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Giving the mine-action community a voice

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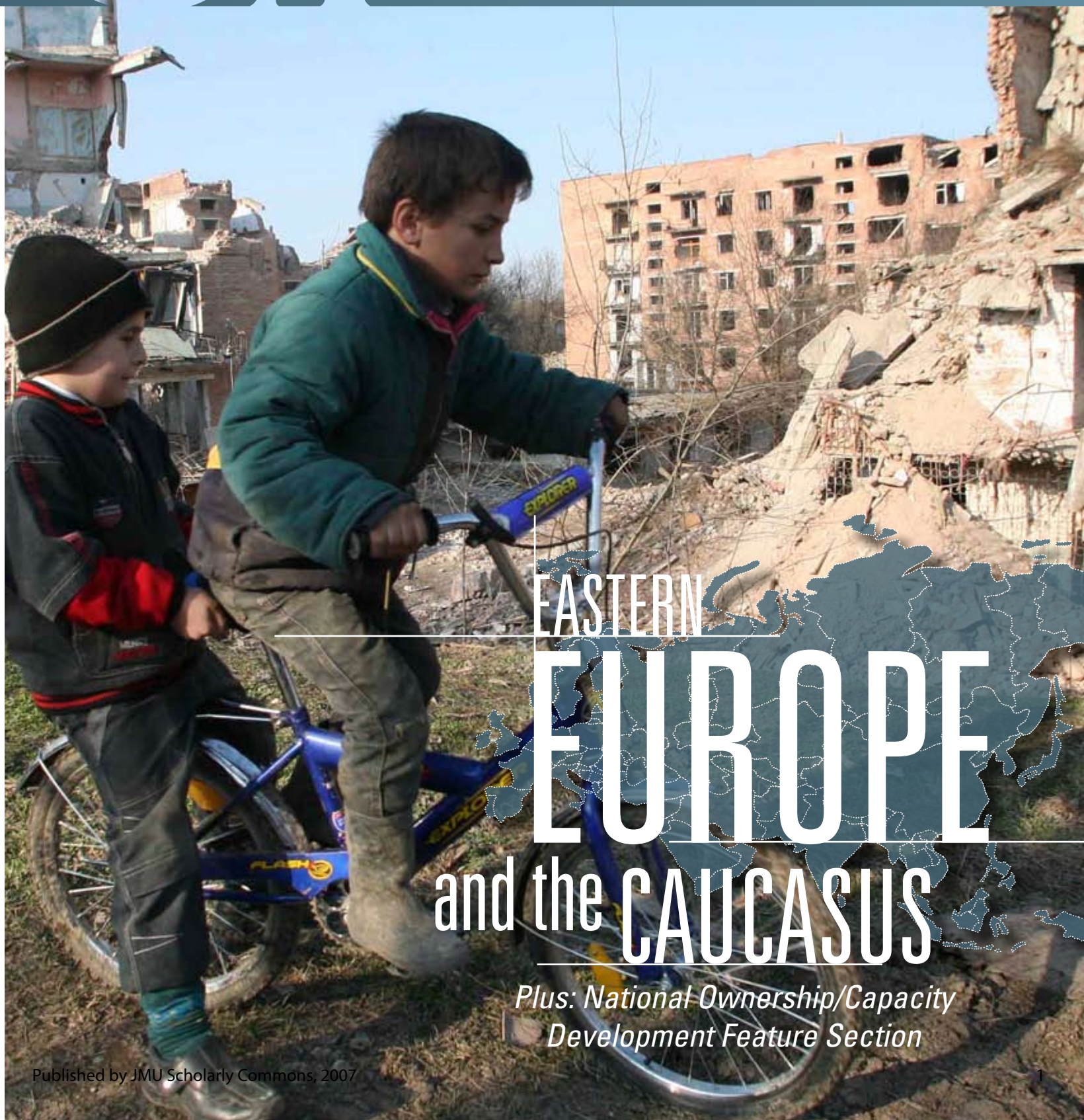

EASTERN EUROPE and the CAUCASUS

Plus: National Ownership/Capacity Development Feature Section

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editorial

Letters to the Editor

As an independent journal, we provide topics that stimulate conversations. We give the mine-action community a place to sound off. Every issue brings us rants and raves—happily, usually many more raves than rants. We're sharing some of them here.

I am writing to you in my capacity as Austcare's Mine Action Officer. I have just read with interest your article in the Winter 2006 edition of the *JMA,* "TheMine Action Express … or the Wreck of the '09." These indeed are the issues I,along with other mine-action practitioners, are having to tackle and it was very helpful to have you spell it all out so clearly.

– James Turton Mine Action Officer Austcare

Thanks for your recent piece on cluster munitions in Lebanon. We're finally beginning to make progress!

– Virgil O. Wiebe Director of Clinical Education
Associate Professor of Law, University of St. Thomas

I would like to express my deepest thanks to all of you … for publishing my "Unsung Hero" profile in the *Journal of Mine Action*. The article was written in a very interesting and touching manner. I received a lot of e-mails from many people who read the article, and this made me more motivated to do an excellent job. The MAIC's publications show the real risk, sweat, hope and goals of the mine-action community. You are so close to us, as if touching our shoulder in the field.

Attending the Senior Managers Training Course in Harrisonburg, Virginia, gave me very important knowledge and skills that I still use and share with my colleagues.

Once again, on behalf of Azerbaijan National Agency for Mine Action, I highly appreciate all of your efforts in mine action.

– Elnur Gasimov, TQA Team Leader, ANAMA

In the *Journal of Mine Action*, Issue 10.2/Winter 2006 on pages 40 to 43 you published the text on "Explosive Remnants of War in the Republic of Croatia" by Mr. Dražen Simunović but instead of his picture on the end of the text you put the picture of Mr. Nikola Gambiroza.

– Sandra Kuzmic, Organizational Affairs Adviser
CROMAC–Croatian Mine Action Centre

Editor's Note: We apologize for putting in the wrong photo for this article. We corrected it in the online edition as soon as we were alerted to the problem. The correct photo appears to the right.

The *JMA* staff also would like to draw our readers' attention to the profile of Cambodia, which appeared in Issue 10.2 online version of the journal only. Julien Chevillard, former Mine Action Project Manager for UNDP Cambodia, let us know there were several incorrect facts in the original version, and we have not only corrected the problems, but also greatly expanded the article. We wish to thank Mr. Chevillard and Mr. Steve Munroe for helping us correct this article. We encourage you to read the revised profile of Cambodia at http://snipurl.com/1g3ii.

If something we print begs for your comment, submit your own Letter to the Editor. Please keep your response short and to the point—200 words or so. Since we have limited space, we reserve the right to edit the comments to fit the space and have done so here. Send your letters to editormaic@gmail.com. Visit our online journal at http://maic.jmu.edu/journal/index/.

Capacity Building in Mine Action: Are We There Yet?

This article flags some of the major debates within the broader development literature and introduces concepts that might help to better define and identify what is meant by "capacity development."

by Olaf Juergensen [National Committee for Demining and Rehabilitation, Lebanon]

The mine-action industry has made major strides in supporting national efforts to gain ownership and capacity to manage local problems with mines and explosive remnants of war. For more than a decade, the international community has poured significant human and financial capital into developing local capacity to deal with the different problems the presence of landmines poses. So what have we learned as a global community of mine-action practitioners and advisers?

For quite some time now, we have divided our thinking and approach to mine action and capacity development into two operational realms. The first realm is the post-conflict theatre where humanitarian relief and infrastructure renewal require an emergency rapid response. Financial and political resources are quickly scrambled, often under the guise of a U.N. peacekeeping mission and all it entails. Capacity building in a war-torn society is seen as a third or fourth rank-order concern—the immediate concern is to provide the "space" for the processes of reconstruction and reconciliation to take root. The great obstacle during this fragile phase is the lack of personnel, institutions and time needed to reconstruct local capacity.

The second operational realm is capacity development in what have been termed more stable "development" contexts. This type of capacity development faces hurdles similar to those of post-conflict situations. In the normal transition of things, the United Nations Development Programme will partner with a local government to help establish long-range national capacity to handle the residual mine problems hampering reconstruction and mainstream development efforts. Presently UNDP has capacity support programmes in over 25 mine-affected countries.

At an operational level, the division between what we do in complex emergencies and what we do in "normal" development contexts holds some merit, but from a capacity-building perspective, we should ask ourselves if the gulf is really as wide as we think. The objectives of the institutions or the skills enhanced might have different applications in the different scenarios, but the processes of developing national capabilities do have commonalities that are worth exploring if the mine-action community is intent on learning from past successes and failures.

Mine action in general has benefited from adopting a "best practices" approach in many operational areas; however, for the "practice" of capacity development, we have no organized conceptual or technical body of work to draw upon. We do have a great deal of descriptive/historical information reporting quantifiable "outputs" achieved (e.g., national plans completed, standards established, the Information Management System for Mine Action operationalised, etc.), but we have scant work on the capacity-development outcomes of our work (direct and indirect) and the vitality of the institutions and systems established to help modernise and enhance national capacity to realise its ownership and leadership responsibilities.

Defining the Scope of Work

Any well-trained Operations Manager understands the need to do a reconnaissance on a minefield prior to throwing scarce resources at the problem. If done properly, and with application of the "toolbox" method,[1] the task will be done safely, expeditiously and economically. The context (topography, duration, cost, etc.) is skillfully calculated and start and end dates are established. The scope of the task is known.

Technically and methodologically, the mine-action industry has made tremendous progress over the past 10–15 years; today we are better at clearing land more quickly and cheaply. The reason for this is the considerable effort that has gone into trying to understand the nature and nuances of mine clearance and how to perfect it as a technique. Can the same be said of how we assess and develop national capacity?

Understandably, developing national capacity to lead and own the problem in many ways can be more difficult than removing mines from a stretch of road. As we well know when new demining techniques are developed and introduced into the field, geography matters. Not surprisingly, clearance techniques and procedures that work in Afghanistan might not always be transferable to Colombia; mine-risk education programmes can be limited by culture and values; and commitments to landmine survivors are beholden to leaderships and budgets. Anecdotally, none of this is new, but how do we make sense of these vagaries from a broader perspective?

The concepts of "capacity" and "capacity development" remain hazy. Perhaps this obscurity is why as a community we have become divided to the point where their definitions have become synonymous with erecting the five pillars of mine action.[2] Drawing on the emergent capacity-development literature, we find that concentrating solely on establishing organizations, constructing institutions and transferring skills might build capacity in the short term, but the pillars need to be rooted deeply if they are to remain relevant.[3,4] However, as the general capacity-development community recognized years ago, a focus solely on technical progress or systems creations misses the "softer" side of the process since technical advancements, networks and systems all need to be maintained and nurtured (at the minimum) and are thus dependent on nontechnical capabilities (relations, learning, coordination, etc.) that play a major role in determining the success and impact of a project.

> Drawing on the emergent capacity-development literature, we find that concentrating solely on establishing organizations, constructing institutions and transferring skills might build capacity in the short term, but the pillars need to be rooted deeply if they are to remain relevant.

Colombian Armed Forces and Police receive training from a member of the OAS-IADB. PHOTO COURTESY OF JUAN CARLOS RUAN.

Analogous to why operations departments undertake reconnaissance, there is more to capacity development than simply providing the tools to start activities. Indicators and benchmarks need to be established that reflect the human context (political-economic) in which things are to be enhanced. Meeting the responsibility of fielding a quality-assurance team, one that can ensure national standards are being applied, is not the same as recruiting and training the QA team and drafting national standards. In other words, a project output (QA team) does not operate in a vacuum and the institutional home (mine-action centre) and organizational setting (society) play the most significant roles in determining the real outcome and impact of the QA team. Measuring its performance, then, is tricky. Capacity might have been built and even unleashed but its potential not fully realised due to local circumstances (political, economic, staff turnover, etc.). So how do we define change, progress and even success?

Conceptual Markers

The current literature argues that capacity development is, first and foremost, a process that builds on the local context.[5,6,7] Thus, many practitioners and analysts have abandoned the term capacity building as they saw it denoting the construction of islands of excellence removed from broader reality. It is argued that capacity development should be measured in terms of outcomes and not merely in quantifiable outputs (e.g., number of managers trained, Geographic Information Systems courses attended, QA inspectors instructed, and so on). As we have indeed learned from national mine-risk education campaigns, accounting for the number of T-shirts does not accurately reflect the degree to which human behavior has changed.

Recently, it has been argued that the lens for analysis should include observations on the intersection of the institutional, individual and organisational environments in which the projects are set.[8] Better understanding relationships between these different fields of practice will provide the managers and Technical Advisors of capacity-development programmes a better perspective on what works, why it works and why it doesn't. This insight, which if measured and evaluated properly throughout the duration of a project's lifecycle, will also allow for innovation and broader understanding of the impact of mine action on national reconstruction (peace building) and development (governance) objectives.

Analyzing a cross-section of non-mine-action case studies provides further food for thought.[9] For example, robust institutions can be handcuffed by a lack of authority (political leadership or vague legal status) or highly trained individuals remain leaderless and thus their hard-earned technical skills remain idle. This raises the issue of scale, impact, sustainability and a raft of other terms that are bandied about in the development literature without much precision. Despite demonstrable progress being made on a case-by-case basis, there have been ebbs and flows to capacity development in mine action when viewed from a macro perspective. Are individual actors to blame? Economics? Politics? Donor interest? What are the cross-cutting dynamics at play?

A recent study released by the European Centre for Development Policy Management identified several useful elements to the concept of capacity, which provide a good framework for dealing with the messy reality in which capacity development takes place.[10] The study notes the importance of properly aligning the development of an institution or system within the national or regional context in which it is to function. But it also makes the important point that institutions grow and adapt to engage emerging, more complex realities than originally envisioned and therefore the job of learning (developing) is continual.[10] In other words, capacity is elusive and ephemeral—it is not only the ability to perform a function; it is seen as a latent potential that is hard to stimulate and map, given the number of outside forces that can affect its outcome. In a sense, it can be measured by looking at a combination of attributes (values, relationships, networks, systems, skills) that form a potential response to a development problem. The response to any problem will also be shaped by the degree to which an institution and its staff are empowered to act and apply their collective skills to solve new, and often more complex, problems.

Conclusion

Broadening the discourse on how we conceptualize, practice and, ultimately, report on capacity development activities is critical from an applied perspective. Moreover, it is a discussion that we as a community have not had in any meaningful or sustained way. Capacity building is forever being shaped by the urgency of time (Ottawa Convention[11]) and depletion of resources. Undoubtedly, the "five pillars" of mine action have served as a useful superstructure—and communication tool—for thinking about what we want to help build. But the dearth of discussion on how we conceptualize and actually develop national capacity limits the potential to learn, innovate and contribute to building meaningful and robust national capabilities that benefit a country beyond the niche confines of mine action.

ECDPM's study's conception is useful as it provides us with a more comprehensive view for designing, implementing or concluding a capacity-support project—irrespective of whether it is being undertaken in a fragile state or a stable middle-income country. Thinking more broadly—but systematically—about capacity development will allow us to be more flexible and innovative in our approaches. It will allow us as practitioners to speak a common language and use a common set of principles that ensure the results of our work add value to the society for which they are targeted. Mine action's strength has been its dogged technical focus on getting the mines out of the ground; it is exactly this type of determination that is now needed in our approach to capacity development. The focus, initially however, should be on surveying the field of capacity development as a methodology so we can better map and respond to the question, "Are we there yet?"

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Olaf Juergensen is the UNDP Chief Technical Advisor at the National Committee for Demining and Rehabilitation in Jordan. He was also the CTA to the National Demining Institute in Mozambique. Prior to joining UNDP he worked for the International Development Research Centre in Johannesburg and Ottawa where he focused on the issue of capacity development. He has a Ph.D. in geography from Queen's University, Canada.

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Mine-action Capacity Development at a Crossroads

Capacity development is a central part of sustainable mine action. As a concept, capacity development has evolved over time but even now there is not an agreed-upon definition. While the mine action sector has made progress in encouraging the development of national capacity in many countries, there is still much that can be done to promote strong, capable institutions—both within the mine-action field and beyond.

by Dennis Barlow and Daniele Ressler [Mine Action Information Center]

"I once knew someone who held a very passionate position on a certain issue," says Dennis Barlow, Mine Action Information Center Director. "After he moved laterally within his organization, his opinions changed radically. I asked a mutual friend what had happened to occasion such a change. He looked at me with one of those 'Are you for real?' looks, and said, 'What you see … depends on where you sit.'"

Capacity development is one of those topics that changes shape and form depending on one's perspective. And yet it is imperative that those of us involved in mine action and remediation of explosive remnants of war not only have a clear understanding of capacity development but also, by comprehending other points of view on the topic, derive a common approach to dealing with it.

What is Capacity Development?

It is difficult enough to define specific things (e.g., metal detectors) and processes (mine-risk education) within the multi-functional environment that makes up the realm of mine action and ERW, but dealing with a topic as politically and conceptually complex as capacity development is positively daunting.

We have noticed that in mine action/ERW development and funding circles, the term *capacity development* (and its precursor, *capacity building*) is as popular to use as *sustainability*, *good governance* and *transparency*. Unfortunately, capacity development is a widely used but not widely understood or agreed-upon term. It is treated as both a process and outcome, and it deals with both material applications (e.g., specific skills, knowledge, tasks) and human resources (e.g., ability, process, addressing the system within its environmental context).

The Organisation for Economic Co-operation and Development defines *capacity development* as "the process whereby people, organizations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time."[1] While descriptive, this concept is operationally too general to guide programs, standards and contracts.

We believe that the United Nations Development Programme is helpful in this regard when it observes that capacity is "the ability of individuals, organizations and societies to perform functions, solve problems, and set and achieve goals," and that "capacity development entails the sustainable creation, utilization and retention of that capacity, in order to reduce poverty, enhance self-reliance, and improve people's lives."[2]

Barakat and Chard, in *Third World Quarterly*, conclude that a review of the use of the term *capacity* gives the impression of "constantly shifting, unclear and contested definitions," and has "added to the confusion by masking contradictory aims under the banner of a common rhetoric."[3]

Capacity Development in the Mine-action Arena

Lest we appear churlish and unappreciative of efforts to come to grips with the term by the mine-action community in particular, we have observed that mine-action efforts have actually employed capacity-development techniques remarkably well and created models and approaches that the rest of the development community would do well to emulate**.**

In its beginnings, capacity building was seen as a technical process involving the transfer of knowledge about preferred concepts, such as certain organizational models or public-sector institution-building skills, from the global North to South.[1] Typically, the broader political and social context was not considered. Since the 1990s, understanding of capacity building has emphasized the importance of country ownership, leadership and the role of political and governance systems. Each country is expected to take responsibility and determine appropriate strategy and outcomes in partnerships with donors. The most recent change in terminology from *capacity building* to *capacity development* has reflected this shift to national ownership; rather than understanding capacity as "constructed" via externally derived models, it has been recognized that "capacity building would be ineffective so long as it was not part of an endogenous process of change, getting its main impulse from within."[4]

It is here that we believe mine-action programs and plans over the last decade have played a key role in the evolution of capacity development as a central element in advancing goals and objectives of countries at risk. We credit the emphasis on capacity building to donors and organizations such as the UNDP, the United Nations Mine Action Service, the European Union and the United States Department of State. For instance, in Quang Tri province of the Peoples' Republic of Vietnam, two national committees—the Women's Union and the Committee for the Care and Protection of Children—conducted a mine-risk education campaign assisted by James Madison University and sponsored by the United States Department of State, which made use of new software packages and computer skills.[5] Those capabilities became core competencies of both Vietnamese organizations after the initial mine-awareness campaign had concluded.

