action community with an information-sharing network as well as a place to air criticisms and concerns.
- ~ The CCW Review Conference adopts the AMP. It is made applicable to both internal and international armed conflicts.
- ~ The Copenhagen Conference unveils a proposed set of standards and procedures for mine action, including Medical Evacuation procedures, for deminers and UXO.
- ~ First introduction of *Jane’s Mines and Mine Clearance*, edited by Colin King. This is an encyclopedia of landmine information providing technical details and photos of nearly all mines used around the world.

### 1997

- ~ The first issue of the *Journal of Mine Action* appears online. “Its appearance marks a milestone in transparency and information sharing.”—Andy Smith, independent demining consultant.
- ~ The United Nations Mine Action Service (UNMAS) is formed to serve as the UN focal point for mine action. At the global level, it is responsible for coordinating all aspects of mine action within the UN system to ensure an

effective and proactive response to mine contamination. At the field level, it is responsible for providing mine action assistance in the context of humanitarian emergencies and peacekeeping operations.

- ~ The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction, commonly known as the Ottawa Convention, is opened for signature in Ottawa, Canada. It plays a significant role in the public’s awareness of the mine problem and in directing government and donor funding and attention to it.

- ~ *ORDATA, The International Deminers Guide to Unexploded Ordnance Identification, Recovery and Disposal* is released to the general public. It provides the mine action community with a reference guide to identifying, recovering and disposing of unexploded ordnance. The CD-ROM database was conceived by the US Department of Defense to capitalize on the success of its earlier “MineFacts” CD. ORDATA has since been followed by ORDATA II, KORDATA and the Iraq Ordnance Identification Guide. To date, tens of thousands of copies of the ORDATA series database have been distributed free of charge to the mine action community, as well as military and civilian bomb disposal technicians.

### 1998

- ~ The ICBL’s first *Landmine Monitor Report*, a massive reference guide to landmine facts and statistics around the world, is released. It is an invaluable reference tool for all involved in demining and mine action.
- ~ The Geneva International Center for Humanitarian Demining (GICHD) is established by the government of Switzerland to support mine action efforts of the international community and the United Nations through research, operational assistance and support of the mine ban treaty.

### 1999

- ~ The UN, in cooperation with the GICHD, initiates a review of what was then known as the “International Standards for Humanitarian Mine Clearance Operations.” The review, and subsequent revision, has acknowledged the important changes that have taken place in the strategic management and funding of mine action and reflects ongoing developments in operational practices and procedures. Twenty-two new standards now form part of the framework of the overall International Mine Action Standards (IMAS), which in September 2001 were endorsed by the UN Interagency Coordination Group.

- ~ The *Journal of Mine Action* appears in print. The first hard copies are mailed to 300 subscribers. Subscriptions quadruple over the next year.
- ~ The Information Management System for Mine Action (IMSMA) Version One is developed for UNMAS. Expectations are that such a system will greatly enhance monitoring, planning and program implementation. IMSMA has been designed for use within mine-affected countries, and incorporates a database and GIS. It provides an effective tool to store, process and analyze the information gathered during the three levels of survey. It also deals with mine awareness- and survivor assistance-related data.

## 2000

- ~ The Deminer Injury Study is released to the international demining community. It broke new ground and established not only a milestone, but also a baseline for future collection of deminer injury data. The initial study has since been undertaken as a long-term project by the GICHD.
- ~ The United States, the European Commission, Belgium, Canada, the United Kingdom, the Netherlands and Sweden sign the International Test and Evaluation Program (ITEP) for Humanitarian Demining Equipment, Processes and Methods, in Brussels.
- ~ The US Department of Defense releases the final report of its Lower Extremity Assessment Program (LEAP). This milestone effort utilized full-body human cadavers to fully evaluate the mechanism of injury and determine current levels of protection provided by commercially produced landmine protective footwear. The research broke new ground in the use of test instrumentation, in particular high-speed radiographic imaging (cineradiography).
- ~ The first Landmine Impact Survey is completed in Yemen.
- ~ The Kosovo Mine Action Coordination Center is heralded as a success in establishing the major coordination role of a mine action center.

