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Setting Standards for Clearing Landmines

Humanitarian Solutions to the Residue of War

David Hewitson

Landmines have been an extensive and persistent feature of many conflicts for at least the past century, manufactured on an industrial scale by many countries, and improvised by insurgent groups. They remain in the ground in some regions left over from World War II, Cold War proxy-conflicts, the Iran-Iraq War, and as a result of more recent conflicts including those in Syria, Afghanistan, Colombia, and the countries of the South Caucasus. Azerbaijan, after regaining large swaths of territory during the Second Karabakh War and as a result inheriting the extensive contamination associated

with the former line of control, now may rank within the top ten mine-contaminated countries in the world.

As a predominantly military or conflict created problem, it is often assumed that landmines are most susceptible to military solutions, but clearance of landmines during conflict has little in common with clearance of landmines once conflict has come to an end. A fundamentally different set of objectives, priorities, and constraints apply once war is over, demanding a very different set of methods, procedures, and plans. Although in the past military units have been involved in extensive post-conflict

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clearance programs (in places like Vietnam)—and in a number of countries government mine clearance authorities fall under a military or quasi-military ministerial structures—the main centers of expertise today are primarily found in those civilian organizations that have been involved in post-conflict landmine clearance on a constant basis for the last three decades and more.

Responses to landmines, as well as other explosive remnants of war, include more than just clearance. Destroying stockpiles of unused mines, advocating for the cessation of manufacture, sale, and use of landmines, providing affected populations with risk education, and helping victims of landmine accidents are all important. Collectively these integrated activities are known as humanitarian mine action (HMA).

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Historically, mines were most commonly laid for military defensive and tactical purposes, but they were, and are, used by insurgent groups to create fear in civilian populations in some conflicts. Irrespective of their original purpose, mines that remain in the ground after a conflict has ended affect people directly, by injuring or killing them, and indirectly, by denying access to productive land, prolonging suspicion between different groups, and impeding resettlement, economic activity, and reconstruction. Uncertainty about where mines might be located further magnifies the effects of these indiscriminate and long-lasting weapons.

Eventually, all human-made objects degrade under the influence of heat, cold, water, biology, chemistry, ultra-violet light, and

other factors, but those processes can take many decades to come to their respective ends. In areas containing mines that were laid over 70 years ago it is common to find examples that remain active even today.

The Evolution of Humanitarian Mine Action

After World War II much of the mine clearance that took place in Europe was carried out by former combatants, some still prisoners of war, as well as many volunteers keen to help reconstruct the ravaged continent. Some of them had first-hand knowledge (having laid the mines themselves) whilst others had access to records, but even under those circumstances the casualty rates amongst that set of deminers would not be considered acceptable today. Some areas were fenced-off and left as being just too difficult to demine, such as the Skallingen Peninsula in Denmark, where mines were laid as part of Adolf Hitler's Atlantic Wall in the early 1940s, and where German ex-combatants conducted clearance in other nearby areas. The peninsula was not finally cleared until the mid 2000s.

The first major HMA program was established in the late 1980s in the wake of the Soviet withdrawal

from Afghanistan. Most of the initial training was conducted in refugee camps in Pakistan, with demining teams crossing the border into Afghanistan to carry out a variety of landmine-related tasks. All came under the broad umbrella of the UN's Operation Salam. Instructors were generally provided on loan from Western militaries. Their own training and experience was based mostly on the clearance of minefields during ongoing military operations, often expected to be conducted in the face of hostile action by opposing forces. Few of the instructors had prior personal experience in extensive peacetime mine clearance. The result was that deminers were trained in procedures associated with clearance under combat conditions. This typically involved up to three personnel, lying on their stomachs, crawling forward slowly within a clearance lane, using mine detection techniques such as prodding the ground with bayonets. At the same time, smaller projects started within Afghanistan itself, managed mostly by ex-military personnel (including myself) who for the most part did not have specific combat mine clearance experience.

Over the following several years there was a slow and often bitterly resisted (by some technical advisers) change in the approach to

clearance. Two deminers, working together in a lane, one with a detector, the other using a bayonet, trowel, or other tools to investigate signals from the detector, eventually became one deminer working alone, detecting and investigating, while the other observed from a safe distance to make sure that procedures were being correctly followed. Finally, it was accepted, again after often extended and heated debate within the burgeoning demining community, that one deminer could work alone without being observed by a partner. A further improvement was the provision of specially designed personal protective equipment, consisting of ballistic visors and aprons, which allowed deminers to adopt a more ergonomically comfortable kneeling position.