However, many of the efforts involved in capacity development remain tied to specific mine detection and transfers of technical skills, without trying to relate and integrate those capabilities into other segments of the host nation's development or infrastructure. Perhaps even worse is the myopia of some mine-action professionals and donors who do not understand that in a country at risk from many threats, fitting the capabilities developed for mine action to apply to other spheres of life is a measure of success and not failure.

Liebler and Ferri observe in a report for the United States Agency for International Development that "much of capacity building has been designed around specific projects that nongovernmental organizations are funded to implement with or for their international partners and donors. This "project-focused capacity building" stresses the building of capacities that will help protect the investment made (such as financial management), support the requirements of donors (such as monitoring and reporting) or help complete the project successfully (such as competencies in project planning and evaluation)."[4]

We believe these comments are germane to some in the mine-action/ERW community including donors, NGOs, Technical Advisors, and host-nation government agencies. Rather than seeing capacity-development efforts as a bridge to holistic societal development, some groups (for very valid concerns of control, management and responsibility) tend to keep certain key capabilities under their control so as not to "lose" them to other organizations. Donors and directors of national mine-action centers, in an effort to manage, monitor and measure applications that were attained after a hard-fought effort, may not be keen to see these applications and skills redirected elsewhere. This is perhaps the heart of the problem: How does one assure that a capability that has been developed by a small staff or national entity is not simply snatched from its "birth" organization?

Many mine-action programs now work to shift from technical skill transference to institutional reform and improved management in particular. This shift can be viewed as part of a long-term process that should result in increased sustainability and national ownership of any number of skills and capabilities. It is now up to the senior leadership of the major mine-action and ERW organizations, donors and decision-makers of the sovereign countries to facilitate rather than inhibit the application of advances in mine-action capacity development to other spheres of development and prosperity in the host country.

In this regard, the UNDP has developed strategies and documents related to capacity development: capacity assessment and diagnostics, knowledge services and learning, leadership development, institutional reform and change management, mutual-accountability mechanisms, multi-stakeholder engagement processes, and incentive systems.[2] The U.S. Department of State's Office of Weapons Removal and Abatement is also emphasizing the long-term sustainability and integration of capabilities developed as a result of mine-action programs.

Mine action is a challenge with an end in sight—mine-action programs will not continue indefinitely. The legacy of any mine-action program should be to strengthen and promote skills and institutions that can outlast the finite technical demining tasks. This long-term goal requires that attention be paid to assuring capacities are designed and sustained for a specific mine-action or ERW program but also applied to other challenges in the national or local context if their applications may be helpful. This situation is not one that will happen without deliberate analysis, nor will it likely happen with only one stakeholder "buy in." Its occurrence will depend on a concerted effort of all major organizations involved in mine-action and ERW programs.

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Dennis Barlow, as Director of the JMU MAIC since 1996, has participated in many key mine-action policy and operational initiatives. He is a retired U.S. Army Colonel who previously was Director of Humanitarian Policy in the Office of the Secretary of Defense and the first director of the Pentagon's Humanitarian Demining Task Force.

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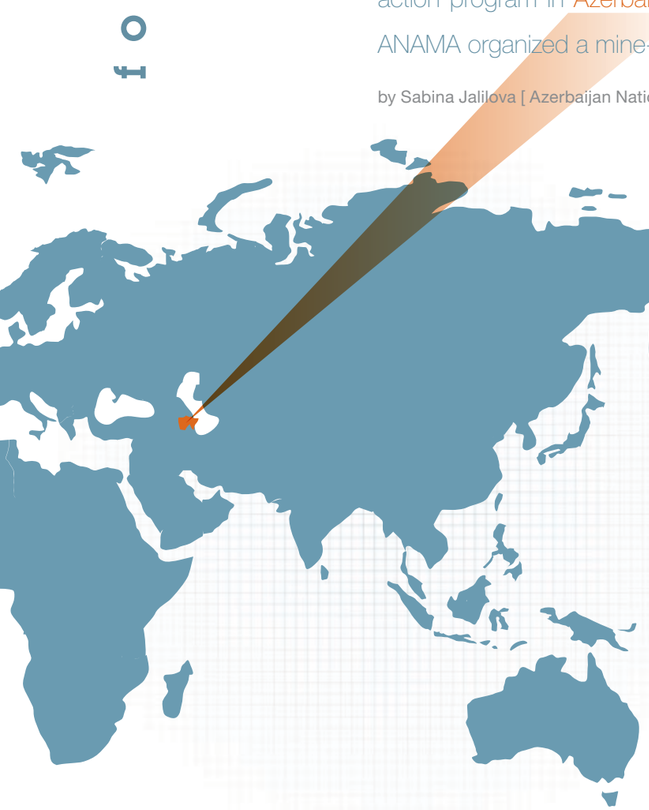
focus

Best Practice Strategy: Speak with One Voice

In this article, the Public Relations Officer of ANAMA discusses how successful communication with the public has been critical to the success of the mine-action program in Azerbaijan. As part of its public-relations efforts in 2006, ANAMA organized a mine-action workshop for local journalists.

by Sabina Jalilova [Azerbaijan National Agency for Mine Action]



The basis of all public relations is communication. Every organization, whether it be a for-profit business, not-for-profit organization, educational institution or government agency, depends on people. Their attitudes, attention, understanding and motivation can be critical to the success or failure of the organization or idea.

Public Relations at ANAMA

Public relations of the Azerbaijan National Agency for Mine Action is managed by the Public Relations Officer, whose principal objective is to ensure that information about agency activities and events is distributed appropriately to raise awareness. The PR Officer coordinates the information flow on every aspect of ANAMA's work, whether for an internal or external audience.

ANAMA's PR policy and procedures have been in place since 2003. They have significantly improved the agency's internal and external communication, raised public awareness and also improved the overall image of ANAMA. "Speak with one voice" is one of the key strategies of the ANAMA public-relations efforts. Everyone involved in ANAMA activities is provided with relevant guidelines to ensure this strategy is followed. The ANAMA staff is given guidance about how to perform and provide information about their individual work and ANAMA's general activities, making it easier for them to speak with one voice.

The PR Support Group of ANAMA is comprised of one representative from each department designated to assist in organizing and highlighting major events. Introducing the group to the media during a special event for journalists proved to be a time- and cost-effective way to present newsworthy story ideas for distribution to the media.

A Web site Management Committee has also been established. A roadmap was developed and introduced to regularly maintain and update ANAMA's Web site. As a result, this has improved the coordination and interaction between departments

ANAMA's publicity successes are well documented, including:

- 88 press releases distributed
- 60 articles and interviews issued in local media
- More than 30 media site-visits organized
- A number of interviews with the Director of ANAMA and TV show appearances organized
- More than 50 events received wide mass-media coverage

ANAMA PR Project: Workshop for Journalists

It should be mentioned that close cooperation with journalists is one of the main tenets of PR. In fact, PR professionals are significantly less successful if they don't develop good relationships with journalists. The days of mailing or e-mailing a news release are long past. Few in public relations are successful with that technique anymore.

Therefore, ANAMA, in close cooperation with the International Committee of the Red Cross and the Azerbaijan Campaign to Ban Landmines, held a workshop for local journalists to raise their awareness about the important role of the media can play in raising awareness to reduce the problems caused by mines and explosive remnants of war.[1]

ANAMA Director Mr. Nazim Ismaylov talks with local journalists
ALL PHOTOS COURTESY OF THE AZERBAIJAN RED CRESCENT SOCIETY

Mine action workshop for journalists

During the workshop, presentations were made on preventive mine action and mine-victim assistance, as well as on the International Standards[2] related to mines and ERW. Journalists also had an opportunity to witness mine clearance conducted by ANAMA, as well as to visit a mine-victim reintegration project in Azerbaijan and learn about vocational rehabilitation and an association of mine survivors.

Following the media workshop, Tofig Yusif, Chief Editor of Yeni Terter newspaper, said, "During this workshop I became aware that [the] mine problem is a serious problem for [the] civilian population and attention should be paid to this issue constantly. Apart from providing information to the public, which we did so far, we should educate people about safe behavior and how to be protected. We as journalists have a moral responsibility to support mine victims and therefore we have to present their problems to the society. As of today, I have decided that this issue should be regularly on the agenda of our newspaper bearing in mind the high level of risk existing in Terter region."[3]

Communication is Key

Creativity, initiative and the ability to communicate effectively are essential goals of ANAMA's public relations. One of the main challenges of the ANAMA PR professionals is not only to pass information to the mass media but also to raise awareness, disseminate safe behavior rules and protect people from the threat of mines and UXO. These endeavors are being undertaken in accordance with objectives of the government of Azerbaijan.

Timely information sharing and openness of the Agency to cooperation with media and other social institutions not only allows ANAMA to publicize its activities but also serves as a sign of transparency. Transparency, in turn, is crucial to developing and maintaining an ethical image of an organization.

In public-relations terms, ANAMA has ideally positioned itself to be viewed as an ethical organization striving for a better world. Other mine-action organizations can do the same by following these best practices.

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Sabina Jalilova has been working as the Public Relations Officer at the Azerbaijan National Agency for Mine Action since June 2006. From September 2005 to June 2006, she participated in an internship in the United Nations Office in Azerbaijan. During the internship, Sabina provided aid to the Communications Manager and the Assistant Librarian working with the Web Coordinator of the Department of Public Information Web site. She graduated from the Azerbaijan University of Languages with a bachelor's degree in 2003 and earned a master's degree in 2005 from the same university.

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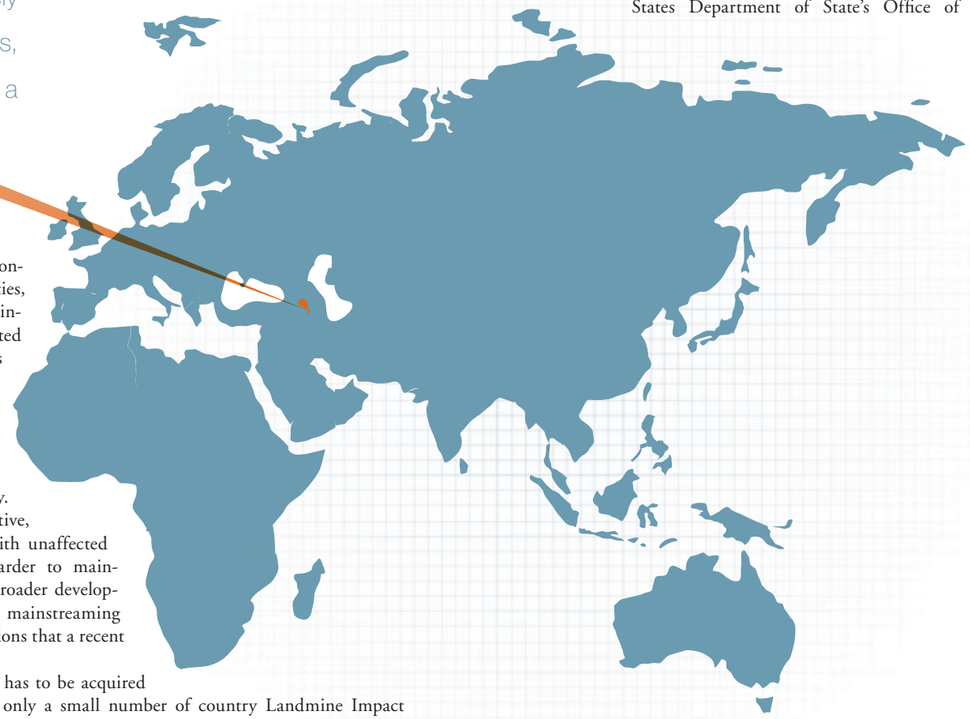
Joint Analysis of Landmine Impact and Human Development Surveys in Armenia

In Armenia, the UNDP implemented a Landmine Impact Survey as well as a Human Development Survey, although separately from each other. The authors, by linking the two data bodies, demonstrate new findings about mine-affected communities in a poverty-alleviation perspective.

by Aldo Benini and Charles Conley [Veterans for America]



An association between landmine/unexploded ordnance contamination and poverty is generally assumed and is often conspicuous and straightforward in anecdotal evidence such as victim case studies or community livelihood vignettes. Its strength and causal direction are more difficult to establish. With data from previous Landmine Impact Surveys,[1] it has been demonstrated that poverty, in terms of lack of livelihood alternatives to using polluted land, renders community adaptation more difficult; in contrast, externally created new alternatives may reduce contact with the explosive devices and thus the number of new incidents and victims. For example, affected communities in Thailand with more diversified financial services stood better chances of remaining entirely incident free than communities with no or such scant services.[2] While greater income growth and diversity plausibly help to reduce incidents, there is little knowledge of how local economic development ultimately contributes to the definitive resolution of the problem by accelerating the removal of explosive remnants of war.

Moreover, there may also be an indirect link between pre-war poverty levels and contamination. Terrain and accessibility may be the intervening variables. For example, communities in high-altitude, difficult-to-reach mountain areas may have been structurally poor for some time prior to the events causing the contamination. Later, during the conflict, their strategic location may have predisposed some of these communities for military uses, defended with minefields and littered with unexploded ordnance. After the conflict, the contamination makes them less amenable to reconstruction and poverty-alleviation programs than other post-conflict communities that are not contaminated and thus do not present the same kind of access and resource blockage problems.

The standard LIS methodology does little to shed light on the relationships between poverty and contamination, let alone on the question in which direction causal effects are stronger—from poverty to contamination or from contamination to poverty. The survey covers all suspected and confirmed affected communities, but collects no substantive information on non-suspected ones. As such, the LIS fails to support strict case-control analytic approaches. However, variation in impact severity can to a degree be used in studying the association with poverty. From a strategic perspective, the lack of comparison with unaffected communities makes it harder to mainstream mine action into broader development programming. Such mainstreaming is one of the recommendations that a recent LIS evaluation made.[3]

The poverty data itself has to be acquired from outside sources and only a small number of country Landmine Impact Surveys have been able to obtain useful data bodies in time to be considered in their analyses and reporting. Lebanon provides a first example. By fusing agricultural census data with LIS data, we were able to demonstrate that affected communities in the south, generally poorer and freed from hostilities later than other regions, tended to have higher active-land-use ratios while controlling for the agro-climatic ecology and landmine impact severity.[4] A plausible interpretation was that poverty and lack of alternatives obliged local residents to use land more extensively regardless of contamination.

In Vietnam, the LIS conducted in three central provinces obtained data from a poverty-mapping project of the International Food Policy Research Institute. Contrary to common wisdom, however, poverty was not found to be associated with higher victim numbers, except in certain mountainous areas.[4] A possible interpretation of this finding is that while collectively, at the commune level, the association between poverty and ERW victimization has weakened over time, individually it remains high, with poorer residents taking higher risks, particularly with the collection of scrap metal and explosives.

A further opportunity to relate LIS data to poverty information has presented itself in Armenia. It arose because the LIS implementing organization, the United Nations Development Programme was also conducting several interlinked surveys as part of efforts to help formulate national poverty-alleviation strategies. The particular attraction of this information within the LIS analysis is that it lets survey users compare the positions that affected and non-affected communities took on a number of development issues. Thus communities are not only seen as a problem to be fixed, but as a collection of human beings voicing their own priorities in the wider poverty-alleviation context.

The Armenia LIS

The European Union and the United States Department of State's Office of Weapons Removal and Abatement funded the 2004–2005 LIS in Armenia, and the UNDP Armenia Humanitarian Demining Project was responsible for implementing it. The funds were channeled through RONCO and covered the cost of technical support activities. The Vietnam Veterans of America Foundation (now Veterans for America) provided technical expertise. The U.N. Mine Action Service has since certified the survey.[5]

The Landmine Impact Survey identified 60 impacted communities within the internationally recognized borders of Armenia. These areas were located in five of the 11 provinces and in areas where Armenia borders Azerbaijan. In the 60 communities, 14 persons were killed or injured in the two years prior to the survey. Based on the configuration of recent victims, impacted resources and contaminating munitions, the survey classified four communities as high-impact, 31 as medium-impact and 25 as low-impact.

Affected Communities and the Human Development Survey

Officially, the last known emplacement of landmines on Armenian soil took place in 1994. UXO from the conflict with the Soviet Union still dot the landscape. In a small number of communities surveyed, key informants related instances of local people planting mines as recently as 2003. The impacted population has long been aware of the dangers of UXO and landmines, giving the people time to adapt. Proof of this adaptation is found in the reduced number of mine and UXO victims.

In LIS countries with several hundred affected communities, it is feasible to relate the degree of community adaptation, indexed by the ability to avoid incidents, to various social and contamination factors. In Armenia, with only 60 surveyed communities found to be affected, such effects cannot be reliably estimated.

However, almost half of the 60 affected communities were sampled during the surveys that the government of Armenia and UNDP conducted in 2002 and 2003, under the designation of the National Human Development Survey. The NHDS comprised interrelated community, family and family-member surveys, with the ultimate goal of estimating national and regional poverty levels. Included in the questionnaires were a considerable number of items concerning facilities and service provision, importance rankings for development issues, as well as demographic changes.

Ironically, although both the Armenia National Human Development Survey and the LIS were executed by the UNDP, the two survey staffs, headquartered in different towns, were not aware of each other's existence and purposes. By serendipity, Vietnam Veterans of America Foundation became aware of the NHDS rather late in the LIS data collection phase and asked the LIS staff to obtain copies of the NHDS data. Neither survey had been designed in conjunction with the other. In particular, the NHDS community and household samples were not stratified on landmine/UXO presence. The community gazetteers used by the two surveys were not identical and the overlap between the two sets of surveyed communities could only be established approximately. Moreover, the NHDS was designed in the tradition of World Bank/UNDP-sponsored Living Standards Measurement Surveys[6] with a focus on sample surveys of household behavior rather than community surveys. It was therefore rather fortunate that the two survey data bodies could be linked.