## 2001

- ~ The revised UNMAS IMAS are released to include structures for timely revision and for sharing information. Many believe this is more significant than the first issue of IMAS because now the industry has usable standards that can be applied and revised.
- ~ The results of the International Pilot Project for Technology Cooperation are

published. The US Department of Defense conceived the milestone report, sometimes referred to as the metal detector “consumer report,” as a first-ever attempt to conduct a multinational test and evaluation venture. Canada, the Netherlands, the United Kingdom and the European Commission’s Joint Research Centre joined the US in evaluating 25 different detector models from 13 manufacturers. The intent of the project was to determine the best detector(s) for a given set of operational parameters, as well as serve as a pilot project for the ITEP.

- ~ The conflict in Afghanistan and the media attention on the landmine problem results in increased landmine awareness among the general population.
- ~ Moldova is declared mine safe.

## 2002

- ~ The US Department of State’s Quick Reaction Demining Force (QRDF) makes its first foreign deployments to Sri Lanka and Sudan to provide emergency mine and UXO clearance assistance in support of international peace-keeping and reconstruction efforts in the two war-torn nations.
- ~ Costa Rica is declared mine safe.

## 2003

- ~ Two Warner Bros. public service messages in the Khmer language, sponsored by the US Department of State’s Bureau of Political-Military Affairs and USAID’s Leahy War Victims Fund, are televised nationally in Cambodia and distributed in rural areas. One has a mine risk education (MRE) message; the other deals with social reintegration of landmine survivors.

## 2004

- ~ A new US policy on landmines is announced. The new policy will eliminate the use of all long-lasting or “persistent” landmines after 2010. The new policy mandates that the US will no longer keep undetectable landmines in its inventory.

# Bringing It All Together





*A mother remains with her two surviving children after a landmine accident claimed the lives of their siblings.*

## Mine action: Where are we today?

Mine action is an international relief mechanism that responds to the changed nature of warfare, specifically the increase in unconventional warfare that involves NSAs, terrorists, insurgents and partisans. The threat landmines pose to civilians increased dramatically with the shift away from conventional warfare. Mine action will continue to evolve as warfare changes and as the international community learns new and better ways to meet post-conflict reconstruction needs.

Mine action is a relatively new field within the broader context of relief and development. While traditional humanitarian assistance activities have developed over the course of the second half of the twentieth century, humanitarian mine action (or humanitarian demining, as it was first called) came into existence only in the late 1980s in Afghanistan and Cambodia.

The recent effort to support coordinated mine action programs across countries and organizations is one of the most heartening aspects of this global undertaking. The NGOs, military units and

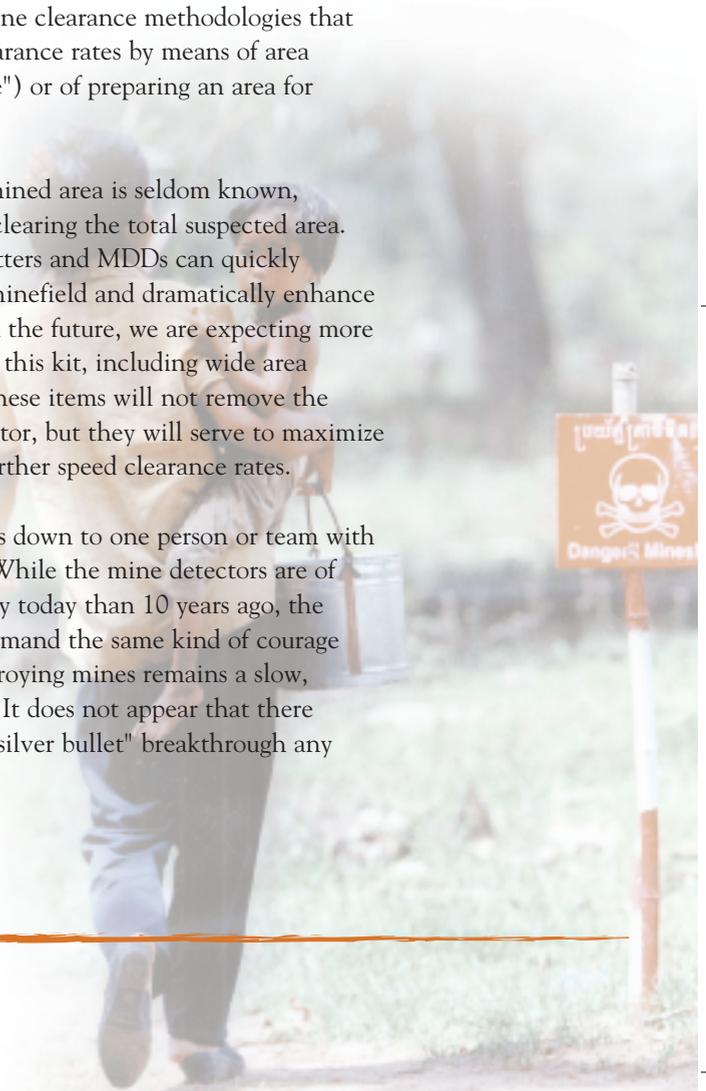
commercial companies that have operated in numerous countries have often served as "learning catalysts," allowing for the rapid diffusion of lessons learned and best practices. Four distinct trends highlight this development: demining technology, establishing effective national programs, social development, and program coordination and integration.