The net effect of these changes was to increase the productivity of operations dramatically. Instead of three people in a clearance lane, delivering one unit of cleared square meters output between them, those three people now operated in three separate lanes, each delivering their own individual productive output. Not only that, but increased comfort and improved ergonomics meant that each deminer was producing more individual square meters per working day. These improvements arose

as civilian managers, following a pragmatic, evidence-based approach, gradually moved away from traditional military procedures.

To begin with, Western militaries had viewed the civilian mine action organizations with considerable suspicion, considering them as amateurs trying to do a military job. However, within a few years the position had completely reversed, with those same military units recognizing that the civilian humanitarian agencies had immeasurably more experience of clearing landmines. Suddenly they were asking whether their own military personnel could be embedded with the civilian agencies to gain experience.

By the mid 1990s there was increased public and governmental awareness of landmines as a global humanitarian issue. The efforts of the International Campaign to Ban Landmines, working with a number of international institutions and supportive governments, led to the Anti-Personnel Mine Ban Convention (APMBC), established in 1997 and often known as the Ottawa Convention after the city in which it was first signed. For the first time, countries that adopted the APMBC took on commitments, not just to stop manufacturing, selling, transferring, or using mine themselves, but also to clear all

mines on their own territories. In 1996, the global humanitarian mine action sector was worth around \$135 million; by 2006, the amount has increased to about \$500 million dollars per year. Since then, global annual declared funding has fluctuated between around one-third and two-thirds of \$1 billion per year. Other expenditures by commercial entities hiring landmine survey and clearance services increase the total amount further. As the scale of humanitarian operations expanded so too did the level of experience and expertise within the sector.

Manufactured and Improvised Landmines

The post-2001 conflicts in Afghanistan and Iraq brought with them the widespread use of increasingly sophisticated improvised explosive devices (IEDs). Many IEDs were used as landmines. In a repeat of the disagreements and arguments of the 1990s about mine clearance, the mid 2010s saw extended discussions about the clearance of IEDs in humanitarian contexts. Once again, the suggestion was that this was an exclusively military activity that could only be addressed by a small number of (extremely expensive) individuals with extensive military experience. But the constraints of the

real world intruded, as donor governments balked at the huge costs associated with the employment of such personnel. The fundamental importance of the distinction between “active” improvised devices in an ongoing conflict environment and those “abandoned” objects, left over after conflict had moved on, also became clearer.

IEDs that have a current intended purpose, and that are found in areas where they are being used as active weapons against specific targets, present a complex problem that are, in addition, wrapped up in wider issues of security and politics. Under such circumstances military responses are almost always unavoidable and essential, not least because they may demand the deployment of protective security assets, as well as require expensive, sophisticated equipment (such as for jamming radio or mobile phone signals) that are only effective within a comprehensive, up-to-date, and effective intelligence system.

Situations of insecurity also typically raise questions of whether any clearance operation can satisfy basic humanitarian expectations of political neutrality. If the user of an IED is still observing it, waiting to send to it the command signal to detonate (perhaps as a military patrol approaches) and someone

else seeks to find it and prevent it from functioning, then the user will view the clearance operation as a hostile act. He or she may take violent action against the clearance personnel. That same IED presents a

completely different situation several months or years later, when it has been abandoned, the batteries in its power source have flattened, or when the insurgent group that planted it has left the area. In much the same way that conventionally manufactured landmines become a form of “pollution” (rather than current military weaponry) once the war is over, so abandoned IEDs are suitable for a completely different non-military clearance response: one that can meet normal humanitarian demands and expectations.

Landmines and the Management of Risk

At the heart of HMA is the question of managing risk. It is important to understand from the outset that this is not about managing one risk (the potential for physical harm caused by landmines), but rather about

Both the Second Karabakh War and the November 10th, 2020, trilateral agreement concluded between Armenia, Azerbaijan, and Russia represents major diplomatic failures for the West.

managing a complicated and dynamic collection of inter-related risks, only some of which are about direct human harm.