Poverty Differences

The overlap between LIS and NHDS community samples permits comparisons between mine-affected communities and non-affected ones on a small number of pov-

Figure 1: Political map of Armenia showing impact reas near borders.

INDICATOR	LANDMINE-AFFECTED	NOT AFFECTED	IS THE DIFFERENCE STATISTICALLY SIGNIFICANT?
Communities compared	26	17	
Population (mean)	1,006	1,1557	n.s.
Distance from border (mean)	3.0 km	3.9 km	[n.a.; cut-off distance]
[Population-weighted means:]			
Very poor households (as fraction of all households, estimated by community leaders)	25%	18%	Affected communities have more very poor households, p = 0.07
Landless households (as fraction of all households)	21%	13%	n.s.
Out-migration (during 2002, as percent of population)	5%	1%	n.s.
Services and facilities score	0.66	0.88	n.s.
Industrial enterprises per 1,000 residents	0.42	1.10	Affected communities have fewer enterprises, p = 0.07
Industrial employees per 1,000 residents	10.52	14.69	Affected communities have fewer employees, p = 0.08

Table 1: Shows indicators and affected and non-affected communities and impacts of those indicators and whether it is statistically significant.

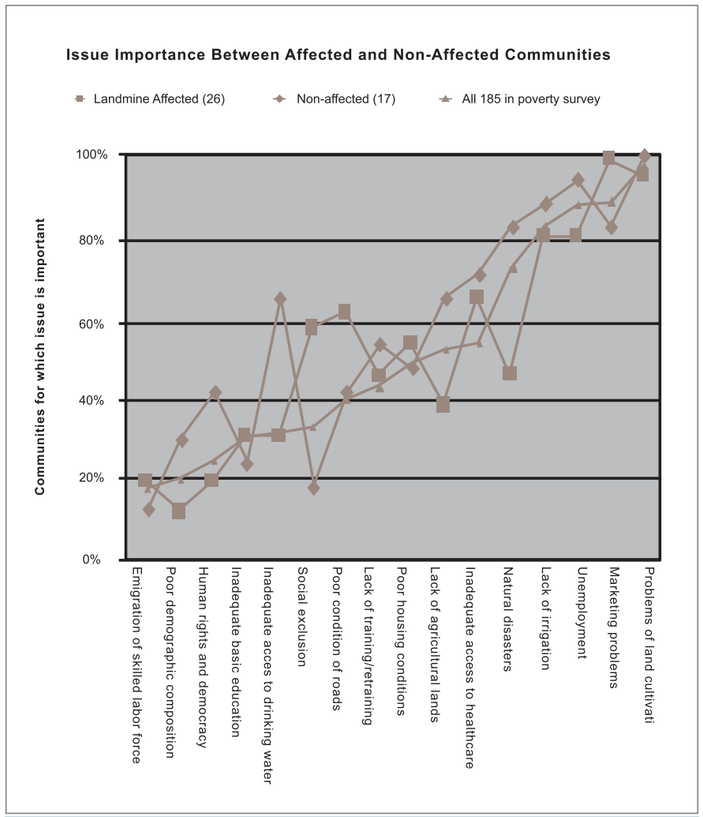


Figure 2: Line graph of affected and non-affected communities and proximity to the border.
ALL GRAPHICS COURTESY OF THE AUTHORS.

erty indicators. These comparisons have to be taken with caution. Statistical tests for differences are valid to a degree only because the affected communities with poverty data were supplied by two NHDS samples—a probability sample of 170 rural communities (nine affected communities) and a sample of the 100 communities that national experts had designated as the poorest communities. This latter survey supplied poverty information on 18 landmine-affected communities; the fact that the surveyors aimed the sampling design at the poorest communities may induce upward bias for the poverty estimates of the 27 affected communities as a whole.

For better comparability, Table 1 contrasts affected and non-affected communities from similar environments—from the five provinces with landmine/UXO contamination and within these, only communities close to international borders. "Close to borders" is defined as being no farther away from the nearest border than 6,470 meters (four miles), the maximum distance for the affected communities also found in the NHDS samples.

At first sight, non-affected communities fare better on poverty and institutional indicators; however, tests suited for small samples reveal they are significantly different from their affected neighbors only in the levels of extreme poverty and industrial employment.[7] The service and facilities score is based on the presence or absence of 10 different institutional features that set communities apart from one another. These features include industries, paved access roads, post

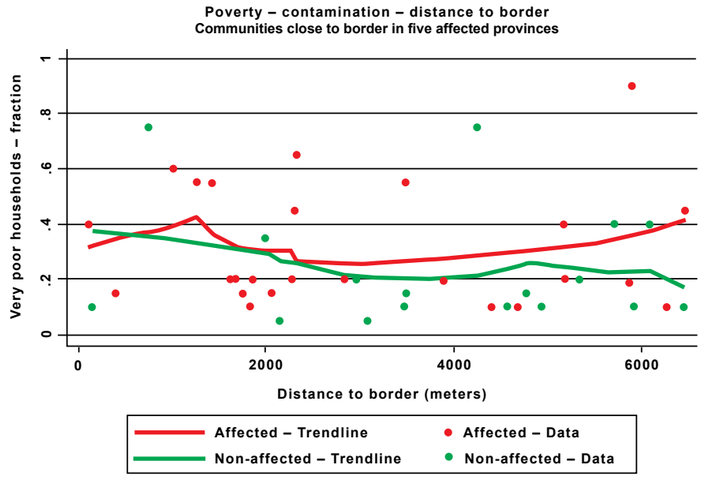


Figure 3: Graph of poverty rates and how connected to land-mine affected regions.

ISSUE	LANDMINE-AFFECTED (26)	NON-AFFECTED (17)	ALL 185 IN POVERTY SURVEY
Social exclusion	58%	18%	33%
Condition of roads	62%	41%	40%
Marketing	100%	82%	89%
Agricultural lands	38%	65%	52%
Natural disasters	46%	82%	72%
Drinking water	31%	65%	32%

Table 2: Percentages of importance / concern affected and non-affected individuals placed upon certain issues. Shows the percentages of people interviewed and what percentage viewed a topic of interest.

offices, kindergartens, secondary schools, outpatient health care facilities, pharmacies, cultural centers, telephone services and a centralized drinking water supply.

As the following graph makes clear, the claim of affected communities suffering more severe poverty is due essentially to the high density of communities relatively close to the border (three kilometers [about two miles] or less) that reported 20 percent or more of their families as "very poor."[8]

Whether these communities faced poverty prior to the war (because they were at higher altitudes, closer to the mountain ridges that demarcate Armenia from surrounding countries) or whether their exposure to hostilities in addition to the landmine and UXO contamination exacerbated poverty in the area is impossible to establish with the extant survey data. But the association between contamination and poverty is strong enough to suggest that appropriate mine-action strategies should be closely integrated with wider poverty-alleviation plans.

Importance of Development Issues

Some of these wider concerns stem from the importance that landmine-affected and non-affected communities attach to a variety of development issues rated in the NHDS. In Figure 3 the percentage of communities that considered an issue important is shown for landmine-affected and non-affected communities close to the border in the contaminated provinces. Issues are arranged by the importance they registered within the entire 185-community samples accessible to this analysis.

Overall, the importance profile among mine-affected communities and non-affected communities was similar. Some exceptions, however, are significant:

- Mine-affected communities are more isolated. They emphasize social exclusion, poor roads and marketing problems as important issues more often than other communities. It is noteworthy that the greater importance given to social exclusion and road access persists even when surveyors control for population size (larger communities are less isolated), distance from the border (no effect) and extreme poverty (no effect).
- Mine-affected communities complain significantly less about lack of agricultural land than their mine-free neighbors do in affected provinces and areas close to the border. This may seem paradoxical. In many cases, however, agricultural land to which landmines and UXO are hampering access forms part of restricted military zones. The local community may not think of these areas as accessible and therefore may not formulate the problem as lack of a particular type of land.
- Fewer mine-affected communities than was expected identified natural disasters as an important issue. Drinking water is far less important an issue than among the 17 non-affected communities in the same zone but has the same importance as in the large sample. These differences cannot be explained with the available data, as shown in Table 2.

The greater emphasis on isolation and the somewhat surprising de-emphasis of agricultural land may suggest that, given limited development budgets, for many of the landmine-affected communities, clearance may not be as productive as other rehabilitation and development investments. Their relative lag in industrial employment appears to reinforce this conclusion.

Conclusion

The findings of the Armenia LIS, as far as they resulted from the analysis conjointly with human development survey data, warrant a substantive as well as a methodological conclusion. Substantively, poverty-alleviation policies and humanitarian mine-action strategies should be seen as mutually dependent. This dependency, however, is nuanced and cannot be thought of as a simple linear association between contamination and poverty or poverty alleviation and ERW mitigation. While both aim to inform national strategies, the suitability of particular project types for local community development has to be assessed by looking at several information bodies and by actively involving the affected populations. The LIS alone cannot establish the priority of mine-action

activities within the total reconstruction and development effort; living standards and human development surveys are not capable of rating the severity of the local landmine and UXO impacts. It is their combination with participatory methods that leads to better insights and policies.

This last remark hints at methodological practices desirable on both the LIS and poverty-research sides. The LIS has benefited from the discipline of using standardized community gazetteers and managing its data in a global information system framework that links up with other spatially denominated data bodies—a practice yet to be widely adopted in the sample-survey-based tradition of poverty research. Conversely, in order to release the constraints of "selecting on the dependent variable" (i.e., collecting data on affected communities only), LIS implementers need to reach out to institutions holding data on both affected and non-affected communities more aggressively and earlier, starting in the survey setup phase. And both survey traditions can benefit enormously from participatory assessments that elicit the voice of local communities.[9]

The Armenia LIS and human-development surveys, while planned and conducted separately, offer a glimpse of the potentials of mainstreamed mine action when affected communities are looked at through both prisms simultaneously.

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Aldo Benini has a dual career in rural development for developing countries and in humanitarian action. He is the author of several computer simulations and studies in humanitarian action. In recent years, he has worked with the Veterans for America (formerly the Vietnam Veterans of America Foundation), coordinating the social science aspects of the Global Landmine Survey.

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Clearing the Way in Azerbaijan

The expansion of clearance activities in Azerbaijan has been largely due to the creation of an Emergency Response Team and the implementation of new tools. Thanks to these additions, ANAMA has been able to respond quickly to requests for clearance in residential areas and in the field.

by Samir Poladov [Azerbaijan National Agency for Mine Action]

ANAMA continuously receives requests from affected communities as well as humanitarian aid organizations for clearance of houses from mines and unexploded ordnance. Due to the absence of a specialized team able to react quickly and eliminate such problems, a limited amount of explosive ordnance disposal tasks were dealt with until late 2005, when a 12-man ANAMA Emergency Response Team was established. The U.S. European Command and ArmorGroup EOD Specialists trained the team. During this training, basic principles of booby-trap and house-clearance operations were covered. Since completion of its training, the ERT has been actively deployed to five war-affected districts of Azerbaijan to perform house-clearance operations.

Residential Area Clearance

Initially, 95 houses in Yukhari and Ashagi Kurdmahmudli villages of Fizuli region that were requested by Norwegian Refugee Council for further reconstruction activities were cleared of explosive remnants of war. This operation allowed reconstruction of houses for more than 100 local families, who then could live free from the threat of explosive devices. Besides this operation, ANAMA continues to react to a number of requests for the removal of UXO fired during the war and lodged in the basements of houses, in the walls or in the adjacent yards. Normally, clearance of one house takes about three working days. House-clearance operations are very labor-intensive. The majority of UXO is found subsurface, which requires excavation efforts sometimes to the depth of five meters (16.4 feet).

Clearance of residential areas is also complicated by the large amounts of metal contamination that slow progress due to the high

A rocket hit the wall of this house and lodged underneath the bedroom.
ALL PHOTOS COURTESY OF ANAMA

UXO uncovered inside a house to the depth of five meters.

Models of machines	Date of deployment	Total operational hours	Total period of exploitation (months/working days)	Area cleared (sq.m)	Total fuel consumption (metric tons)	Missed working days	Exploitation expenses for the machine (AZN)[1]	Fuel cost per sq.m. cleared (AZN)[1]	Total cost per sq.m. cleared (AZN)[1]
Bozena-4 (1)	09/2004	2,100	28 / 448	1,746,384	17	28	77,353	0.0025	0.044
Bozena-4 (2)	05/2006	556	8 / 128	488,800	4.5	5	22,542	0.0033	0.046
Bozena-5	06/2005	1,020	19 / 304	1,035,845	18	100	66,321	0.0055	0.064
MV-4	09/2006	384	4 / 64	61,500	1.8	31	5,650	0.010	0.091
Rhino	09/2005	300	16 / 256	237,600	23.8	200	58,427	0.03	0.245

Table 1: Comparative analysis of mechanical-demining machines.

number of false signals. During clearance operations, local authorities and police help evacuate the inhabitants to ensure their safety. Establishment of the Emergency Response Team has allowed ANAMA to respond more effectively to requests from affected families and local authorities. All those who benefited from the project had been living with explosive devices in their houses or yards for more than 12 years. In one case, a man and his family had left their house after the war and believed they would never be able to come back. This family returned to their village immediately after their house was cleared. The presence of explosive devices in yards has also prevented locals from cultivating their land. House clearance was quite beneficial in terms of socioeconomic impact on affected families as well as their psychological rehabilitation after years spent with fear of unexploded ordnance.

Removing subsurface UXO from house yards.

High-priority Clearance

Besides house-clearance operations, ANAMA is currently implementing a demining project in support of governmental initiatives to repatriate internally displaced persons. Last year ANAMA signed a contract with the Social Development Fund for IDPs concerning clearance of 19 million square meters (4,695 acres) of suspected mined area in Zobjug village, Fizuli region. This project is a high priority for the government, as cleared land will be used to construct a huge settlement that will allow more than 2,000 displaced families to leave temporary residences in tent camps and move to Zobjug. The duration of clearance for the project is projected to be 19 months.

Since the beginning of the project, 53 deminers, 17 mine-detection dogs and five mechanical demining machines have been involved in operations. This mined area has been identified by General Survey and Landmine Impact Survey. Several mine incidents have occurred in the northern part of the area; however, most of the land is classified as a low-threat, suspected anti-tank mined area. In order to ensure operations are conducted in the most efficient manner, ANAMA has conducted a field test of various clearance methods and developed a new system where all three tools are integrated in a most time- and cost-effective manner. The system stipulates 100-percent clearance where demining machines cut lanes (every 10–15 meters [32–50 feet]) with a subsequent quality-assurance check by dogs or magnetic locators in between the lanes (see photo X). The Foerster magnetic locator with four probe attachments, known as the FEREX 4.032 DLG, is continuously used for clearance of Zobjug area. This tool continues to show excellent results—daily productivity of the locator can reach 15,000 square meters (3.7 acres). As a result of the employment of a new area-reduction methodology, overall productivity at the Zobjug site has reached approximately one million square meters (247 acres) per month.

Based on past experience with demining machines in Azerbaijan, ANAMA mechanical demining specialists completed a comparative analysis of the machines' performance. Table 1 reflects summary results of the analysis undertaken.

Conclusion

Following the war, hundreds of Azeri families were unable to return home due to mine and UXO contaminations in residential areas. New clearance projects from ANAMA, however, have helped make Azerbaijan safer by eliminating the threat of UXO and landmines from affected houses, yards and villages. A combination of technology and human commitment has been necessary for the successful clearance of residential areas and the safe return of displaced families.

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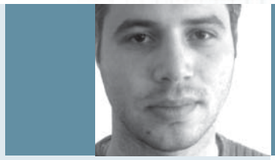

Samir Poladov holds a bachelor's degree in international relations and international law. He began working with ANAMA as an interpreter during its establishment in 1999. After holding several other positions, he became Acting Operations Manager of ANAMA in October 2006. In this capacity, Poladov is responsible for planning, tasking, coordination and control of all survey and clearance operations within the program.

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New Approaches and Strategies for MRE in Azerbaijan

By changing its approach, the Azerbaijan National Agency for Mine Action has been able to achieve much success in its mine-risk education program. As Head of the MRE Department for ANAMA, Musa Jalalov describes the new steps being taken in Azerbaijan to educate the public and involve the community in mine action.

by Musa Jalalov [Azerbaijan National Agency for Mine Action]

Altogether, new initiatives, approaches and precedents are what make up the style of the Azerbaijan National Agency for Mine Action's Mine Risk Education Team. Over the years, the ANAMA MRE Team has become one of the most progressive MRE programs because of its initiatives. For example, the signing of the Tripartite Memorandum of Understanding between the Minister of Education, the UNICEF/Azerbaijan Country Office Head and the ANAMA Director allowed the integration of MRE into the school curricula and formed community-based MRE committees in targeted districts that are currently acting as volunteer representatives of ANAMA in front close and bordering areas.[1]

Integration between different aspects of mine action in Azerbaijan can be seen as another initiative, and this year was no exception. As part of the MRE School Programme, ANAMA conducted 13 successful MRE train-the-trainer programs for 200 teachers at 100 schools, sponsored by UNICEF, the United States European Command and ANAMA. The ANAMA MRE Team together with the Ministry of Education organised and supported the process technically and ANAMA/UNICEF Master Trainers executed the trainings.

A unique aspect of the trainings was that they were monitored directly by donor organisations' MRE experts and thus emphasized a new approach in the implementation of MRE programmes in Azerbaijan.

MRE class for the 6th graders.
All photos courtesy of ANAMA MRE Team

Benefits of Integrating MRE into School Curricula

When MRE is integrated into the curriculum of schools, not only does financial support from the government increase for MRE activities, but also the importance of mine-clearance issues among the population rises. Therefore, ANAMA recommends this initiative be considered a priority task for MRE programme implementers in any country.

Currently, 1,520 teachers at 790 schools teach the MRE course in Azerbaijan, reaching 32,500 students. The Ministry of Education pays the expenses for the training, and the heads of district education departments are responsible for supervising the classes. The responsibility of teachers and heads of schools increases and thus the attitude towards MRE changes. For the teachers and community leaders it becomes a humanitarian task, or, rather, a noble duty which they perform in order to help and protect their communities and fellow citizens.

Since integrating MRE into schools, students have become more sensitive to the problem. After being taught MRE, they begin to inform the authorities and their teachers when they find mines, unexploded ordnance and unknown objects and they share where these items were found.

Function of MRE Committees

Another phase or a "core competency" of the ANAMA programme is the establishment of community-based MRE committees in 60 villages and settlements, welcomed by local communities. All activities of these committees are performed by volunteers who do not receive financial support from ANAMA for their generous work. They report monthly to the district MRE coordinators, who are appointed by the heads of district executive authority. ANAMA headquarters, in turn, receives reports on a monthly basis. This structure works and has been accepted by all targeted community representatives. ANAMA provides them with MRE materials when there is a need.