## How does demining technology figure into the mine action equation?

There has been a great deal of progress made in developing a comprehensive "toolbox" of mine clearance methodologies that serves to accelerate overall clearance rates by means of area reduction (declaring areas "safe") or of preparing an area for clearance operations.

Since the exact location of a mined area is seldom known, prudent deminers often begin clearing the total suspected area. The use of machines, brush-cutters and MDDs can quickly delineate the boundaries of a minefield and dramatically enhance total clearance productivity. In the future, we are expecting more and better tools to be added to this kit, including wide area detection systems and GPR. These items will not remove the need for a deminer and a detector, but they will serve to maximize the deminer's efficiency and further speed clearance rates.

Demining, however, still comes down to one person or team with a metal detector and a probe. While the mine detectors are of better quality and dependability today than 10 years ago, the threat and the environment demand the same kind of courage and skill. Uncovering and destroying mines remains a slow, tedious and dangerous process. It does not appear that there will be a major technological "silver bullet" breakthrough any time in the near future.



## How are effective national programs established?



*With rehabilitation programs and proper treatment, landmine survivors can return to their livelihoods.*

Today's set of IMAS, recently established by a global team of experts working under the aegis of the UN and the GICHD, has defined and codified current best practices among the components of mine action. Because of this work, landmine clearance, MRE and survivor assistance efforts are being executed with greater precision, safety and effectiveness than they were just a few years ago.

The challenge for the future is to expand the rate of knowledge transfer to mine-affected countries. Greater emphasis needs to be placed on developing indigenous capacities to clear mines, repair equipment, create educational programs, institute training systems and manage comprehensive mine action campaigns. The number of technical advisers should decrease over time, as mine-

affected countries acquire the skills and expertise to manage and execute their own programs. A key measure of future success will be the extent to which mine-affected countries assume ownership of their programs.

## How is mine action a precursor to social development?

There is a growing recognition that restoring security and safety to war-torn societies is a vital role of successful post-conflict reconstruction. Similarly, in the future, mine action will be

viewed less as a unique "stand-alone" effort. Instead, it will be incorporated into a range of post-conflict activities aimed at eliminating the effects of war on civilians and allowing for social development, the resettlement of displaced civilians, and the stimulation of local agriculture, commerce and education.

## How have program integration and coordination affected mine action?

Recently, great strides have been made to overcome deficiencies that existed initially in humanitarian demining, such as competition for resources among mine clearance organizations and lack of information and coordination among organizations.

The Impact Survey process, feeding into the IMSMA, provides managers with the tools and the knowledge required to develop more structured country programs with clear strategic objectives and unified work plans. Program performance can now be measured in terms of land restored and communities rehabilitated, forming a vital link with a country's overall development goals.



*A Nicaraguan soldier with a mine dog searching for mines.*

## What is the potential for mine action in the future?

Mine action is more than the sum of its parts. It is a central component of any comprehensive response to post-conflict reconstruction and national reconciliation. The widespread presence of landmines is one of the factors that stand in the way of economic development, contributing instead to social instability and poverty. Future mine action efforts will be more responsive to the wider needs of war-ravaged countries, effectively planned and prioritized, and efficiently using resources to address the most pressing needs first.

This is an exciting and unique endeavor, altogether appropriate for a new millennium. To paraphrase Winston Churchill, "Rarely has there been the promise of so many diverse organizations doing so much for so many different people."

## What is needed for mine action programs to be successful?

Well-organized mine action centers, a diverse cast of players and adequate funding are the key elements for mine action success.