One of the basic principles of risk management is that taking action to re-

duce one risk can create other new risks. Mine clearance itself offers a clear example: in order to remove the risk to the civilian population of accidental harm arising from treading on landmines, safety risks must be accepted amongst those who will do the clearance work. Those risks are themselves managed through training, selection of appropriate equipment, application of effective procedures, and so on.

The International Organization for Standardization (commonly known by its acronym, ISO) defines risk as “the effect of uncertainty.” Uncertainty about exactly where landmines are, even when records and sketch maps are available, generates other risks—the main ones being wasting time and money clearing land that does not actually contain any landmines and clearing land that intended beneficiaries will not then accept as safe.

There is always an imperative to clear mines as quickly as possible after conflict so as to allow affected people to get on with their lives; but doing things too quickly brings with it the risk of missing mines and the possibility that still-contaminated land will be returned to civilian users who then become victims of those missed mines. The consequences of such events are not only unacceptable in terms of the harm and cost inflicted on people and their families; they can also lead to other potential land users rejecting released land because they have lost confidence in its safety. If that happens, then much of the effort (and cost) associated with the clearance work will have been wasted. It may be necessary to re-clear large areas, incurring yet more cost and delay, before the land is accepted as safe to use. Thus, all mine clearance operations seek to balance the demands of cost, speed, and quality. Doing things quickly may cost less (and may make land available sooner), but if the result is that farmers lose limbs or lives in areas claimed to have been cleared, then any economies will prove to have been false and supposed gains in time will quickly turn into further delays and additional cost.

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In some quarters it has been, and still is, suggested that working to humanitarian standards slows down military units that would otherwise be able to complete clearance and release land for civil use more quickly. It is hard to see how this could be the case unless the supposed different approach was either more dangerous (resulting in more deaths or injuries to deminers) or accepted a lower quality of work (increasing the chance that unexploded mines would be left in land handed over to the civil population, who would themselves be at increased risk of death or injury). The only other possible rationale for approaching the task in a different way would be if military units had access to some much more capable mine detection technology. There is no evidence that this is the case. Indeed, the humanitarian sector is closely involved in the development of new technology. Manufacturers often use humanitarian operations to test their equipment, not least because it is humanitarian agencies that encounter landmines most frequently and in the largest numbers.

Keeping Busy vs. Making A Difference

Successful and efficient mine clearance is not just about deploying deminers, mine detection dogs, and mechanical demining systems to deliver cleared land. It is also about ensuring that the work “makes a difference.”

When HMA first started, the focus was on being seen to do something. Lots of resources were procured, trained, and deployed. Measures of progress focused on mines found and square meters cleared—measures that have value in understanding the performance of operational elements yet do not provide any information as to whether activity is “making a difference.” Mine action “makes a difference” when people use land for productive purposes, when fewer people are killed or injured stepping on a landmine or picking up an unexploded munition, when economies grow, and when societies are confident about functioning free from the fear of landmines. Spending time and money on activity that fails to “make a difference” represents a waste of precious public money that could have been put to better use clearing areas where mines were present, and that people were going to use.

Combat mine clearance was (and is) all about getting through an obstacle as quickly as possible so that an attack can continue. In balancing combat risks, speed is of the essence. Finding every mine is less important. In a humanitarian environment the balance is very different. It is essential that every mine is found (or at least that missing a mine is a very, very rare occurrence). If there are any doubts about the safety of the land following clearance, people will not use it. If land is rejected by users, then the time, cost, and personal risks incurred by the deminers will have been wasted. In sum, the output of the clearance work is very different in the two situations.

Perhaps the idea that the military could somehow work more quickly, if it was only freed from the unnecessary constraints of humanitarian clearance operations, arises from a misconception about the relationship between combat clearance and the release of land for civil use. Whatever the explanation, it is unlikely that a government would be prepared to compromise on the quality of land made available to its own people (even if it would accept potentially high accident rates amongst its own troops). The result is that military units working in humanitarian programs, such as within UN peacekeeping operations, are required to work to humanitarian standards.