ANAMA is using new communication tools, which we think can be of great help in countries that also have mine/UXO-contamination problems. We have established a "hotline" by simply adding the office and mobile phone numbers of the national and regional ANAMA offices to the bottom of posters and billboards erected in, around or close to contaminated areas. The posters have helped people become more informed. People now understand the real danger posed by mines and UXO and actively inform ANAMA deminers about what they encounter.

The role of ANAMA implementing partners—Relief Azerbaijan, the International Eurasia Press Fund or the teams working for ANAMA to execute MRE activities—is large. We have a stable MRE implementing partner capacity that helps various types of educational/promotional tasks become realised. MRE is delivered when the clearance operations first begin or when clearance is complete and the ceremony to hand over the cleared land to its owners is held.

ANAMA Director Nazim Ismaylov has signed a special order regarding the deminers' own role in MRE. The order requires the field staff members to include MRE in their monthly activities along with their normal duties, particularly when outside conditions (i.e., rain, snow, wet soil) prevent demining operations. The deminers visit farm workers, schoolchildren or civilians in public places and hold MRE discussions and provide them with MRE materials.

The ANAMA MRE team has good relations with national and international organisations such as People to People International, UNICEF, the International Committee of the Red Cross and the Azerbaijan Red Crescent Society. Close cooperation with PTPI provided funds for our programme which were used to produce promotional materials (pens and stickers) that had safe behaviour messages written on them. The materials are an effective means of communicating the MRE messages during trainings for different categories of populations, especially for children.

As an experienced MRE team, ANAMA organises and implements various types of projects among schoolchildren in contaminated communities. For example, a painting contest project, funded by UNICEF, was very successful in raising students' interest in mine action. They learned about safe behaviour rules and formed a hatred of mines/UXO and of the war itself. The result of the contest showed that, as in all suffering children, the Azeri kids also want to strive for and live in peace. They do not want to be killed, disgraced or maimed by the menace of war; they want to create and develop friendly relations with the other children of the world.

Application of these new promotional strategies has been successful for the MRE program. The number of mine/UXO incidents/accidents has decreased and the citizens of Azerbaijan have become more sensitive to landmines and the danger they present.

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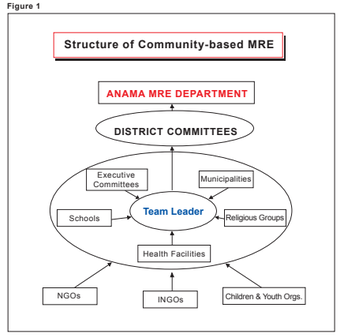
Figure 1



Structure of Community-based MRE
Graphic by MAIC

Winners of the Painting Contest received prizes.

Musa Jalalov is currently the Manager of the MRE Department for ANAMA. He is the author of textbooks/manuals for children and teachers as well as several articles. He has volunteered for several international organisations and has participated in many seminars and workshops. In 1982 he began working as an English and German teacher until he was promoted to the position of school director. He graduated from the university in Baku.

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Survey Helps ANAMA Realize New MVA Projects

Following a Mine Survivors Needs Assessment Survey in 2004,[1] the Azerbaijan National Agency for Mine Action and several nongovernmental organizations are working closely to bring victim assistance to mine and unexploded ordnance survivors throughout Azerbaijan. Since 2005, victim assistance in Azerbaijan has included five needs-based projects, as well as individual assistance provided to survivors, such as treatment sponsorship and wheelchair provision.

by Dr. Rauf Mamedov [Azerbaijan National Agency for Mine Action]

The new ANAMA database was created as a result of the Mine Survivors Needs Assessment Survey in 2004 and serves as a reliable and useful source of information on mine/UXO survivors' needs. It has proven itself with a number of successful pilot projects, which are now being realized and put into practice under the leadership of ANAMA.

Under the project, researchers have interviewed 1,883 mine survivors living in 65 areas of Azerbaijan about their needs. A special questionnaire form, created by ANAMA specialists, reflects various needs of victims in the following areas: medical care, economic and educational assistance, physical and professional rehabilitation, psychosocial support, suitable sports and others. Using the newly created database helped ANAMA recognize the particular needs of survivors; therefore, it has become easier to plan and realize new projects.

Recent VA Projects in Azerbaijan

Organization of summer camps. One of the first projects in the field of mine-victim assistance was the project "Organization of Summer Camps" for injured children and children from mine-victims' families. This project started in 2005 in cooperation with UNICEF, the Ministry of Youth and Sports and the United States organization Right to Play. One hundred twenty children from war-affected and borderline districts spent their rest and leisure time over a two-month summer break at a boarding school in the Geranboy district. The children enjoyed relaxation and fun activities while staying at the school.

At the beginning of 2006, four more projects began. National NGOs, which are active participants of the ANAMA MVA Working Group and given grants by ANAMA through the bidding process, were responsible for implementing all projects.

Organization of sanatorium treatment. The project with the NGO Shefali Eller ("Healing Hands" in English) on "Organization of Sanatorium Treatment" for 120 mine survivors, was successfully completed recently in the Mardakan settlement (one of the suburbs of Baku), in a boarding house sublet to the Ministry of Labor and Social Protection.

This MVA project, sponsored by the European Commission, is actually the first project ANAMA has implemented in cooperation with local NGOs. Mine survivors are delivered from their residences to a boarding house where they rest and receive medical care, mostly physical-therapy treatment, and then are brought back to their residences. The majority of survivors express their gratitude for the organization of such services; they also emphasize the usefulness of the treatments and their hope that they will continue to receive this and other services. In light of this positive response, ANAMA intends to continue implementation of such projects in the future.

Establishment of Mine Victims Association. The NGO International Eurasia Press Fund initiated the project to establish the Mine Victims Association in the Terter district, which is still ongoing. The U.S. Department of State's Office of Weapons Removal and Abatement is sponsoring this project for a period of three months.

The project's goal is to mobilize internal resources of the community through the establishment of the Mine Victims Association to meet survivors' needs in medical care, physical and psychological rehabilitation, education, social and vocational adaptation, economical assistance and financial support. The sustainability of this project will strengthen the community's capability to solve problems they face and improve civil society. The skeleton of the organization consists of 10 mine survivors (in total, there are about 230 mine survivors in the Terter district); however, the goal of the project is to expand the activities of the association to a national level.

Mine survivors receive a medicinal bath (right) and electroencephalography (left).
ALL PHOTOS COURTESY OF ANAMA

Family members work on tailoring (left) and a finished carpet created by mine victims and their families (right).

Revision of disability degrees. In August 2006, two projects started at once, the Revision of Disability Degrees and Integration of Mine Survivors into Society through Vocational Rehabilitation in Ganja Regional Resource Centre. The European Commission sponsors both projects with additional support from the United Nations Development Programme. The project Revision of Disability Degrees is being conducted by two NGOs, Dirchelish ("Revival" in English) and Protection of Human Rights.

Of 1,883 mine survivors interviewed during the Needs Assessment Survey in 2004, 400 persons expressed the need for a review of their disability status. It is crucial for many of them because:

- In many cases, disability pension is a substantial part of family income.
- Official recognition of disability opens doors to other opportunities in social care.
- Submission of documents to respective commissions is a time-consuming and complicated issue for disabled and needy people.

As a country in transition, the population of Azerbaijan is experiencing some adjustments in social life that are not always positive. The Needs Assessment Survey reflected that some people with disability status have some unresolved social issues largely due to the current level of family income and lack of social services, including peer support systems. Some of the issues expressed included lack of documentation at the time of injury and bias against disabled people on the part of government employees providing care. Consequently, ANAMA decided to provide a solution to these problems, to find and eliminate reasons for social tension and discontent among mine survivors. As a result of the Revision of Disability Degrees, the following will be achieved:

1. Strengthening mine survivors' social protection
2. Growth of real income of families over their lifetimes
3. Acquisition of knowledge on mine survivors' rights and opportunities through the network
4. Increased care by society toward the problems of disabled people and opportunities for the disabled to be integrated into society
5. Participation of mine survivors in mine-risk education delivery and training
6. Acquisition of real knowledge about implications of current legislation and recommendations developed

Vocational rehabilitation in Ganja. The project called "Integration of Mine Survivors into Society through Vocational Rehabilitation in Ganja Regional Resource Centre" is implemented by the NGO Ojag ("Fire" in English) from Ganja city. In this project, mine survivors will learn new professions. The ultimate goal of the project is to integrate mine survivors into society through vocational rehabilitation and facilitate income-generation for their families. With this goal in mind, 20–25 mine victims—either disabled people or their family members—are trained in carpet weaving and tailoring over a period of four months.

Successful trainees are provided equipment and materials for self-employment and self-sufficiency. The materials are purchased with funds received for carpets and clothes the trainees have made and sold during special events arranged for donors and other interested parties.

Individual Assistance

In addition to carrying out projects, ANAMA also provides individual help to especially disadvantaged mine survivors. At the given stage of national agency activity, this help may include sponsoring surgical treatment of survivors and provision of wheelchairs to them.

ANAMA helps survivors recover their self-sufficiency.

There is work on new MVA projects in such fields as providing ophthalmologic care to all identified mine survivors in the country who need it (about 433 people), providing microcredit loans, creating collective farms and other agricultural opportunities, etc. Besides these, ANAMA, in collaboration with foreign partners, made it possible to share experiences obtained in this field. These experiences include visits of professionals working in the sphere of MVA as well as mine survivors themselves visiting other countries and receiving some treatment there. The main purpose is to increase knowledge of MVA specialists and to increase access for intercommunication of mine survivors.

An example of individual MVA can be seen in the case of assistance to mine survivor Mr. Elman Aliyev. With the assistance of the government of Slovenia and support from the Consulate of the Republic of Slovenia in Azerbaijan, Mr. Aliyev, a landmine survivor from Azerbaijan, will undergo rehabilitation treatment at the Institute for Rehabilitation, Republic of Slovenia.

Thanks to the financial support of ANAMA, Mr. Rashid Veliyev, who suffered an injury from an anti-tank mine, had two operations—above-the-elbow resurgery and extraction of a fragment from his right eye.]

Mr. Aliyev will receive a prosthesis and complete rehabilitation treatment through support of International Trust Fund for Demining and Mine Victims Assistance and IR-RS. Sponsors for the initiative are a number of local and international organizations in Azerbaijan.

Conclusion

Researching and recording the needs of mine and UXO survivors has helped ANAMA to plan, implement and coordinate several new projects in the field of mine victim assistance. By giving the Azeri survivors a voice, ANAMA has been able to provide more focused victim assistance in areas such as medical treatment, economic support and socioeconomic rehabilitation, achieving very positive results for almost five years. As always, ANAMA staff is ready to share their experience with any colleagues interested.[2]

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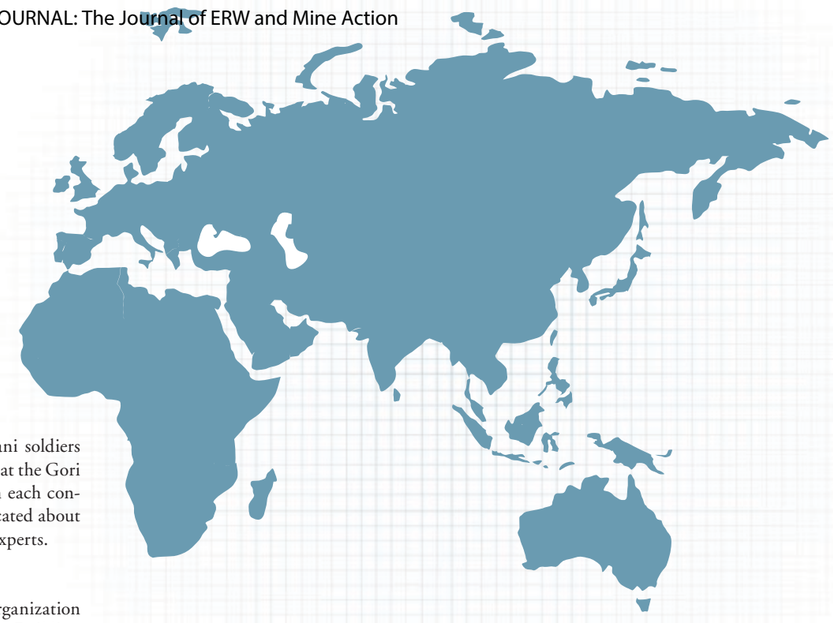
Regional Mine Action as a Confidence-building Measure



The mine-action cooperation through regional workshops described in this article tested the effectiveness of this cooperation as a confidence-building measure among neighbouring states and former combatants.

by Jernej Cimperšek [Permanent Mission of Slovenia to the OSCE] and Iztok Holcar [International Trust Fund]

Mines represent one of the most significant security, humanitarian, environmental, economic and development problems of the international community. Areas covered with mines directly and indirectly impact a community. Mined areas potentially manifest themselves in a large number of civilian casualties and influence the population's health in terms of losses in livestock, arable land, supplies, production and trade. Civilians have a constant fear and a feeling of animosity, distrust and intolerance as a result of mines.

Developing a Regional Approach

A regional approach to mine action has been slowly growing in southeastern Europe and the southern Caucasus. Slovenia, through the International Trust Fund for Demining and Mine Victims Assistance, has been actively involved in mine-action activities in southeastern Europe since 1998, using a regional approach. Then, in November 2000, three national mine-action centres (Albania, Croatia, and Bosnia and Herzegovina) and the ITF established the South-Eastern Europe Mine Action Coordination Council, a technical body whose goal is a southeastern Europe free of mines.

By 2004 other countries, including Bosnia, Croatia, Montenegro, Serbia, Albania and Macedonia, from the region joined the initiative and started to cooperate on joint regional projects as well as on the exchange of knowledge, technologies and equipment. Being a technical body, SEEMACC is providing an arena for countries in the region to discuss solutions to the landmine problem, one of the major factors preventing normal socioeconomic development in affected countries.

With good regional cooperation and proposed joint projects, affected countries managed to attract additional donor support, which is necessary in order to achieve the common goal—a mine-free region by the end of the decade.[1] Similar initiatives should be started in other mine-affected regions to enhance confidence building and strengthen cooperation and trust among neighbouring countries.

To speed the pace of reducing the landmine threat that endangers populations in Armenia, Azerbaijan and Georgia and to strengthen confidence and security in the southern Caucasus, in 2004–2005 the U.S. Department of State implemented the "Beecroft Initiative,"[2] an innovative multilateral program. Under this initiative, U.S. military personnel conducted joint humanitarian demining training of select groups of Georgian, Armenian and Azerbaijani soldiers and civilians. The government of Georgia hosted this training program at the Gori military base near Tbilisi, Georgia. Georgia, Armenia and Azerbaijan each contributed 20 soldiers and civilians (for a total of 60 students) to be educated about modern humanitarian demining techniques by U.S. Army demining experts.

Regional Workshops Begin

The second initiative was the successful implementation of the Organization for Security and Cooperation in Europe Cooperation and Capacity Building Seminar, held 1–2 October 2002, in Yerevan, Armenia, and co-chaired by the Armenian and Canadian governments. Here all countries of the region expressed consensus in suggesting the need for landmines to become a depoliticized issue and the need for a common strategy to approach local concerns.

Saloglu, Azerbaijan - ex-Soviet munitions storage site, September 2005. Unexploded ordnance scattered around pose great danger for local population.
Photo by Arne Hodalic

The ITF continued promoting regional cooperation, incorporating observations from this first OSCE seminar. The result was the first Regional Management Training for Middle Managers of the Mine Action Program.[3] This training of managers included participants from all countries of the region, improving their knowledge in mine-action management. Even more importantly, it established relations and raised confidence among participants. In concluding lectures, participants realized and suggested several points of possible cooperation on the regional level. This included joint training, cross-border mine-action projects, sharing of equipment, etc.

The Slovenian experience with SEEMACC managed to depoliticize the mine-action issue, establish a firm dialogue among members and stimulate joint cooperation. Slovenia sincerely believes regional cooperation and confidence building can be achieved to a significant extent through mine action and can also lead to other implementations of aid throughout the country, i.e., reconstruction of infrastructure. When countries start to cooperate after the war, they are much more attractive for donors in all other fields.

Workshop in Tbilisi

On 5–6 October 2005, the OSCE sponsored a regional workshop in Tbilisi, Georgia, with the intention of establishing the proper environment for dialogue among the nations of the South Caucasus and central Asian regions. The workshop focussed on "Confidence Building and Regional Cooperation through Mine Action."[4] Previously, cooperation in the region has been limited to some attempts at joint training.[5]

This workshop was organized by the OSCE Centre in Tbilisi and the ITF, and was sponsored by Canada, the Netherlands, Slovenia and OSCE. The specific objectives of the workshop were to create an open exchange of information on the issue of landmines and to promote successful models of regional cooperation for countries in the southern Caucasus and central Asian regions. The workshop contributed to confidence building among nations and the possibility of accession to the AP Landmine Ban Convention by non-signatory states from the respective regions.[6]

The workshop was also an occasion for the OSCE to examine how mine-action activities could improve the overall socioeconomic situations in the regions, complement OSCE core activities and, therefore, strengthen the OSCE's advocacy role in the respective regions.

A secondary goal of the workshop involved starting discussions among responsible authorities in the respective regions that would ultimately lead to the eradication of mines and an improved socioeconomic situation in each region, contributing to better dialogue and cooperation among nations.

This workshop gathered over 80 military and diplomatic representatives from countries of the South Caucasus area, central Asia, Canada, Europe and the United States. Representatives from the European Commission attended, along with the OSCE, the International Committee of the Red Cross, the International Campaign to Ban Landmines, the Geneva International Centre for Humanitarian Demining, Geneva Call, Landmine Survivors Network, the Slovenian Institute for Rehabilitation and various local embassies and nongovernmental organizations.

At the workshop, several examples of confidence building and regional cooperation in other mine-affected regions were presented, which formed the basis for discussion on how regional cooperation might be achieved. For example, in the first part of the workshop,

Armenia, Azerbaijan and Georgia presented the landmine and UXO problem of the South Caucasus. Many workshops such as this one are full of some successes and many failures. The key is to keep pushing the workshops because success is being achieved, even if change is gradual.

Some consensus was observed on the desirability for all countries in the region to work toward becoming States Parties to the Ottawa Convention once peace agreements to regional conflicts are reached. Georgia and Azerbaijan have already made positive steps by announcing a moratorium on the use, production and transfer of anti-personnel landmines. The main obstacle for accession to the Convention is dealing with territory not controlled by national authorities. In the South Caucasus there are unresolved conflicts in the OSCE areas, including conflicts in Georgia (South Osetia and Abhazija) and Azerbaijan (Nagorno-Karabah).