**Mine Action Centers:** Given the range of activities and the number of players involved in mine action, coordination is a prerequisite to the effective implementation of mine action programs in the field. The establishment of a Mine Action Center (MAC) or national landmine office is a central component of most mine action programs. MACs are normally initiated and developed under the authority of local and national governments. The United Nations typically assists by coordinating international support. This assistance is provided through the UNMAS, for programs developed in the context of peacekeeping operations or in response to immediate humanitarian needs, and through the United Nations Development Program (UNDP), for long-term capacity-building programs. As a part of their bilateral efforts to



improve mine action in countries at risk, many donor countries and NGOs support and fund national or regional offices.

*A surveyor has just discovered an anti-personnel mine.*

To be successful, MACs rely on two primary supports:

- The commitment of the national government to mine action
- The strength of the partnerships they build with international donors, operators, humanitarian agencies and the local communities.

*A deminer works in an Afghan minefield.*



Typical major MAC activities include:

- Managing and coordinating outreach and operation activities
- Conducting geographical surveys
- Conducting socio-medical surveys
- Prioritizing mine action projects in coordination with host-nation reconstruction and rehabilitation planning
- Coordinating mine/UXO clearance operations
- Conducting survivor assistance
- Conducting MRE
- Maintaining landmine-related information.

**A Diverse Cast of Players:** The number and diversity of organizations involved in mine action includes donor countries, NGOs, international organizations, military units, commercial firms and host-nation agencies. Unfortunately, they do not always coordinate and communicate.

Some countries (such as the United States) rely heavily on bilateral nation-to-nation support; others combine their energies with those of a region, such as the European Commission; and

some rely on international or regional organizations to coordinate national mine action efforts.

Militaries, with their special training in countermine operations, often play key roles by developing training programs and offering valuable advisory assistance. NGOs such as Mines Advisory Group, HALO Trust and Norwegian People's Aid have played a critical role. UNMAS and the Swiss government-sponsored GICHD offer international support and coordination, and focus on such issues as mine action standards and mine action information management.

**Funding:** A key problem for many mine action organizations is a lack of long-term funding commitments from donors. It often takes months and sometimes years for a successful mine action campaign to be completed. Donors understandably want to see results, but indicators of success are difficult to measure. Early attempts to measure effectiveness by ordnance destroyed or even area cleared have proven to be inadequate. Many donors have been reluctant to commit funds for extended operations. Nevertheless, many humanitarian organizations and agencies continue to work tirelessly to improve the quality of life in communities threatened by landmines. Great strides have been made and many successful operations have rendered hundreds of communities and countries mine safe.

### **Why is it important to talk of the landmine problem in terms of impact rather than numbers?**

Nobody knows exactly how many landmines have been used or how many still remain in the ground as a threat to life and livelihood of civilian populations. What we do know, however, is that the threat of landmines denies people access to infrastructure, health care, schools, and agricultural land and impedes a nation's progress in economic development. One landmine hidden in the playground of a school is enough to deny a class of students access to education.

## A Call to Action

### How can I get involved?

Now that you have read through this book, you are more informed about the challenges involved in mine action and are ready to respond to this "Call to Action." Between 1992 and 2002, governments contributed over \$1.7 billion to the cause of mine action and still it is clear that they alone cannot solve the pervasive and complex challenges presented by the landmine threat. After reading *The Landmine Action Smart Book*, you have probably come to realize that mine action is multifaceted; it is not just about removing landmines from the ground. But just as there are many challenges to be met, there are many ways to support landmine action; reading this book was the first step. The next step is to get involved.

There are a number of ways in which you can become involved with mine action issues. First and foremost, educating yourself and others about the issues is vital. Share this book with others. Take advantage of the educational resources that are available on the Internet through the MAIC, the US State Department and other sources. On the inside back cover of this publication, you will find a list of Web addresses that will help you discover the wealth of information available from a variety of sources. The Global Mine Action Registry (<http://maic.jmu.edu/gmar/>) will help you further identify potential partners in your endeavors. Organizations in the Registry are listed according to countries of operation and fields of activity. These resources will help you to answer the question "Whom should I contact?"