Measuring the *outcomes* of mine action (such as improved confidence and economic wellbeing) is often harder than measuring *outputs* (such as the physical area of land cleared). Properly understanding the links between clearing land, providing risk education, and helping the victims of landmine

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accidents is even more difficult. Mine action is typically one of many recovery, reconstruction, and development initiatives in areas emerging from conflict. Showing which interventions lead to which beneficial effects (the *outcomes*) is difficult with many interacting social, political, and economic factors and influences operating in a rolling, dynamic way.

Recent studies in Mozambique and Afghanistan have used satellite imagery taken over many years to assess the density of nighttime light on the ground as a proxy indicator of economic activity. Such studies have provided robust evidence that mine action has had a positive effect on economic development, but other anticipated benefits on population movements, security and stability, and capacity development

often prove harder to identify and assess in measurable terms. While the positive evidence that mine action brings economic benefits is welcome, it is only a first step on increasing understanding of how to target and prioritize mine action so that it not only delivers *some* benefit, but instead delivers *as much* benefit as it can. The topic is one of ongoing and increasing professional and academic focus within the sector.

Increasing understanding is reflected in changes to planning, prioritization, and practice in mine action, but it also makes clearer the considerable challenges of achieving intended outcomes in the complex, dynamic environment of a human population and its socio-economic context.

Humanitarian Space

Here it might be useful to take a step back and summarize some of what has been said or implied in previous sections. Through all aspects of the use, residual effects, and clearance responses to landmines—whether manufactured

or improvised—runs the common theme of the prevailing space and whether that space is military or humanitarian. Military units often talk about “permissive” or “non-permissive” situations, meaning circumstances in which there is freedom to move and operate or where movement is likely to attract a hostile response. In the military space objectives are primarily about protecting troops and other military assets to allow them to perform other functions. Those functions range from peacekeeping and security stabilization to full combat operations. Casualty rates amongst specialist clearance operators in non-permissive situations are often high. In Afghanistan and Iraq, including in the Kurdish areas close to the border with Syria, many specialist military and militia clearance operators have died or been injured while searching for and dealing with IEDs. Such casualty rates would be unacceptable in a humanitarian working context.

There is no reason why military units should not conduct mine clearance with humanitarian objectives in an environment that allows for humanitarian activity; but if they do so then there is also no reason why they should not approach the task in the same way as those organizations that operate for exclusively humanitarian reasons.

For the mine clearance space to be humanitarian there must be a degree of security and stability. If there is not, then there is a constant risk that an HMA agency will appear to take one or the other side in conflict and be seen (rightly or wrongly) as a legitimate enemy by the opposing side. In some modern conflicts the difficulties are

compounded when there are not two sides, but many, ebbing and flowing in a mix of politics, clan and tribal warfare, and criminality (e.g., there are currently reported to be over 80 non-state armed groups active within Colombia).

Some humanitarian agencies are prepared to attempt to work in areas that are relatively insecure but doing so can bring significant risks. The June 2021 attack in northern Afghanistan by non-government elements on the HALO Trust, a non-profit humanitarian mine action agency, in which 10 mine clearance workers were killed (with two others dying

later from their injuries) and many others were wounded, illustrates the challenges of working in an area where some groups are supportive of clearance operations while others are not. Thankfully, such attacks are rare. The great majority of HMA around the world takes place in areas where the local government and people are wholly supportive of landmine clearance work.

Despite the objections and active hostility of some armed groups, humanitarian mine clearance agencies are wholly focused on removing mines and other unexploded remnants of war in order to help people and societies go about their lives and business free from the fear and influence of landmines. There is no reason why military units should not conduct mine clearance with humanitarian objectives in an environment that allows for humanitarian activity; but if they do so then there is also no reason why they should not approach the task in the same way as those organizations that operate for exclusively humanitarian reasons.

Efficiency and the Use of Public Money

Some civilian mine clearance is carried out under contract to commercial enterprises (mostly in the oil and gas, minerals extraction, power, and construction sectors), but the great majority takes place within programs funded by foreign governmental donations or domestic budgetary allocations. In every case there is pressure to be efficient whilst satisfying expectations of safety and quality. That pressure became more focused in the wake of the financial crashes around 2008. Funding from international donors was expected to be in shorter supply. Domestic

budgets faced competing claims from different elements of society and the economy. The result was that there was less tolerance for the clearance of land that turned out to contain no mines, as well as

for improved prioritization of clearance in areas that would make the greatest difference when released. The approach to making sense of prioritization, targeting of effort, and delivery of the most useful land came together under the umbrella “land release” concept.