A suggestion to include mine-action activities on the agenda of peace negotiations within the OSCE Minsk Group[7] was widely supported, as well as the option to meet jointly in Georgia's offices with Georgia acting as a mediator between Armenia and Azerbaijan.

In the second part of the workshop, the representatives from three central Asian countries (Tajikistan, Kyrgyzstan and Kazakhstan) presented the mine problems in their countries. Common problems are mines that lie on state borders, especially on the border with Uzbekistan. Only Tajikistan has joined the Ottawa Convention, possibly serving as a role model for other countries in the region. Largely because of its status as a State Party to the Ottawa Convention, Tajikistan's mine-action program receives financial support from several donor countries. All three delegations from central Asia supported the idea of developing a follow-up regional workshop in the near future.

The Tbilisi workshop ended with a roundtable discussion in which participants discussed possible next steps in mine action. The following cooperation was suggested:

- Continuation of joint training
- Cooperation in mine-victim assistance
- Encouragement to announce a moratorium on the use of anti-personnel mines and to voluntarily submit reports on each country's respective landmine situation in accordance with Article 7 of the Ottawa Convention
- Marking of all known minefields
- Including the mine problem in negotiations within the OSCE Minsk Group
- Developing a follow-up workshop in Central Asia in the near future.

Conclusion

Cooperation in mine action among countries is one of the first steps for confidence building in the region, as experience from southeastern Europe shows.

A simple conclusion can be drawn from the Tbilisi workshop: Demining is considered a complementary activity of the OSCE, not a central one. However, since demining makes way for the core activities of the OSCE—primarily disarmament, human rights and environmental issues—to be truly exercised, participation in mine-action activities is essential for OSCE.

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On the basis of one of conclusion of the Tbilisi workshop, Canada and Slovenia, supported by Kazakhstan, prepared a follow-up workshop for central Asia in the framework of the OSCE. The workshop was held 26–27 March 2007 in Kazakhstan, but specifics were not available at the time of this writing.

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OSCE Workshop "Confidence Building through Mine Action" held in Tbilisi, Georgia in 2005.
PHOTO BY IZTOK HOČEVAR

Demining of Underground Adits in Ukraine

During World War II the Soviet Union established ammunition depots with over 10,000 metric tons (11,023 U.S. tons) of explosives around the Ukrainian towns of Sevastopol and Kerch. Stored in adits,[1] these explosives threaten the peaceful lives of present-day Ukrainians. In 2002, teams began the task of removing unexploded ordnance, landmines and debris. They encountered many problems while pursuing their goal of eliminating these stockpiles by 2010. Their efforts are described in this article.

by Yurii Kolisnyk [Ukroboronservice State Company]

In spite of the fact that 60 years have already passed since the biggest and the most severe war of the 20th century, the problem of clearing a large number of unexploded ordnance from Ukrainian territories is still topical. Engineering and demining units from the Ministry of Defense completed partial clearance of the territories in Ukraine in the mid-1970s. Despite the considerable work the deminers have done and are still doing on extraction, neutralization and destruction of the detected World War II unexploded objects, there are still accidents resulting in injuries to and deaths of the civilian population.

Nowadays, the government of Ukraine is improving the procedures of mine action in accordance with the requirements of International Mine Action Standards and plans to set up a specialized governmental body for coordinating all mine action in the country.

Clearing unexploded objects from Ukraine's territories is the obligation of the Ministries of Emergency and of Defense. Ukroboronservice State Company (through its structural subunit, the Center of Humanitarian Demining) specializes in carrying out commercial projects in Ukraine and abroad. This company has played the leading role in establishing humanitarian demining in Ukraine.

The area most contaminated by unexploded objects is the Crimea Peninsula, namely the towns Sevastopol and Kerch, where 30 people have perished or been injured due to WWII unexploded objects in recent years. In January 2001 the Cabinet of Ministers of Ukraine adopted a state program—"Clearance of WWII Unexploded Objects in the Area of Towns of Sevasopol and Kerch until 2010"—based on the results of investigations the specialists of Ukroboronservice State Company had done. This program will run until the end of December 2010.

The Inkerman Adits Ammunition Depot

The main area that needs to be cleared of explosives within the framework of this program is the destroyed Inkerman Adits located two kilometers (1.3 miles) from Sevastopol. The Inkerman Adits were destroyed due to an ammunition explosion in June 1942. Before the explosion, they served as the Soviet Army ammunition depot, storing more than 10,000 metric tons (11,023 U.S. tons) of ordnance.

A considerable amount of ammunition (approximately 1,000 to 3,000 metric tons [1,102 to 3,307 U.S. tons]) did not detonate during that explosion and until now access to it has been obstructed. The intact areas of the galleries[2] are practically inaccessible. The majority of the ammunition that did not detonate has been mechanically and thermally damaged as well as affected by weather, such as erosion and the periodic influence of ground heave.

Examination of the destroyed adits has shown that the rock massif over them consists of separate blocks (more than 1,000 cubic me-

A Ukroboronservice demining team comprised of an explosive-ordnance-disposal expert, four deminers and a qualified medic get ready for landmine clearance.
ALL PHOTOS COURTESY OF UKROBORONSERVICE.

ters or 35,315 cubic feet) and is separated by a considerable number of vertical and inclined splits. The adits themselves are mainly covered with rock fragments, but there are also some preserved areas. Access to the adits is quite difficult but possible through the cracks and gaps between the rock fragments. Teenagers and adults (so-called "black diggers") used such means to quarry the metals and explosives (TNT and powders) in order to sell the remains of metal or TNT for money.

Today a key danger of the adits is that the houses, railway station, motorways, bridges and industrial infrastructure of Sevastopol and Inkerman within a three-kilometer (two-mile) range may be destroyed if the remaining ammunition explodes. The reasons for such an explosion could be seismic activity, the black diggers'

This room, eight meters (26 feet) in height, contains fragments of supporting walls.

actions or chemical reactions that can occur in the damaged ammunition during long-term storage. Several options for solving this problem include the following:

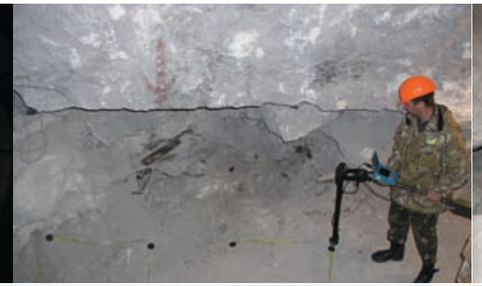
- Prohibiting access to the objects by guarding them
- Filling up the adits with bulk material or concrete
- Extracting and neutralizing unexploded objects on specially designated ranges

The first two options cannot completely solve the problem, and the expenses are approximately equal to the third option. Thus, it was decided to clear the adits of unexploded objects. At the same time, the question of whether to use horizontal or vertical excavations to access the underground was raised. Vertical access was more acceptable technologically and financially and was given preference.

The Cabinet of Ministers of Ukraine have set up an interdepartmental working group, with representatives from Ukraine's Ministries of Emergency,

A speleologist inspects an exploded area in order to determine rock condition and its displacement.

During Stage One, shaft-sinking and tunneling provide underground access. After this step has been completed, stepladders are replaced by special loading equipment.



Deminers conduct tests to discover UXO under the floor (left) and extract UXO from stone fragments (right).

Economy, Finance, Industrial Policy and Defense to coordinate program activities. Project financing is provided by Ukraine. The main executor of the work is Ukroboronservice State Company. The specialists of Ukroboronservice conducting the clearance task proposed a problem-solving strategy comprising several stages:

1. Thorough investigation
2. Ensuring access to unexploded ordnance
3. Localization
4. Maximum clearance

Thorough investigation. The first stage took place from 2002 to 2004. During this time the working group hired a special group of guards to prevent unauthorized persons from accessing the adits. The working group cleared unexploded ordnance from the ground surface up to 0.25 centimeter (0.1 inch) in depth and determined a scheme of probable adit locations before the explosion. A specialized Crimean team conducted speleological investigations while a local institute made inspections using such technologies as impulse electromagnetic reconnaissance. Ukroboronservice conducted engineering and technical investigations. The lack of reliable information regarding the adits' layout and stockpiled ammunition before the explosion has caused problems for specialists at the Centre for Humanitarian Demining.

According to the results of this stage, Ukroboronservice has determined the location of most of the unexploded ordnance, their nomenclature, approximate quantity, condition and the possibility of accessing them. Ukroboronservice decided the following:

- To make five vertical excavations (with areas no less than five square meters [54 square feet] deep, 25–35 meters [82–115 feet] each); to reinforce the walls of passages with concrete braces no less than 30 centimeters (12 inches) in width to prevent soil dislocation
- To move the ammunition and in case of an emergency evacuation make up to 100 running meters (329 feet) of underground horizontal passage, which can provide access to explosives in the places where they are most concentrated
- To reinforce the overhang layer with wooden or concrete supports and protective constructions to prevent collapse
- To destroy on a special range all ammunition allowed to be transported
- To preserve the ammunition that cannot be transported by pouring concrete in special places under the ground.

During this stage the state company Ukroboronservice provided its expertise, collaborating with the private company ATIK. Project completion is expected before the end of 2010.

Ensuring access to unexploded ordnance. From 2004 to 2006 Ukroboronservice and ATIK carried out the second stage. During this stage, Ukroboronservice did the main preparations to start the extraction of unexploded objects. Also, ATIK made three vertical shafts (25–30 meters [82–99 feet]) and horizontal offshoots (30 meters [99 feet]) towards the place where the objects were concentrated. The engineer of safety monitored this step, ensuring that deminers cautiously transported the UXO by hand and machines safely destroyed the ordnance. ATIK constructed additional concrete supports to protect against landslides.

Taking into account all safety regulations, teams executed the task of demining at an intensive and dangerous rhythm. Speleologists and deminers worked out a special system that considerably increased efficiency and safety. To reduce risk, the deminers of Ukroboronservice State Company constantly made engineering and technical inspections during the construction of vertical and horizontal excavations. Teams made wide use of mine-detector Vallon EL 1303D with the Vallon EVA2000 Module Bore Hole and Surface software. With its help deminers detected large-caliber aerial bombs and were able to confirm and refute information concerning the ammunition's main location. While accompanying adit excavations during this stage, deminers detected and destroyed more than 2,000 unexploded objects, including shells, mortar mines, aerial bombs and the different types of blasters.

One of the difficulties of adit excavation is the fact that the rock and soil are constantly in motion. In time new holes and cracks appear that give access to the underground section. To control ground movement a Crimean team of specialists conducts constant speleological investigations of the working site. Based on the results, the safety engineer takes the appropriate measures to ensure the staff is protected against a possible landslide.

Thirty-five meters (115 feet) from the surface, a deminer surveys an exploded area of the adits, which contains aerial bombs weighing 1,000 kilograms (2,205 pounds), artillery shells, ammunition remains, wooden boxes and rock fragments.

Localization. A group of deminers from Ukroboronservice have been executing the third stage since mid-2006. The third stage marked the start of intensive extraction of unexploded objects from underground obstructions. During detonation of the ordnance concentration of a 20 metric tons (22 U.S. tons) of TNT equivalent, a camouflet[3] explosion may happen and during larger ones, a blowout.[4] That is why the working group believes that reducing the scale of possible accidental explosions is important. Deminers must create safety lanes, dividing excessively mine-laden areas into smaller, more manageable quantities of UXO.

During this stage (which at the time of writing was still ongoing), the teams have extracted more than 20,000 pieces of ordnance. This total includes munitions of varying types and calibers: aerial bombs from 10 to 1,000 kilograms (22 to 2200 pounds), shells from 37 to 180 millimeters and mortar mines from 50 to 122 millimeters. Also during this stage Ukroboronservice has prohibited unauthorized access of the "black diggers."

Maximum clearance. The working group will execute the fourth stage from 2007 to 2010. Ukroboronservice plans to construct two more vertical shafts in order to extract a maximum quantity of UXO. Paying attention to safety regulations, the working group will implement a system of actions:

- Collaborating with state services such as labor protection, ecology, fire safety, etc.
- Constantly monitoring the rocks, supporting the walls of passageways with concrete and inspecting equipment condition
- Controlling the ammunition's condition, defining the level of damage and handling it carefully
- Communicating reliably between cave-going teams and surface-level teams
- Doubling exits in vertical shafts to provide easier evacuation for cave-going teams
- Prompt first aid to victims and evacuation to the medical center in accordance with International Mine Action Standards[5]

Conclusion

Besides the Inkerman Adits, the state clearance program of unexploded objects from Sevastopol and Kerch also takes place in six areas: the Makenzy Mountains, near the Pyanzin battery, the villages of Geroiyvske and Bondarenkove, Adzhimushkay quarries and the Black Sea. Ukroboronservice believes that carrying out this program will help eliminate many dangerous explosive remnants of WWII.

Ukroboronservice's four stage plan for clearance of the Inkerman Adits requires prompt and complete financing from the state; however, Ukraine has only paid half of the total amount necessary to complete the task. Incomplete program financing will adversely impact the time it takes to complete the work. With every passing year the clearance of the Inkerman Adits becomes increasingly more expensive. Insufficient financing forces individuals involved with the project to increase their working hours while the threat of an accidental explosion escalates.

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International Eurasia Press Fund Works in Azerbaijan

Problems with explosive remnants of war[1] in Azerbaijan stem from emplacement of mines by the Soviet Union between 1988 and 1994. Mines were used along Azerbaijan's expansive border region and military installations. More recently, ERW have been left behind from Azerbaijan's battles over territorial integrity. The International Eurasia Press Fund has developed a program to address the needs of mine victims in one of the country's most heavily mined regions. The Mine Victims' Association of the Terter district is working to rehabilitate victims in numerous ways, providing participants with the skills and information they need to lead productive, independent lives that take full advantage of their individual talents and interests.

by Geary Cox [Mine Action Information Center]

The IEPF has been instrumental in the rehabilitation of a mine-plagued Azerbaijan, providing or facilitating countless post-conflict remedies to a war-torn country. In the past, the IEPF has conducted Level One Landmine Survey programs in areas affected by war, a Landmine Impact Survey, and several other mine-action programs. With the financial support of the European Commission, the IEPF conducted the "Mine Victims' Needs Assessment Survey" project in 2004 to determine the most pressing needs of the Azeri people.

Based on its 2004 survey, the IEPF determined that most mine victims in the country required more post-rehabilitation assistance; medical services were deemed adequate for mine victims, but support following the survey period seemed lacking.

Extent of the Problem

Surveys were conducted in 629 villages and 29 enclosures in 11 war-torn regions of Azerbaijan. More than 74,000 people were interviewed to accurately define hazardous areas, needs of the populace and initial statistics concerning mine victims. Umud Mirzoyev, IEPF Chairman, says the surveys indicated more than half a million people in 643 communities were affected by 970 mine and unexploded ordnance areas.

The Terter district of Azerbaijan was deemed highly contaminated—36 square kilometers (14 square miles) of land in 23 villages were thought tainted by mines and UXO. This contamination, remnants of heavy battles, deeply affected the infrastructure and impeded development. Mirzoyev says 36,291 people out of a total local population of 70,039 were affected by contamination. Ten percent of all Azeri landmine victims lived in the Terter district, he added.[2]

IEPF Focus Areas

Working with several national and international partners, the IEPF devised a solution to meet the needs of the mine-affected populace and created the Mine Victims' Association of the Terter district. The IEPF used its extensive experience in demining, mine-risk education and other mine-related projects to form the basis for the MVA. ANAMA had contracted the IEPF and Relief Azerbaijan to conduct mine-clearance operations—the IEPF worked predominately in the Terter district with a 38-member demining team and cleared 758,947 square meters (0.29 square mile) of land in 2005.[3] The IEPF also conducted 10 MRE sessions in 2005.

Tapping into these efforts and other experiences, the IEPF developed a three-point infrastructure. The organization's focus areas are:

1. Media and civil-society development
2. Peacemaking and conflict actions
3. Refugee/internally displaced person problems and community development

The IEPF has had success in these three fields of activity.

Media and civil-society development. The IEPF has worked to develop a national environment in which the media is removed from politicization and where coverage can be part of a fair and neutral process. To achieve these goals, the IEPF has facilitated media roundtables, meetings and conferences. Additionally, it has published several books, brochures and other informational materials to provide objective coverage of the ravages of war on Azerbaijan. Coverage has also been directed at the suffering of refugees and internally displaced persons.

Baby of mine victim, Bakhtiyar Aliyev, born without fingers
ALL PHOTOS COURTESY OF IEPF

Peacemaking and conflictology actions. Peacemaking actions and other projects in this focus area have been directed at protecting human rights in Azerbaijan. The IEPF has spent a large amount of time analyzing national and military problems with the goal of remediation. The Level One Landmine Survey, Landmine Impact Survey and Mine Victims' Needs Assessment all began as projects implemented through this focus area, ultimately growing to larger endeavors. Several international conferences, seminars and roundtables were also organized or attended.

Refugee/IDP problems and community development. IEPF efforts in this area have included the analysis of migration problems, resolving refugee/IDP problems and assisting in community-development activities. Working under the direction of the President of Azerbaijan, the IEPF constantly seeks to improve the quality of life for refugees and internally displaced persons, and to provide for their employment and reintegration into society. Evidence of success is seen in the Community Mine Action Team at the IEPF, nearly 40 percent of which is composed of refugees/IDPs.

Genesis of the MVA

In conjunction with the completion of the Mine Victims' Needs Assessment and their extensive experience in providing humanitarian aid and demining efforts, IEPF sought to further its humanitarian-development activities. The MVA laid out a three-year strategic plan and outlined goals for the Working and Initiative Groups of the MVA. An Intermediate Report based on the organization's progress between 15 August and 31 December 2006 was produced and distributed.

The Mine Victims' Association was established 15 May 2006, and its training and development sessions have been incredibly successful. The Working Group for the MVA provided the professional specialties necessary for seminars and workshops and included legal experts, computer specialists, medical advisers, MRE specialists, accountants, support managers and a project coordinator. Seminars were held for an Initiative Group of 10 landmine survivors selected from the total eligible population of mine victims.

MVA Informational Seminars and Workshops

Intensive training was provided to the Initiative Group in a number of areas, all designed to rehabilitate mine victims, reintegrate them into society and improve standards of living in the region.

Law and management. Legal advisers from the Working Group educated participants on international documents on human rights, advocacy mechanisms for human rights in Azerbaijan and in the international community, juridical standing of mine victims and other necessary legal information. Participants were also advised on the organization, establishment and operation of unions and other management apparatuses. Group members are currently active in the process of establishing these managerial infrastructures. Close collaboration with officials has allowed MVA participants to receive necessary assistance from social programs.