Getting involved does not have to involve traveling to far-flung locations. To get involved locally, try contacting and working with civic groups in your community to raise money or other contributions that are vitally needed. Devise or implement



*At Instituto Nacional Tecnológico (INATEC) in Nicaragua, survivors are trained in different jobs (computing, carpentry, shoemaking, etc.).*



*A man relearns to walk at an ICRC orthopedic center.*

programs to raise awareness in your community and encourage others to become involved. Contact local, state or national leaders and express your concerns and ideas.

Get involved especially by educating young people; help start programs in your local schools, churches or neighborhoods. Educating our children about landmines and increasing their awareness about global problems is the key to building a society that cares and inspires citizens to take informed action on their own.

These are just a few of the many avenues that you may choose when deciding how to focus your energy and skills on the challenge of mine action. Whatever your course of action, we commend you for making the commitment to become informed and to get involved!

## Glossary

**Anti-Handling Device:** A device intended to protect a mine that is part of, linked to, attached to or placed under the mine and that activates when an attempt is made to tamper with or otherwise intentionally disturb the mine.

**Anti-Personnel Mine (APM/APL):** A mine designed to be exploded by the presence, proximity or contact of a person that will incapacitate, injure or kill one or more persons.

**Anti-Tank Mine (ATM/ATL):** A mine designed to be exploded by the presence, proximity or contact of a vehicle, either wheeled or tracked, that will immobilize or destroy the vehicle, causing injury or death to the occupants. ATMs can be equipped with anti-handling devices to discourage their neutralization.

**Area Reduction:** The act of defining and marking the extent of a mined area, usually undertaken as part of a Level 2 technical survey.

**Base Line:** The line that is used to initiate all demining operations, and the point from which all clearance lanes start. Also known as the start line.

**Booby Trap:** An explosive or non-explosive device deliberately placed to cause casualties when an apparently harmless object is disturbed or a normally safe act is performed.

**Demining:** The activities that lead to the removal of mine and UXO hazards, including technical survey, mapping, clearance, marking, post-clearance documentation, community mine action liaison and the handover of cleared land. Demining may be carried out by different types of organizations, such as NGOs, commercial companies, national mine action teams, or military units. Demining may be emergency-based, humanitarian or developmental.

**Donor:** Any government, individual, foundation or other philanthropic entity that provides funds and/or non-monetary resources for the specific purpose of alleviating the effects of the landmine problem.

**Explosive Detecting Dogs (or Explosive Sensing Dogs):** Dogs that are specifically trained to detect the

vapors emitted by explosives contained in improvised explosive devices, mines and munitions. Some dogs can also be trained to detect tripwires and non-explosive booby traps. The dogs are normally referred to as explosive or mine detecting dogs (MDDs).

**Explosive Ordnance:** All munitions containing explosives, nuclear fission or fusion materials, or biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant-actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature.

**Explosive Ordnance Disposal (EOD):** The detection, identification, removal and destruction of unexploded ordnance (UXO). EOD may be undertaken

- a) As a routine part of mine clearance operations upon discovery of UXO.
- b) To dispose of UXO discovered outside mined areas (this may be a single piece of UXO or a larger number of items located in a specific zone).
- c) To dispose of explosive ordnance that has become hazardous through passage of time, by damage or unsuccessful destruction efforts.

**Flail System:** Vehicle-mounted devices typically composed of cylindrical drum structures housing a collection of chains on a horizontal bar that spins, beating the ground ahead of the vehicle to detonate anti-tank mines.

**Internally Displaced Persons (IDPs):** Persons who have been forced or obliged to leave or to flee their homes or places of habitual residence, in particular as a result of, or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights, or natural or man-made disasters, and who have not crossed an internationally recognized state border.

**Landmine:** Any munition designed and manufactured to be detonated after it has been laid by the presence, proximity or contact of a person or vehicle.

**Mine Action Center (MAC):** Usually refers to a facility containing personnel who coordinate and assist the national mine action activities in a country.

**Mine Awareness:** A method of informing, teaching and relaying messages about landmines to the public. Mine awareness encompasses MRE, mine awareness training for peacekeepers, multimedia presentations, and what action to take when a mine or UXO is found. It is intended to modify behavior patterns to reduce casualties. One result of mine awareness activities is the increased flow of information back to MACs about mine and ordnance locations.

**Mined Area:** An area declared dangerous due to the presence or suspected presence of mines.

**Minefield:** In land warfare, an area of ground containing mines laid with or without a pattern.

**Non-Governmental Organization (NGO):** A organization consisting of private citizens that maintains a consultation status with the Economic and Social Council of the United Nations. NGOs may be professional associations, foundations, multinational businesses or simply groups with a common interest in humanitarian assistance activities (development and relief).