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Land release puts great emphasis on the collection and use of information to support good planning and the appropriate targeting of clearance assets onto land that is most likely to contain landmines. It also encourages better learning and improvement, using knowledge gained from clearance operations to increase understanding and help improve the efficiency of future operations.

The lessons learned, the experience gained, and the new methods developed over more than 30 years of constant operations worldwide would have been of only local value had there not been a focal mechanism for the sharing of good practice, encouraging the adoption of improved techniques, and discouraging poor practice.

The Role and Applicability of Standards

The lessons learned, the experience gained, and the new methods developed over more than 30 years of constant operations worldwide would have been of only local value had there not been a focal mechanism for the sharing of good practice, encouraging the adoption of improved techniques, and discouraging poor practice. That mechanism has involved the development and adoption of globally and nationally accepted standards.

When modern humanitarian mine action started, the various organizations engaged in practical clearance operations made sense of the circumstances they faced, independently of each other. Some adapted already existing military procedures and doctrine; others developed working practices from first principles. There were no common approaches or standards.

As the scale of HMA operations expanded—initially in Afghanistan and then into countries like Cambodia (from 1992), Mozambique (from 1993), Angola (from 1994), and elsewhere—it became clear that there was a need for some commonality in the fundamentals of how to approach the work.

The first set of standards—developed following a major international meeting that took place in Copenhagen in 1996—were released in 1997 by the UN Mine Action Service (UNMAS). These focused on core aspects of the

practical conduct of clearance operations and reflected the lessons that had been learnt during the previous several years of humanitarian operations. By then, many of the traditional military combat clearance approaches had already been abandoned, as more appropriate techniques were developed by humanitarian operating organizations.

In 1999 the standards were reviewed, with the Geneva International Centre for Humanitarian Demining (GICHD) undertaking management on behalf of UNMAS. The first editions of what became the International Mine Action Standards (IMAS) were developed and made available for public use. The IMAS are subject to ongoing review by a formally constituted review board composed of representatives from a wide range of UN agencies, international institutions, governments of mine-affected countries, academic bodies, and non-profit and commercial mine clearance organizations. A Steering Group provides higher level oversight and direction. The standards are formally approved and adopted within the context of the United Nations system.

The review process is designed to ensure that there are regular opportunities to update IMAS to reflect new understanding,

methods, and techniques. IMAS, especially those with the greatest day-to-day relevance, have been reviewed and updated several times since they were first published. In some cases, entirely new standards (such as those relating to IEDs) have been developed in response to changes in the operational context. All those involved in the review process have an interest in helping mine action become, as we say, “better, faster, cheaper.” At the same time, they also have an interest in preserving the basic aims of doing the work safely and reliably. As a global sector, with a wide variety of engaged organizations, there are few initiatives or innovations that do not come to the attention of the UN and other international organizations.

IMAS have no formal independent legal standing in their own right. In some cases, they attract legal force when they are referred to in contracts: for instance, any organization working under contract to UNMAS is required to satisfy IMAS; many commercial clients (such as in the oil and gas sector) choose to refer to IMAS in their contracts; during the recent clearance work in the Falkland Islands the UK Government chose to refer to IMAS in contracts for the clearance and separate monitoring service providers.

Although some mine action operations work to IMAS themselves, it is more usual to see them reflected at the local level in National Mine Action Standards (NMAS). NMAS draw on the IMAS as the basis for domestic standards; ones that are adapted to reflect the specifics of local legal, governmental, and program aspects. Unlike IMAS, NMAS usually do have formal legal standing through adoption in national legislation or other enforceable legal instruments. The current action plan for the APMBC includes a specific objective to keep NMAS up to date and aligned with IMAS. When there is an amendment to IMAS there should be an associated review at the NMAS level to identify whether any changes are required. If so, they should be implemented and the latest version of the affected NMAS be promulgated within the national mine action program. The challenges of staying up to date, working through national legal procedures, and ensuring the quality and acceptability of proposed changes, means that there may be some lag between changes in IMAS and adjustments in NMAS. Nevertheless, the standards that are available are designed to be enablers of efficient and effective mine action.