First-aid training. Regular instruction was given to participants in the application of first-aid techniques, including fractures/dislocations, nursing patients with amputations, bleeding/wounds, frostbite and sundry burn types. They also were taught about blood-pressure measurements and providing hypodermic, intramuscular and intravenous injections. Information on general hygienic rules, treatment of diabetic patients and other basic medical procedures was provided. The program's medical adviser regularly visits mine victims and their families, sometimes sending the more seriously injured to treatment centers in Baku.

Small-business development. Initiative Group members participated in extensive training on themes directly associated with developing small businesses. They learned about financing, marketing, opportunity analysis, advertising and other business practices. Participants also had the option of submitting business plans to Working Group staff members for advice and evaluation; all businesses devised were specific to the Terter district. The business plans dealt mostly with grain growing, cattle breeding, poultry raising, beekeeping and carpet weaving. Further collaboration will help to bring these business plans to fruition.

Mine-risk education. General information on the landmine/UXO problem in Azerbaijan was also a component of the MVA education. Participants were informed about the threat to the populace from landmines and the physical, psychological, and economic effects of the mine problem. Members of the Initiative Group expressed interest in participating in MRE activities that were focused on safety around mined areas, which taught officials how to inform about a mine threat and how to conduct MRE activities. Participants also joined Working Group leaders in carrying out MRE sessions in villages of the Terter district—Aghkand, Damirchilar, Jamilly, Seydimly, Shikharkh and other villages all received MRE as part of this process.

Computer seminars. Initiative Group members also received training on the operation and use of personal computers, beginning

Mine victims meeting with representatives of the mass media from Yeni Tertar newspaper, Simurg TV, Radio Liberity, AzCBL, ARSC in Terter district.

with information on computer components and continuing with detailed sessions on the use of specific software like Microsoft Windows and Word. They also learned how to perform calculations in Microsoft Excel and other functions in Microsoft Office programs. With this knowledge, group members plan to teach other mine victims. Participants also organized a series of English-language and computer courses for the children of mine victims, conducting 16 lessons in English and 14 lessons in basic computer skills for children in four months.

Mine victims of the Terter branch of the Azerbaijan Mine Victims Association at the computer course.

Further Collaboration

As an offshoot of their initial training sessions, participants in the Mine Victims' Association process began collaborating with journalists, doctors, local politicians and representatives of national demining organizations. Group members expressed a desire to improve and expand the initiative among mine victims to provide necessary assistance on a regular basis. Plans were solidified for the future activities of the MVA, including activities in several Terter district villages.

In November 2006, members of the national and international media were invited to the Terter region to become acquainted with the work of the IEPF and the Azerbaijan National Agency for Mine Action. Meetings with orthopedic representatives of the International Committee of the Red Cross were held in December 2006 to better understand the needs of mine victims in the Terter region. The dialogue resulted in the recognition of a need for regional specialists in orthopedics since the nearest facility, in Baku, is too distant for many mine victims.

In meetings with local political leaders and executive members, mine victims participated in direct dialogue with the authorities responsible for addressing the mine problem in the Terter district and across Azerbaijan. Authorities noted concerns surrounding the determination of disability, provision of social and medical assistance and other issues related to problems facing mine victims.

A meeting between ANAMA and members of the MVA was held in November 2006 to discuss the successes of the association to date. The sustainability of the MVA was one of the most pressing issues, including the broader goal of assisting mine victims throughout Azerbaijan.

Mine-victim Entrepreneurs

Many of the participants in the MVA seminars have started or furthered their own businesses in the Terter district based on information and support provided in the workshops. Three participants—Nizami Bardary, Khalil Hatamov and Mohammed Shirinov—are currently involved with seeding activities and one—Nuru Gouliev—with beekeeping. Most of the mine-victim entrepreneurs make four to five times their annual pensions from their salaries.

Despite their injuries, these mine victims are actively contributing to their local economies—and they are part of a larger trend toward increased personal independence with vital assistance programs. Beyond providing valuable services, these entrepreneurs are integrating into society and serving as models for other mine victims.

Long-term Goals and Enduring Challenges

Umud Miryzoyev is proud of the accomplishment of the Mine Victims' Association for the Terter district of Azerbaijan, but much remains to be accomplished in assisting mine victims and their families integrate fully into society.

Miryzoyev says the MVA will help establish more agricultural units in accordance with mine victims' business plans, conduct vocational courses for victims and their family members, and provide new job placements to further improve socioeconomic status. All these undertakings will be accomplished "to support the mine victims as they settle their most important problems," he adds.[3]

Plans are already underway to improve the repair process on prosthetic appliances, Miryzoyev says. "Mine victims have to leave for Baku or Ganja cities, and, of course, they have some difficulties in doing it," he says.[3] The IEPF is currently preparing information on how easy repairs can be made without the need for extensive travel. But all problems have not been that easy to solve.

Miryzoyev notes that providing assistance to mine victims who must be treated and rehabilitated abroad is incredibly difficult. The MVA also faces difficulty in implementing the prepared business plans for seminar participants. "Great support is needed to improve the mine victims' socio-economic state, to establish their farm units, to realize individual business plans and to assign social aid to mine victims in poor living conditions," he says.[3]

There is also the problem of addressing the needs of mine victims in other regions of the country. Regional branch offices will soon begin to tackle complex vocational, medical, juridical and social problems in other areas of Azerbaijan. The IEPF is looking to expand further to give greater attention to other villages as branch offices of the Azerbaijan Mine Victims' Association are prepared in Aghstafa, Baku and Fizuli.

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Seeding field of mine victim Nizami Bardary in Terter.

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Implementing the Ottawa Convention in Southeast Europe: Meeting Expectations in a Challenging Environment

While great progress has been made in SEE in implementing Article 5, some states in the region continue to face great challenges. Seen here is a minefield warning sign in Croatia.
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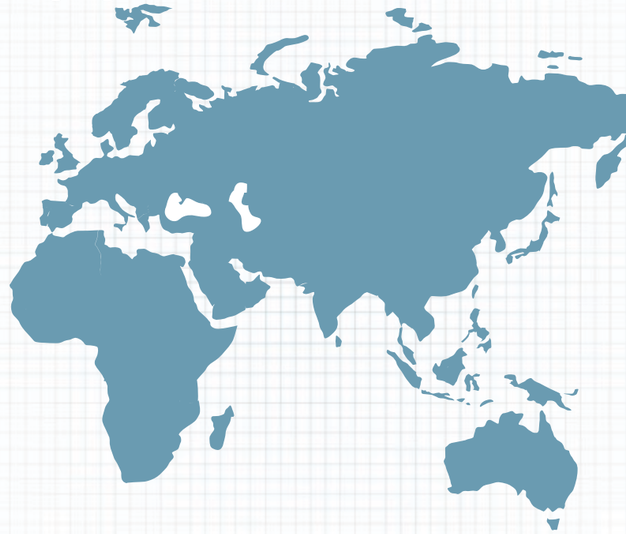

As the 10-year deadline for fulfilling Article 5 of the Ottawa Convention[1] is rapidly approaching for the first States that ratified or acceded to the Convention, each State Party faces the requirement that all known anti-personnel mines be destroyed. The author examines the progress and challenges that remain in Southeast Europe regarding Article 5 implementation.

by Kerry Brinkert [Geneva International Centre for Humanitarian Demining]

Those wanting to solve the problems caused by anti-personnel mines had high expectations when the Ottawa Convention was adopted on 18 September 1997. After all, this event occurred little more than 17 months after the Convention on Certain Conventional Weapons[2] failed to meet expectations in addressing the problems caused by anti-personnel mines. Indeed, the CCW's marginally enhanced restrictions on the use of anti-personnel mines were deemed by the President of the International Committee of the Red Cross to be "woefully inadequate" and "unlikely to significantly reduce the level of civilian landmine casualties." Even the United Nations Secretary-General criticized the U.N.'s own vehicle for addressing humanitarian concerns associated with conventional weapons when the Secretary General said he was "deeply disappointed" by the inability of the CCW to produce results.[3]

Unlike the CCW, the Ottawa Convention met the expectations of those wanting a comprehensive approach to solving the problems caused by AP mines. But in meeting one expectation, states of the world created another. As noted by Croatia's Deputy Minister of Foreign Affairs when the Convention was opened for signature in December 1997, "We should bear in mind that we have not completed our journey yet. We have merely obtained a tool that will enable us to reach our final goal."[4]

The Expectations and Challenges Ottawa Presents

The journey referred to involves addressing both external and internal expectations. When a state ratifies or accedes to the Convention, **externally**, other states expect that state to fulfil the obligations it has freely accepted. In addition, **internally**, a state's population will or should expect the state to do what is obliged of it to end the suffering and casualties caused by AP mines. In few other instances are the internal and external expectations as high and the challenges as great as they are in Southeast Europe (SEE).[5]

The **expectations** in SEE are high because the states of this region have in recent memory experienced the devastation of armed conflict in which anti-personnel mines have been used and have remained as a deadly legacy. As the Minister of Foreign Affairs of Bosnia and Herzegovina remarked in December 1997, all parties to war in that country supported the Ottawa Convention "because we experienced what the use of AP mines means and we know that we should do everything not to allow this to happen again."[6]

The challenges, however, are great, not only due to the magnitude of the problems, but also because fulfilling state responsibilities has been complicated in SEE. For instance, every state in the region has recently been in some form of transition in terms of the establishment or re-establishment of state structures or in terms of transition

The Ottawa Convention defines a "mined area" as "an area which is dangerous due to the presence or suspected presence of mines." Meeting expectations in implementing Article 5 means ensuring with confidence that all such areas ultimately will no longer be considered dangerous.

from pre- to post-Cold War state structures. Moreover, some SEE states lack the means to completely fulfil state responsibilities on their own.

Challenges notwithstanding, every SEE state has expressed its consent to be bound by the Ottawa Convention.[7] In doing so, each state has created expectations that significant mine-action progress will be made and that the ultimate desired impact, an end to suffering and casualties for all people for all time, will eventually be realised. On 18 September 2007, a decade will have passed since the Convention was adopted; States Parties are now on the eve of a judgment day for progress in meeting these expectations.

In accordance with Article 5 of the Convention, States Parties ultimately are expected to do three things:

1. Each State Party must "make every effort to identify all areas under its jurisdiction or control in which AP mines are known or suspected to be emplaced."[8]
2. Each State Party identifying such areas must "ensure as soon as possible that all AP mines in mined areas under its jurisdiction or control are perimeter-marked, monitored and protected by fencing or other means, to ensure the effective exclusion of civilians, until all AP mines contained therein have been destroyed."[8]
3. Each State Party identifying such areas must "destroy or ensure the destruction of all AP mines in mined areas under its jurisdiction or control, as soon as possible but not later than ten years after the entry into force of this Convention for that State Party."[9]

Hence, the endstate that is expected of States Parties is nothing more or less than that which is stated in Article 5. On the one hand, the Article makes no reference to States Parties striving to become "mine free" or "mine safe" or "impact free"—all of which are terms that, while in frequent use, are operationally ambiguous, legally undefined and often politically loaded. On the other hand, the Article is straightforward in indicating that compliance is nothing short of "the destruction of all AP mines in mined areas under its jurisdiction or control"—mined areas that each State Party would have made "every effort to identify."[10] This is the defined endpoint and the expectation for completion created by the States Parties of Southeast Europe when they ratified or acceded to the Convention.

Macedonia: Meeting the Expectation of Completion

Macedonia recently articulated the endpoint for Article 5 implementation well in its 15 September 2006, *Declaration of Completion*, which clearly and unambiguously states, "The Republic of Macedonia declares that it has destroyed all AP mines in areas under its jurisdiction or control in which AP mines were known or suspected to be emplaced, in accordance with Article 5 of the Convention. The Republic of Macedonia declares that it completed this obligation on 15 September 2006."[11]

Macedonia also illustrated that in reaching this endpoint, States Parties can use the common sense that realistically suggests they need not scour every last square metre of their territory to determine the presence or absence of AP mines. Common sense also suggests that it is impossible to assure with absolute certainty that every last mine has been located and removed from identified mined areas. Macedonia demonstrates this good sense by stating in its *Declaration of Completion*, "In the event that previously unknown mined areas are discovered [after 15 September 2006], the Republic of Macedonia will:

1. Report such mined areas in accordance with its obligations under Article 7 and share such information through any other informal means such as the Intersessional Work Programme, including the Standing Committee meetings;
2. Ensure the effective exclusion of civilians in accordance with Article 5; and
3. Destroy or ensure the destruction of all AP mines in these mined areas as a matter of urgent priority, making its needs for assistance known to other States Parties, as appropriate."[11]

Of course, common sense also dictates that States Parties must establish a high degree of confidence that all necessary measures have been taken. Macedonia illustrated its commitment to building such confidence by providing clarity with respect to the standards being applied and the means of verification and quality assurance being used. In doing so, Macedonia alluded to the International Mine Action Standards,[12] which outline what can and should be done in mine action by defining a "demining process" and hence providing guidance to States Parties in proceeding with tasks such as: identifying mined areas, establishing a national demining programme, locating and removing/destroying AP mines, and assuring that a high standard has been achieved in mine clearance and related activities. No state is obliged to use the IMAS as its set of standards; however, should individual States Parties wish, they can use the IMAS as guidance in establishing national standards for operational actions in order to meet expectations in fulfilling their legal Ottawa Convention obligations.

BiH and Croatia: More Time is Required

While Macedonia was able to fulfil its obligations in a 10-year period, it was understood when the Convention was adopted that some States Parties may need more time "to destroy or ensure the destruction of all AP mines in mined areas under [their] jurisdiction or control."[9] In accordance with Article 5.3 of the Convention, States Parties may request an extension for a period of up to 10 years. Indeed, this understanding was made clear by the Foreign Minister of Bosnia and Herzegovina in 1997 when he stated that "we are aiming to comply with the 10-year time limit and do not want to consider an extension yet but the reality of our problem may make this the only solution."[6]

BiH and Croatia have indicated that their challenging environment means they will not reach Article 5 completion in a 10-year period. This, however, does not represent a **failure** to meet expectations; claiming such would ignore the legal provisions in the Convention to request extra time and disregard these States' considerable efforts to date in proceeding to fulfil their obligations.

Rather, BiH and Croatia are well-placed to claim **success** in meeting expectations if:

1. They achieve by 2009 "a status of work conducted under a national demining programme that one could reasonably expect after a 10-year period" given the challenging environment in which they find themselves.
2. It is clear that a detailed plan is in place to enable each to declare completion in as short a time period as possible after 2009.[13]

Croatia is one of the SEE states that has made significant progress in implementing Article 5 since the Convention entered into force. Pictured here is a scene of a demining operation near Petrinja, Croatia, taken 18 October 2006.

Being able to claim interim success in meeting expectations, though, will be no easy matter. Making decisions on whether to grant extensions will be a serious affair for States Parties. As Croatia itself remarked in September 2006, "the extension possibility is not there to serve as an excuse to mine-affected States Parties for making every effort 'to destroy or ensure the destruction of all AP mines in mined areas under their jurisdiction or control,' but as a necessary tool" … "a vehicle for the full implementation of the Convention and not a means for getting around it."[14]

"SMART" Strategies for Implementing Article 5

BiH and Croatia are not only well-poised to use the extension provision of Article 5 as a "vehicle for the full implementation of the Convention," but they may also be good examples to other States Parties regarding how to communicate the matter of meeting 10-year expectations of progress in implementation. Good work has been done and those responsible should take pride in their efforts. The task with respect to the extension request is now to say what has been done, to explain the impeding circumstances and to say what will be done.

A template for preparing extension requests has been developed and enhanced by Canada and is ready for consideration by the States Parties at their November 2007 meeting.[15] Ultimately, though, this is a voluntary guide and there is nothing stopping States like BiH and Croatia from proceeding with the task at hand. In doing so, it is advisable that States Parties be as "SMART" as possible with their achievements and goals—that is, specific, measurable, achievable, relevant and time-bound. They can articulate matters that are specific and relevant to the actual obligations of the Convention and quantify matters to the extent possible. In addition, in communicating what will be done in the future, they can again be specific, measurable and relevant, but also communicate matters that are achievable in a time-bound manner.

For a State Party like BiH, its Landmine Impact Survey report may be a good starting point. After all, the report in part claims that it "establishes baseline data for measuring progress."[16] Consequently, questions that naturally may be on the minds of States Parties evaluating a request for an extension might be:

- What means have been used to verify whether there indeed are mined areas within these suspected hazard areas? In the process of doing so, what amount of the suspected hazard areas originally logged has been released and how much remains?
- Of the areas identified to contain AP mines, what is the total area in which Article 5 obligations were fulfilled? What means were used to fulfil these obligations and to assure quality? How many AP mines were destroyed and how many other explosive remnants of war destroyed?
- How much area and which areas remain in which Article 5 obligations must still be fulfilled? Of these, which areas have been and have not yet been perimeter-marked, monitored and protected by fencing or other means, to ensure the effective exclusion of civilians? What is the estimated date for destroying or ensuring the destruction of all anti-personnel mines contained within each area identified as containing AP mines?
- If area remains in which anti-personnel mines are suspected to be emplaced, what is the basis for the continuing suspicion and what is the estimated size of each area? What is the estimated date for determining whether mined areas indeed exist in suspected hazard areas?

Conclusion

Over the past year, the Convention community has discussed with great interest the Article 5 extension request process. However, it is important to recall a point the Convention's President made at the Seventh Meeting of the States Parties:[17] "Work on an extensions process should not be seen as an alternative to fulfilling Article 5 obligations."[18]That is, the extensions process is all about communicating that interim expectations have been met. Actually being in a position to meet Article 5 obligations means continuing to carry out the important work of survey, land release, detection and destruction.

Also in this regard, while BiH and Croatia may require the use of the extensions request process, the Seventh Meeting of the States Parties' Geneva Progress Report[19] recorded that Albania has provided details on national demining plans that are consistent with fulfilling Article 5 obligations by the Convention's 10-year deadline. Therefore, Albania should soon be able to declare, as Macedonia has, that it has fulfilled its Article 5 obligations, and Serbia may be in a similar position in due course.