**Orthotics:** The science of using an orthotic device or orthosis (commonly known as a brace or splint) by applying it externally to the limb or body. The purpose can be to provide support, protection or replacement of lost function. Orthotic devices are utilized to eliminate abnormal gait motions and allow healing to occur.

**Prosthesis:** An artificial device used to replace a missing limb.

**Render Safe Procedures (RSPs):** The procedures that enable the neutralization and/or disarming of mines and munitions to occur in a recognized and safe manner.

**Unexploded Ordnance (UXO):** A bomb, artillery or mortar round, mine or other explosive "device" that has the potential to detonate and cause casualties. It may have been fired, dropped or launched (or have been prepared for use), yet remains unexploded due to malfunction, design error or some other cause.

## Endnotes

### The Landmine Action Smart Book:

1 *Landmine Monitor Report* 1999; "Humanitarian Mine Action." <http://www.icbl.org/lm/1999/english/exec/Evecweb03.htm>

### Survivor Assistance:

2 Definition used by the ICBL.

3 *Landmine Monitor: Toward a Mine-Free World* 2001; International Campaign to Ban Landmines, p. 37

4 *Landmine Monitor: Toward a Mine-Free World: "Executive Summary"* 1999, International Campaign to Ban Landmines, 1997, p.22

### Photos:

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## Helpful Websites

**Adopt-A-Minefield:** [www.landmines.org](http://www.landmines.org)

**Canadian Center for Mine Action Technologies:** [www.ccmata.gc.ca](http://www.ccmata.gc.ca)

**Cranfield Mine Action Unit:** [www.rmcs.cranfield.ac.uk/ddmsa/cma/index\\_html](http://www.rmcs.cranfield.ac.uk/ddmsa/cma/index_html)

**Defence R&D Canada-Ottawa:** [www.dreo.dnd.ca/pages/factsheet/rt/rt002\\_e.html](http://www.dreo.dnd.ca/pages/factsheet/rt/rt002_e.html)

**European Commission Joint Research Center:** [www.jrc.cec.eu.int](http://www.jrc.cec.eu.int)

**Geneva International Centre for Humanitarian Demining:** [www.gichd.ch](http://www.gichd.ch)

**German Technical Cooperation (GTZ):**

[www.gtz.de/unternehmen/english/snapshot/index.html](http://www.gtz.de/unternehmen/english/snapshot/index.html)

**HALO Trust:** [www.halotrust.org](http://www.halotrust.org)

**Handicap International:** [www.handicap-international.org/uk/index.html](http://www.handicap-international.org/uk/index.html)

**Humanitarian Demining Training Center:**

[www.wood.army.mil/hdtdc/mission.html](http://www.wood.army.mil/hdtdc/mission.html)

**International Campaign to Ban Landmines:** [www.icbl.org](http://www.icbl.org)

**International Trust Fund for Demining and Mine Victim Assistance:** [www.itf-fund.si](http://www.itf-fund.si)

**James Madison University Mine Action Information Center:** [maic.jmu.edu](http://maic.jmu.edu)

**Landmine Survivors Network:** [www.landminesurvivors.org](http://www.landminesurvivors.org)

**Mines Advisory Group:** [www.mag.org.uk](http://www.mag.org.uk)

**Norwegian People's Aid:** [www.npaid.org](http://www.npaid.org)

**Organization of American States:** [www.upd.oas.org/demining/detext.htm](http://www.upd.oas.org/demining/detext.htm)

**People Against Landmines (MgM):** [www.landmine.org](http://www.landmine.org)

**U.S. Agency for International Development:**

[www.usaid.gov/hum\\_response/oti/focus/mines.html](http://www.usaid.gov/hum_response/oti/focus/mines.html)

**U.S. Department of State Office of Weapons Removal and Abatement:**

[www.state.gov/t/pm/wra/](http://www.state.gov/t/pm/wra/)

**United Nations Development Program:** [www.undp.org](http://www.undp.org)

**United Nations Mine Action Service:** [www.mineaction.org](http://www.mineaction.org)

**Vietnam Veterans of America Foundation:** [www.vvaf.org](http://www.vvaf.org)