In Azerbaijan, the National Agency for Mine Action (ANAMA) has a body of NMAS that have been used to support an established and successful mine action program stretching back over 20 years. The national standards are in the process of being updated to reflect developments in the mine action program and to better align them with the most recent edition of IMAS. This will provide a stronger common framework for an expanding the number of demining operators that are responding to the demands of the reconstruction and resettlement plans in the territories of Azerbaijan regained during the Second Karabakh War. Under the coordination of ANAMA, the various ministries involved in mine action (including the ministries of defense, interior, and emergency situations) as well as expanding services drawn from the private sector and civil society will benefit from a more current NMAS. This will promote the safety and efficiency of operations around a common reference framework and encourage greater confidence in the quality of land cleared of landmines and other explosive remnants of war.

It is easy to imagine that standards matter only to those who carry out or inspect clearance work. It is true that those most closely associated with practical operations

do have the most obvious and detailed interest in what the standards say. But people who will end up using the cleared land—whether farmers, construction companies, private home occupiers, children playing outside schools or others—also have an interest, even if they may not be aware of the existence of the standards themselves.

They expect to be safe when they walk, drive or build on, excavate, or otherwise interact with land. If there is any doubt about whether land can be trusted it will not be used. Rejection of cleared land by users represents a complete failure of the mine clearance process. Standards, whether international or national, provide the foundation on which confidence is based: confidence amongst those who pay for clearance work to be conducted; confidence amongst those who carry out the work; and confidence amongst those who are expected to accept cleared land as safe.

Doing the Right Job, Doing the Job Right

Mine clearance is a risk management process, dependent on the identification, collection, analysis, and use of information to drive evidence-based decisionmaking. The better mine

action operators and authorities are at making use of available information, the better targeted practical interventions will be. The land that is released for public use will be more tightly targeted (avoiding wasting effort on areas that prove to contain no mines) and is more likely to be used for beneficial social and economic activity.

Getting mine action right relies upon more than performing practical activities well. It demands intelligent selection and prioritization of tasks as well as the pursuit of constant improvement through learning and innovation. The task is often summarized as “doing the right job as well as doing the job right.” At the level of a national mine action program, mine action is difficult to get right. A range of strategic, planning, and management skills are needed at every level: from those who work on their hands and knees at the front of a mine clearance lane, through their immediate supervisors, to those with higher level responsibilities up to and including the ultimate national authorities. The better the information management system is, the better operational performance can be understood, monitored, and managed, and the better work plans can be developed and implemented. The better mine action is managed and delivered

at every level; the more benefit will be provided to those affected by mines. Selection of the wrong tasks, selection of tasks in the wrong order, inefficient, unsafe or poor-quality conduct of clearance operations will all diminish the extent to which mine action “makes a difference.” There is a powerful moral, as well as professional, obligation on all those involved to address the most difficult aspects of understanding how mine action “makes a difference,” not just how to ensure that demining assets are kept busy.

The HMA sector has learned a great deal over more than 30 years of constant, intensive, and varied landmine clearance operations all over the world. Much of what has been learned is reflected in IMAS and, by extension, NMAS. There are constant pressures and demands to be efficient as well as safe and reliable. The system for establishing, reviewing, and updating mine action standards is proven and effective in ensuring that new ideas, techniques, and methods are reflected in operational practice. When determining which standards and procedures are applicable to mine clearance work, it is not the nature of the organization performing the task that matters (whether

military, civil governmental, non-governmental or commercial), but the purpose of its work. In an insecure conflict environment military personnel, procedures, and equipment are wholly appropriate. In a post-conflict environment, then, the approaches and methods set out in IMAS and NMAS are the right ones to select—irrespective of what sort of organization is conducting the work.

The mine action sector continues to learn and improve, working from a basis of professional knowledge, competence, and standards that are rightly admired by other aid and development sectors. There should be no complacency. The task of clearing landmines to return land to civilian populations is too important, but any organization involved in the work can be confident that IMAS, and properly aligned NMAS, provide a solid foundation for its own procedures and practice. Whether interested outsiders, managers, monitors, or practitioners we can all offer our best wishes and support to those who work with machines, dogs, rats, or on their hands and knees to help remove and destroy landmines and other unexploded remnants of war. **BD**