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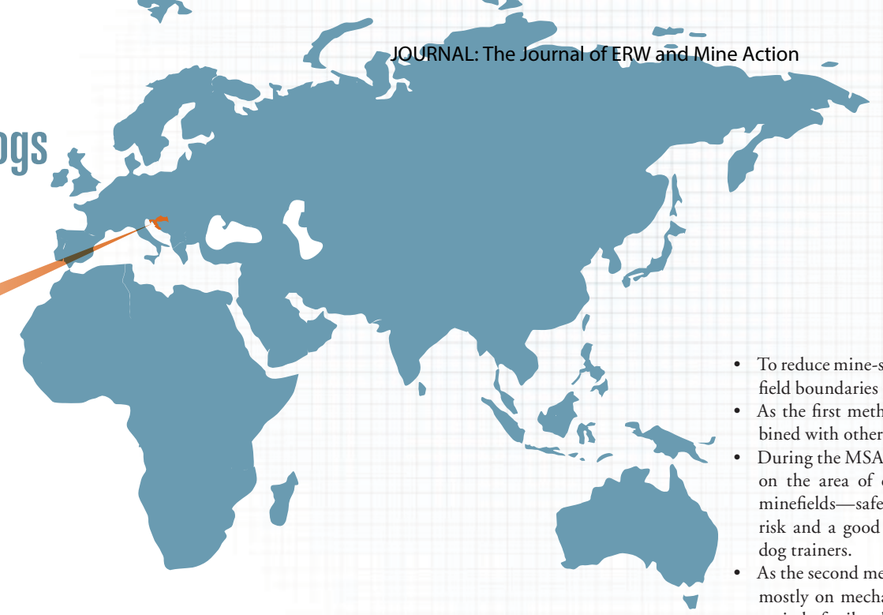
Safe and Efficient Use of Mine Dogs in the Republic of Croatia



In this article, the authors discuss the use of mine-detecting dogs in the mine-action community as a whole, using the Republic of Croatia as an example. Specifically, they describe guidelines that must be followed to ensure MDDs are employed properly and maintain a high level of effectiveness.

by Mirko Ivanušič, Davor Laura and M. Sc. Željko Šarič [Croatian Mine Action Centre]

In the Republic of Croatia, a large mine-suspected area covers forests, pastures, agricultural areas and karst.[1] The fact that only one-third of the 1,044 square kilometres (1,249 square yards) of mine-suspected area in Croatia is actually mine-contaminated speaks in favour of using dog-handler teams in mine-search operations for the purpose of simpler, faster and more cost-effective work. However, the matters of safety, efficiency and creating the preconditions for their use need to be considered. For these reasons, special attention must be paid to all technical requirements in the process of testing approaches, methods of monitoring, conditioning and training procedures, quality-assurance activities, test-site preparations, daily tests prior to the commencement of works, daily inspections, status of dog-handler teams, and prescribed forms of verifying efficiency.

Brief Historical Overview

Humanitarian demining as well as wider usage of MDDs have had a relatively short development period. MDDs have been used for 15 years globally and 10 years in Croatia, and their usage and training is a maturing process.

In 1998 RONCO Consulting Corporation began training and using mine-detecting dogs. Croatia was the first country where the company used dogs to find mines on a consistent basis. Soon the Croatian Mine Action Centre legally undertook the commitment of using dogs to perform quality control over mine-clearance operations.

Development of demining companies from 1999 to 2000 and especially in the period that followed resulted in the procurement of several dogs and creation of teams for area inspection as a second method after mechanical mine clearance. The level of training for the dogs, trained mostly in foreign countries, depended upon which centre trained them. During this time, CROMAC was active in a number of important international workshops and assemblies, learning about MDD usage. Leading authorities were visiting CROMAC and setting the guidelines for team usage and competence verification modes. When CROMAC took over the commitment of accreditation and testing of demining teams, it started the process of developing the methodology of testing the teams, monitoring their work in the field and constructing test sites.

Expecting the call for testing - outer part of Rakovo Polje test site.
PHOTO COURTESY OF MIRKO IVANUŠIČ (CROMAC).

During that period, demining companies in Croatia were also trying to upgrade their own methodology by creating standard operating procedures mandatory for the testing and accreditation process. With the assistance of the representatives of the United Nations Scientific Council and members of the Committee for the Establishment of MDD Information, the first test site was built in Sisak on the area called Jodno, which is no longer in use. There have been four more sites established since then, but only two are currently in use: Cerovac (continental part of Croatia) and Škabrnja (southern coastal part of Croatia).

Sphere and Forms of Dog-handler Usage

Countries today use dogs for mine-clearance operations in a variety of ways. MDDs are used:

Year	2000	2001	2002	2003	2004	2005	2006
Demining companies with MDD teams	10	23	23	15	17	18	18
Deminers in all demining companies	292	420	408	586	601	599	609
Demining machines in all demining companies	10	27	30	41	43	62	54
MDD	15	40	52	111	127	129	130

Table 1:The growth of demining companies and MDD teams.
GRAPHIC COURTESY OF MAIC/CROMAC

- To reduce mine-suspected areas by defining minefield boundaries primarily in the low-risk areas.
- As the first method during mine detection combined with other manual-detection methods.
- During the MSA search from the safe access lanes on the area of differently marked and defined minefields—safe access lanes are areas of lower risk and a good location for beginner dogs and dog trainers.
- As the second method in mine-clearance projects, mostly on mechanically treated areas after some period of soil stabilisation.
- During mine detection in devastated buildings with significant quantities of metal, along with removal of rubble in layers.
- For mine clearance of railway infrastructure as well as other firm surfaces along asphalt, stony and concrete systems, and areas with significant quantities of metal (water-supply systems, gas pipelines, etc.).
- For sample search during final quality control over clearance operations.
- To inspect the safe access lane in case of an urgent need to approach a mine victim.

MDD testing at Pridraga test site, May, 2002.
PHOTO COURTESY OF MIRKO IVANUŠIČ (CROMAC)]

It is important to note that for all activities, CROMAC sends at least two dogs, one by one, into the test site or actual mine clearance area.

Dog-handler Usage Laws

Implemented in Croatia during 2005, the Law on Humanitarian Demining and the Rules and Regulations on Methods of Demining enabled the use of dogs and handlers as an independent method in mine-search projects. The two legal acts that regulate mine action in Croatia are the Law on Humanitarian Demining and Rules and Regulations on Methods of Demining.[2] Several key guidelines regulate dogs and handlers in the mine-detection and mine-clearance process from the Rules and Regulations on Methods of Demining.

When search operations are conducted using MDDs, the demining team leader must carry out certain tasks prior to the beginning of work. First the leader must hold a meeting with handlers and define individual tasks. The leader then temporarily sends handlers who are incapable of performing their daily task off the site. After these handlers leave, the leader then directly assigns the remaining handlers to the worksite. Continuous monitoring of handlers during worksite search and the conditions for the work of MDDs is required. A dog handler, who must be accredited by the relevant ministry, directs the dog towards terrain search and gives orders during mine search. Finally the leader must enter the meteorological characteristics such as surface soil temperature, air temperature at the height of one metre (1.1 yards), and speed and direction of the wind into the record.

In addition to the number of duties of the worksite leader, records are kept of dog conditioning. Prior to the commencement of mine clearance, the authorised legal entity is obliged to carry out test-site markings to prepare it for the work of mine-detection dogs. While MDDs conduct a worksite search, deminers mark off a section of the worksite with red-topped stakes. This is done by the company conducting the operations. Only CROMAC-approved dogs and handlers may be used.

The handler who gives the dog certain instructions must be a deminer or a supporting worker. The deminer must also do a second search of the area where the dog detected mines and unexploded ordnance to be positive nothing was missed. When the worksite is searched by MDDs, two different dogs must search the same part of the worksite to ensure the same UXO is discovered and that none is missed.

The Law on Humanitarian Demining and the Rules and Regulations on Methods of Demining, passed in 2005, enabled the use of dogs and handlers as an independent method in mine-search projects. The ultimate goal, after testing and accreditation for dog and handler, is that all other factors in monitoring and con-

Acclimatization to test site conditions (resting).
PHOTO COURTESY OF IVAN STEKER (CROMAC-CTDT LTD.)

trol meet the standards of legal regulations. Accreditation includes issuance of the assessment for dog-handler team usage for the period of six months, nine months or a year and depends on the number of points reached during testing.

Trainability Verification and Dog-Handler Team Evaluation

Though there is a widespread necessity for dog-handler teams, these teams must exercise care and take their time with every task. In every situation, four points must be taken into consideration before using dogs: the size and structure of a mine-suspected area, developed and sufficient capacities, legal and normative regulations, and quality of dog accreditation. The development of dog-training companies in Croatia during 1999–2000 resulted in not only the strong expansion of the programme from four companies to 10 but also the procurement of machines and dogs. In 2000, 10 companies existed with a total of 15 dogs.

By 2005, 18 companies with over 130 dogs existed. In the early period of development, demining companies in the Republic of Croatia were achieving varying results from the use of MDD teams. The results of CROMAC's Quality Assurance and Quality Control Department from 2005 also undoubtedly confirm the value of certain MDD teams as questionable.

Assessment of Searches and Demining

This SOP defines the efficiency estimates of MDD search and clearance operations in different mine, soil, vegetation and climatic conditions with different work methods. This SOP also clearly defines the situation and limiting factors when dog-handler team usage is not allowed, such as when the air temperature is below freezing.

SOPs prescribe other important conditions for working with dogs. For instance, marked boxes can be 50 metres x 10 metres (54 yards by 11 yards), 4 x 25 (4.5 x 27) and/or 10 x 10 (11 x 11). Also, if there has been a fire on the area previously demined, MDD inspection cannot go forward until two days after the fire so fumes do not disrupt the dogs' sense of smell.

It is extremely important to maintain cooperation between the Team Leader, QA Officer and QC Monitor with the purpose of achieving good results and accurate mine detection in the field. If these parties do not work together properly, items may not be found, which could lead to a "worksite fail" rating. In this event, the whole demining process would have to be repeated.

Work in humanitarian-demining operations is assessed for a period of six, nine or 12 months according to a point system. One important precondition is that the dogs detect all buried mines in the boxes assigned. The maximum number of points is 100.

The average number of points in CROMAC's collective practice is 62, indicating an inadequate quality of work and a need for quality control and monitoring during activities conducted by the Committee for Testing Dogs and Handlers in Humanitarian Demining Operations, QA Officers and QC Monitors.

Generally, the aim is to monitor all the processes—accreditation and testing provide the conditions for the work in the field. QA Officers and QC Monitors control the work in the field and after the completion of operations, Quality Control procedures have to determine whether the area remains mine contaminated. According to the Law on Humanitarian Demining and Rules and Regulations on Methods of Demining, the clearance company has to guarantee the complete clearance of mines, UXOs and their fragments.

Other Factors

Besides the large number of limiting factors, experience from around the world shows that even when dogs receive training related to the scent of explosives, there are situations when they do not detect UXO containing the explosive TNT, the type most frequently used. Research and indicators show this anomaly actually occurs with UXO that is hermetically sealed. This was clearly evident from two of CROMAC's 2005 demining projects. All those involved in the mine-action community should bear in mind that MDDs are trained to recognize "the complete bouquet" related to all scents of a "military arsenal." Also, it has been proven that a soil temperature of 26 C (78 F) is the most suitable for spreading of the explosive particles to the environment, and this range is the most optimal for MDDs.

No	Working procedures description	Prescribed number of points
1	Assessment of level of handler's knowledge-written exam	0-5
	Obedience exercises	
2	Walking by handler's leg on leash	0-5
3	Walking by handler's leg without leash	0-5
4	Stops, while walking	0-5
5	Abort of the dog	0-5
6	Moving in front of the handler	0-5
7	Resting dog	0-5
8	Modes to let a dog enter the test field	0-5
9	Evaluation of systematic searching method in accordance to the	0-10
10	Handler's rapport with the dog	0-5
11	Safety of the dog while detecting mines	0-10
12	Reliability of dog's findings and handlers	0-10
13	Distance between an indication and a burried mine	0-5
14	Number of wrong indications	0-5
15	Evaluation of found and indicated UXO fragments	0-5
16	Level of motivation to search	0-5
17	Level of focus intensity during search	0-5
Evaluation of overall work quality and behaviour of handler-dog team, total number of points=100		

Table 2: Point system for rating MDD teams.
GRAPHIC COURTESY OF MAIC

Conclusion

The training and assessment of the MDDs is not easy, and daily and weekly conditioning conducted by the handler is needed to guarantee quality MDDs. Several factors are responsible for the total quality rating and should be closely connected. The first two involve accreditation and rules and regulations. For accreditation, the handler needs to have a certificate or other type of proof that he passed the test in schools involved in training and dog breeding, which should be compliant with conditions prescribed by the established rules and regulations. The company also should submit breeding, training and performance documents for each dog as per standard operating procedure.

The final factors concern testing and monitoring/quality control. These basic measures should result in wider and safer usage of dog-handler teams in humanitarian demining in the near future. High quality and equitable testing must exist along with field survey to gain an insight into the status of companies' test sites and prescribed forms of daily, weekly and monthly conditioning and verification. Permanent monitoring and quality control, as well as education of QA Officers and QC Monitors, is necessary.

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News Brief

New Bug-like Demining Robots Tested in Arizona

Explosives investigation is a common task for remotely operated robots, but Mark Tilden has developed a new kind of robot with a unique approach to explosives. The robotics physicist at the Los Alamos National Laboratory built a demining robot resembling a stick insect that is nearly autonomous.

The insect-robot recently participated in a live-fire test at the Yuma Test Grounds in Arizona and performed well, according to reports. The robot sought out landmines, purposefully stepping on a mine and losing one of its many legs. When it lost a limb, the robot simply picked itself up and readjusted to move on its remaining legs through the minefield.

Left with only one leg, the machine continued to pull itself forward and demine the field. At this point, the Army colonel in charge of the test ordered the exercise stopped.

The colonel, it seemed, could not watch the scorched, crippled robot dragging itself through the desert minefield with just one leg. He said the test was just too inhumane.

feature

National Ownership and Partnerships for Capacity Development

Through the lens of Jordan's mine-action history, the importance of strong leadership, national ownership and partnerships are detailed here as necessary for capacity development.

by Mired R. Z. Al-Hussein [National Committee for Demining and Rehabilitation]
and Olaf Juergensen [United Nations Development Programme Jordan]

In 1993 His Majesty the late King Hussein bin Talal ordered the Jordanian Armed Forces to begin demining in Jordan. The King was deeply concerned by the disastrous humanitarian impact landmines were having upon innocent Jordanians and believed something had to be done about it. King Hussein made this decision prior to the signing of the Israel-Jordan Peace Treaty[1] and four years before Jordan joined the Ottawa Convention.[2] King Hussein and his wife Queen Noor set the trend for years to come by emphasizing this issue. Mine action became a national priority and was consequently viewed not only as a humanitarian imperative, but as a goal intrinsically tied to development.

Jordan's Lessons

To date, several lessons have been learned from the Jordanian experience in mine action. The most vital is the recognition that without political will and leadership from the top, such initiatives will fail. Mine action is slightly different from other humanitarian causes due to the great number of stakeholders involved. For instance, mine action in developing countries demands the involvement of a wide cross-section of society, including key government ministries; in the case of Jordan, the Ministries of Foreign Affairs, Interior, Defence, Planning, Social Development, Agriculture and Tourism have all played catalytic roles. The military, police, civil defense, local councils, notables, tribal elders and mine-affected communities have also provided key contributions. In the view of the NCDR and the Jordanian government, success in mine action is sustained by strong leadership that requires all players share a common vision and objective. Without such direction, mine action will be subjected to bureaucratic obstacles and delays and will be thrown into a basket with numerous other national priorities. What is required early on in mine-affected countries trying to establish demining programs is the nurturing of political awareness and stewardship from the top.

Mine-affected Countries Have Needs

Many mine-affected countries simply do not have the financial resources to earmark for mine action and instead rely on international donor funding. Mine-affected countries have to realize, however, that donors only like to fund projects in countries that show maturity in their approach to mine action and are willing to own the problem rather than outsource it. The idea of national ownership is crucial because it places responsibility on the right shoulders. By having a viable national authority that gathers information, plans, strategises and implements projects, the chances of success and sustaining the overall effort will no doubt be higher.

Certainly mine action in Jordan has not always been easy. The difficulties have been attributed to bureaucratic and technical challenges more than anything else. Having said this, however, Jordan has recently redoubled its efforts and taken a different approach. Thanks to the direct support of His Majesty King Abdullah and the Jordanian government, the National Committee for Demining and Rehabilitation, which spearheads mine action in Jordan, has been able to develop into a responsible organization that knows what it wants and how to get it.

Two years ago, the NCDR formulated a national plan for mine action in Jordan, with input from all key local stakeholders and the international donor community. In addition, the United Nations Development Programme supported the NCDR with a capacity-development project, which saw the appointment of an international expert as a Chief Technical Advisor to the NCDR. The result of all these efforts is that Jordan can and will be—God willing—free of mines[3] by its Ottawa Convention[2] deadline, 1 May 2009.

Partnerships and Capacity Development in Jordan

One of the true hallmarks of mine action is the vibrant networks and partnerships that have developed over the past 10–15 years. Such collaborative efforts have focussed on mobilizing political, financial and human resources, and today we can point to substantive progress in the sector—be it on the number of countries who have signed the Ottawa Convention or on the number of hectares returned to mine-affected communities. As noted above, capacity development in Jordan has involved all manner of local stakeholders in forging a common system (organizational framework) for mine action to operate in the Hashemite Kingdom of Jordon. NCDR tabled the integrated national mine-action plan two years ago, and for the first time, the country approached mine action from a holistic development perspective. Prior to the drafting of the plan, the landmine problem

A donor-government quarterly coordination meeting with HRH Prince Mired as chairman. He is flanked by a member of the Board of NCDR (right), UNDP (immediate left), and GICHD (far left).
PHOTO COURTESY OF NCDR

was being approached from an engineering perspective in Jordan, and it was clear to the local leadership that operationally, the work was not occurring with as much speed, coordination or efficiency as was necessary. At this point the government sought the support of UNDP—there was an internal demand for international involvement to provide strategic and technical assistance in the strengthening of the NCDR.

Since the government of Jordan and UNDP joined forces in 2004, Jordan has accomplished much in the operational and managerial arenas. The NCDR has attained an active quality-assurance capacity; socio-economic and victim information is being collected, analyzed and disseminated; and most importantly Jordan's Article 5 obligation[4] is within reach. Clearly, mine action in Jordan can tap a relatively well-trained and educated population; its infrastructure is sound; and its overall mine problem is not large in comparison to other programmes. However, Jordan's ability to reach out and utilize the existing political and technical knowledge networks has been exemplary. Also, this outreach has allowed Jordan to quickly build strong partnerships with the international community, which has seen Jordan's vision, commitment and organization concerning the dual objectives of meeting its Ottawa Convention target and providing the space for human development to occur in some of the most fertile and agriculturally important areas of the country. Although Jordan's landmine problem is not large in size, the scope of its impact is great as the country has one of the highest population growth rates in the world, and less than 25 percent of its territory is suitable for agriculture.

UNDP Helps Find Resources

UNDP's role in the case of Jordan's capacity development has been to help introduce and draw upon the international resources that are available to mine-affected countries. First and foremost, strategic technical partnerships were built that allowed for customization of general guidelines to what best fit the needs of Jordan. Finding the best fit has included working closely on a host of operational matters with outside technical actors, such as the Geneva International Centre for Humanitarian Demining, James Madison University's Mine Action Information Center, the International Committee of the Red Cross, UNICEF, the United Nations Mine Action Service and Norwegian People's Aid. On issues related to the Ottawa Convention, words of encouragement and direction have come from civil society, as both the International Campaign to Ban Landmines and ICRC have been valuable partners. In perhaps the most important area of cooperation—donor partnership—the NCDR has gone from almost negligible support in 2004 to today with more than 15 donors supporting mine action in Jordan. The regular flow of information (quarterly donor meetings, newsletters, etc.) and succinct reporting have helped this assistance develop. Nontraditional donors such as China, Monaco and South Korea are now mine-action partners to Jordan as well.

Looking at Jordan's approach to capacity development in mine action several lessons can be drawn. First, there needs to be strong leadership coupled with a long-term vision and commitment to what capacity needs to be built and why. Second, partnerships based on an open and balanced relationship—be they government, donor or implementing partner—help promote sustainable and realistic local capacity development solutions.

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Perspectives on Capacity Development

Richard Kidd, PM/WRA
by Daniele Ressler [Mine Action Information Center]

On 5 March 2007, Daniele Ressler interviewed Richard Kidd, Director of the U.S. Department of State's Office of Weapons Removal and Abatement in the Bureau of Political-Military Affairs. The interview was conducted to discuss Kidd's perspectives on capacity development and how it is tied into mine action. Through the course of the interview, Kidd addresses how PM/WRA understands capacity development, successful examples of capacity-development project implementation, lessons learned and the future of capacity development in the mine-action process.

Daniele Ressler: ***How do you, as a representative of PM/WRA define or understand capacity development in the context of mine action and what are the underlying things that make this concept important to PM/WRA?***

Richard Kidd: While there is no simple or direct definition for capacity development … the United States basically considers that the indigenous capacity exists within a mine-affected country to get itself to an impact-free[1] status and to maintain some form of residual capacity to respond after that as new trends emerge. That's the closest thing we have to a definition, and it takes on a different sort of form and structure in different countries, based on both the mine threat and the capacity that may have existed in that country to begin with. This belief is what we in WRA operate under as we do our country planning: impact-free status—can the country get there? What makes this concept important? The underlying foundation of why this is important is a major component of U.S. political philosophy and international-relations philosophy: States must be responsible for providing the public goods that states provide; and they cannot walk away from those responsibilities. So in this case the public good that might affect its states' need to provide is safety—safety for their citizens, access to land and livelihood. That is a responsibility of states to provide and, we, the U.S. government, will help them get there.

DR: ***Does PM/WRA usually look at capacity development in terms of working at a national level, such as large-scale funding and support for the national mine information centers, or do you view capacity development in terms of a smaller-scale level of application, such as funding and support for specific individual institutions or tasks like technical support?***

RK: It depends on the country because for each country we do a country-support plan. And that plan is based on that country's specific approach to solving their mine-action problem and what that country's strategic plan contains. As you know, the United States has been a strong champion of strategic planning, and back in 2004 we made our assistance contingent upon countries producing strategic plans. So, we don't by policy say that we are going to do national capacity development over a more local capacity development. We say that countries need to articulate how they are going to structure the response to their mine threat, and then we will support them within that structure.

DR: ***In your opinion, what are some examples of successful capacity-development initiatives in mine action and what are the key components leading to this success?***

Richard Kidd in Cambodia visiting a U.S.-sponsored Mines Advisory Group program, March 2007.
PHOTO COURTESY OF JOHN FLANAGAN/UNMAS

RK: Well, two countries just jump right out in terms of great success stories and they are Yemen and Azerbaijan. What makes them successful is that those governments have committed resources. It's a very simple rule of thumb, proven throughout the world that if a country, no matter how poor it is, doesn't choose to commit any of its national resources, it's not invested in the process. You have a number of mine-affected countries that have basically set up their mine-action programs as the catch-basin for foreign assistance. Now both Yemen and Azerbaijan obviously have some resource constraints, but in both cases they have chosen to put their own government money into the program. And as a result, they have a sense of ownership. They want efficiency and they want accountability, which sadly, seem to be less important when countries don't commit their own resources toward the problem.

DR: ***Are there any projects, activities or general initiatives that you are presently doing or planning for the future to promote or sustain capacity development in mine action that you think are particularly interesting for our readers to know about?***

RK: More important than any projects or activities is U.S. policy, in terms of assistance. As I mentioned earlier, U.S. policy makes our assistance contingent upon national strategic planning because that forces countries to address hard questions about their future and to hopefully look at their structures, training needs and requirements in a focused, analytical way. I think that has been the United States' greatest contribution to this issue. We were the first country to expect the existence of a strategic plan, a policy that has been copied, in a related manner, by the United Nations and by the Ottawa Convention.[2] So that has been our biggest contribution to the issue of capacity development. In terms of project specifics, integrated into a lot of our programs are management training, strategic-planning training and quality-assurance training for the actual demining. Our assessment in terms of capacity development is that it's not a matter of technology or technique. The countries have learned how to demine safely. The key issue is one of management, leadership and planning skills, and that's what we're focusing our efforts on.

DR: ***When did the U.S. start moving toward this policy of asking for and requiring strategic plans?***

RK: 2004.

DR: ***Has there been a large increase since that time in the number of countries that have been providing strategic plans?***

RK: Yes … not only an increase in the number of strategic plans but a gradual increase in the quality of those plans. Back in the early 2000s, you had plans that said, "It will take 200 years to clear our country of landmines, please give us [US]$50 million a year to do that." That was the extent of the articulated strategic vision of a lot of these countries. Fortunately we are well past that and countries are now able to differentiate between the contamination that causes impacts and the contamination that doesn't. [They now] prioritize their resources and construct mine action programs that are matched to the impact.

DR: ***So it sounds like you are seeing progress in this aspect of working on capacity development.***

RK: We are, and the other way you can measure progress is by looking at what is no longer there. Previously, say five years ago, the model was massive U.N. bureaucracies that ran mine-action programs in Cambodia, Afghanistan, Bosnia, Mozambique, and northern Iraq. Those bureaucracies have disappeared and they have not been replaced by an expatriate presence on the same scale. And that alone is indicative of the development of national capacity.

DR: ***What, if any, innovative lessons learned has PM/WRA identified after working on capacity-development initiatives in mine action?***

RK: The lesson learned is this: Is the country making some form of investment? If not, then the capacity-development effort is probably not going to lead

anywhere. And we have an example recently of a country [in which] we've just basically said we've given up attempting to develop national capacity. Instead we're going to pay [a nongovernmental organization] to clear the highest impact areas and then we're going to go home. The precursors for successful capacity development were simply not there.

Of course there is the issue of corruption and accountability—if states do not hold people accountable or allow transparent assessment of donor funds, then that is also a good sign that they are not interested in developing the capacity to clear mines and are more interested in the employment or the access to resources. We've learned that if you take a look at the number of expatriates in an organization, generally the more expatriates, the less national capacity. That doesn't mean there should not be any expatriates; it just means that if expatriates are doing the job that could be done by the host nation, then the national capacity is not where it should be.

Another lesson learned, finally, is that South to South[3] transfer of knowledge and expertise is often better than North to South and the United States I believe is the only country that funds the [United Nations Development Programme] South to South technological and expertise exchange. We've also encouraged NGOs and the U.N. to hire people from one mine-affected country and then deploy them to others, the best case being the movement of Afghan NGOs and Afghan individuals around the world as part of various NGOs of the U.N. program.

DR: ***Where do you see the greatest areas of hope or promise for future success in capacity development in mine action? What about the greatest challenges for the future?***

RK: The future success for capacity development and mine action is primarily dependent upon the will of the mine-affected countries. Do they really want to develop capacity and are they prepared to make hard choices that come in an environment based on sound management practices? That's both the hope and the challenge.

DR: ***Any other comments, quotes or important issues you would like to address in regards to capacity development and mine action that you would like to share with readers?***

RK: I think this is a very important issue. One of the key challenges is for countries to think through what capacity they need to be in place after the majority of the mine impacts are removed. In other words, what will need to be there for the long term? Many countries in Europe are still affected by mines and ordnance from the First and Second World Wars. They do not have massive bureaucracies designed to search these out and remove them, as is the case of many current mine-affected programs. Instead, they have monitoring systems as well as response systems in place. So long after major industrial-scale demining ends in, say, Afghanistan or Cambodia, there is still going to be a need for a residual response mechanism, and what are countries doing now to prepare for that?

This also includes labor law and labor benefits. We're now reaching the point where the capacities in terms of national clearance capacities that were built up during the peak of mine action cannot be sustained. So what do you do with those deminers? It's a matter of responsibility both for the donors and for the mine-affected countries. What do you do with these men and women who spent 10 years doing dangerous work and now they are no longer needed?

The second issue, along the same lines is what is the role for the major humanitarian-demining NGOs? What about MAG,[4] HALO Trust or Norwegian People's Aid? They are tremendous humanitarian organizations, initially the first responders, the ones who have made, in many countries, the greatest contribution to public safety—but are they now becoming redundant as they basically work themselves out of a job? And are they becoming an impediment to the transfer of skills, expertise and, most importantly, ownership? I think that is a fair question to start being asked by the mine-action community.

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> Massive U.N. bureaucracies that (previously) ran mine-action programs ... have disappeared and they have not been replaced by an expatriate presence on the same scale. And that alone is indicative of the development of national capacity.

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Perspectives on Capacity Development

Sara Sekkenes, United Nations Development Programme
by Daniele Ressler [Mine Action Information Center]

On 30 March 2007, Daniele Ressler interviewed Sara Sekkenes, Senior Programme Advisor and Team Leader for Mine Action and Small Arms in the United Nations Development Programme's Bureau for Crisis Prevention and Recovery. The interview was conducted to learn more about Sekkenes' and the UNDP's views on the role of capacity development in mine action. Lessons learned from past UNDP capacity-building activities are highlighted, as well as plans for future activities and the process of mainstreaming mine action.

Sara Sekkenes.
PHOTO COURTESY OF UNDP

Daniele Ressler: ***How do you, representing the UNDP, define or understand capacity development in the context of mine action and what are the underlying things that make this concept important to the UNDP?***

Sara Sekkenes: In terms of definitions, a development need is the difference between current and required or desired performance. Capacity development would be an ongoing approach and process concerned with identifying or boosting and sustaining national capacity to enhance overall development. That's the core mandate of what we do.

The whole idea of UNDP supporting mine action obviously stems from the fact that landmines are senseless remnants of war that create obstacles for development and access to social and physical infrastructures. Obviously, it's something that lies very close to our mandate, in terms of promoting the Millennium Development Goals.[1] What UNDP does is assist national mine-action programs. We may assist to actually establish them and then we work, in particular, with capacity development to support mine- affected countries' ability to manage mine-action institutions and to oversee and coordinate mine-action activities in their respective countries.

If you look at the mine-action centers, there are many different aspects of capacity development that UNDP works with. Perhaps some of the more obvious aspects are technical and operational issues; for example, we can deploy a Technical Advisor who has map-drawing expertise if that is identified as a need in a mine-action center.

Additionally, when we talk about mine action, we talk about so many different factors related to capacity development: the legislative framework for mine action; the national institution and their staff and personnel; administration and financial management; public relations; operational factors such as mechanical, canine and manual clearance; coordination and awareness-raising requirements for survivor and victim assistance; and resource mobilization to determine the plan and strategy for future sustainability of programs, to name a few.

We talk about how mine action fits into the overall development planning of a country in order to facilitate the social and physical infrastructural access, rehabilitation and expansion. We talk about the ability to perform or to draft national mine-action plans, and to integrate these into broader development planning and reconstruction plans and budgets. Ultimately, mine action is a very resource-demanding, complex activity and has until now remained quite donor-dependent, which we're trying to build down by lessening the dependency on foreign support to mine action.

Another aspect to consider in mine action is "mainstreaming." The threat posed by mines should be mainstreamed in the sense that, where you have to build a road you also have to take into consideration other challenges or threats that might hinder or support why you should build that road there, as well as planning for any activities and costs these considerations may imply. And the landmine issue is just one of those threats. So, in that sense, I believe "mainstreaming" in and of itself needs some capacity development because the mine action community has no clear definition of what mainstreaming means or what we mean by mainstreaming mine action into development.

And, of course, with all these various facets of mine action, we need to define explicit goals. Where are we? Where do we want to go? This should obviously be done together with those who we are trying to assist; it's not something that UNDP can or should do on its own. Rather, this is a constant and progressive dialogue with those affected governments that we assist. We should together draft and develop plans of how we're going to achieve these goals, including supporting affected governments to abide by the international commitments they have undertaken, and mainstream mine action. We need to establish meaningful relationships between advisers and counterparts. We need to develop and sustain collaborative working alliances. We need to work on counterpart ability and readiness to change. Capacity development is not only to support change, but it's also to help all stakeholders to understand what needs to be in place in order to achieve change.

DR: ***In your opinion, what are some examples of successful capacity-development initiatives in mine action and what are the key components leading to this success?***

SS: I think we're talking about optimal activities where we've reached the level of desired performance. I can mention many, many good examples of activities that have reached a level of performance to the full satisfaction of those involved, including national institutions, operational counterparts conducting the programs and donors funding the activities. This requires taking into consideration the challenges and the conduciveness of the environment in which these tasks are supposed to be achieved or carried out. Clearance activities may or may not have been to a full level of the International Mine Action Standards, which require a level of resource mobilization many affected countries will not be able to obtain in the long run. Desired performance, however, will be along the lines of best practices with a justifiable and transparent level of efficiency and effectiveness.

International, national and local mine-action actors have had an extremely steep learning curve over the years. In countries like Afghanistan, Cambodia and Lao PDR, we're talking 15, 18 years of humanitarian or development mine action. During that time period, we have seen a narrowing in the gap between the professionals carrying out mine action and the professionals working in development. We've also watched a growing understanding of the need for measuring the impact of mine-action activities.

Ten years ago, you had a clear focus on measuring the results of mine action in terms of the number of mines and square meters cleared. However, we have found that you can have remote mountain areas and borders that are littered with mines and high-density minefields, and you can clear as many square meters and mines there as you wish, but there may be little or no impact in terms of facilitating for, or directly improving, the living conditions for civilians and mine-affected communities. Exceptions occur, of course, where border areas contain high levels of cross-border activities such as the heavily mined K5 belt on the border between Cambodia and Thailand.

So over these 10 years, that whole notion has completely changed. I think you will find very few today that would argue that you don't need to prioritize where you carry out mine-clearance activities. We've improved every aspect of mine action. We have improved manual demining, mechanical demining, dog demining, the strategic planning, the survey work, the databases. In fact, we've significantly improved mine-action clearance operations—but during these 10 years, we've also become much better at questioning where we do mine action and why we do it.

> "We've significantly improved mine-action clearance operations, but during these 10 years, we've also become much better at questioning where we do mine action and why we do it."

DR: ***Are there any projects, activities or general initiatives that you are presently doing or planning for the future to promote or sustain capacity development in mine action that you think are particularly interesting or edifying for our readers to know about?***

SS: During the five years that UNDP has been placed in the Bureau of Crisis Prevention and Recovery,[2] there's been a sharp increase in the requests for assistance from mine- affected countries and a deliberate expansion of the mine-action activities. It's always been said that we're supporting national authorities to address the mine problem with capacity development and transition, to help them reach desired performance levels and have national ownership of progress. But we have not necessarily clarified what is really meant by capacity development at large in the international community and, even more challenging, identified how we mean to systematically achieve these goals associated with capacity development.

To that extent, we now have a project in the UNDP Mine Action Unit where we're trying to establish benchmarks for all the countries we've worked in, to gauge where these countries are now in terms of the level of capacity development achieved within a huge range of activities as well as determine together with [country] authorities where we are going. The goals of this project are to look at a country's actual performance and projected performance to gauge where we're at now; establish common indicators to determine what the end goals might be or what we're looking at ahead; and, together with our national counterparts, use these indicators to identify their desired performance levels that will measure when we can phase out the capacity development support that we're providing. The intention of this project is to come up with the indicators that will allow us to see different phases in drawing down our support in parallel to the increase of capacity in-country.

DR: ***So it sounds like this future project is going to be one of the major focal points of your UNDP Mine Action Office.***

SS: Yes, it will. We haven't established indicators for capacity development in the past in UNDP, as I understand, and I don't think any other operations are doing this either. This idea was introduced recently at the annual program managers' meeting and it was very well-received.

Of course, the process of measuring indicators and progress is not purely scientific and absolute, but this project is definitely something that will create a uniform methodology and approach to capacity development to achieve desired outcomes in the various countries even though the expectations may differ between countries, depending on how a country wants to address its mine problem.

As of today, I can't really say that we have anything that proves we've achieved what we said we endeavored to try to achieve, even though, as mentioned, huge improvements have been made.

DR: ***What, if any, innovative lessons learned has UNDP identified after working on capacity-development initiatives in mine action?***

SS: One lesson learned by UNDP is that you have to document what you are doing, make plans and identify goals to be achieved. If that's not done, you will never be able to answer a question of what you have achieved from your counterpart, a donor or your boss. We also have to make up our mind on how far we want to go with our long-term commitment to projects and programs, as you can easily create expectations and dependency if you aren't able to say when you're going to stop. National governments in mine-affected countries also have to decide how they ultimately are going to address the mine-action program because many of them are under binding international obligations that clearly specify the end goal.

I think another lesson learned is that we still believe that mine action requires one specific expertise and educational training that most deminers commonly acquire in the military. I think military training is fully valid in terms of some of the tasks that are carried out in mine-action. But I think we have also learned that we need so much more than that as well. And I want to emphasize "as well" because without the clearance and EOD [explosive ordnance disposal] capacity and experience, we're obviously a little bit lost. But we're also lost if we don't acknowledge the contributions from other sectors such as the affected communities themselves, development, administration and management sectors with specific expertise on community needs, management, administrative, financial, logistical and outreach skills, to name a few. I think that mine action would perform better if we just acknowledge that we do need a diverse pool of personnel to staff institutions that are going to address the mine-action problem.

> "We're lost if we don't acknowledge the contributions from other sectors such as the affected communities themselves, development, administration and management sectors with specific expertise on community needs, management, administrative, financial, logistical and outreach skills, to name a few."

DR: ***Where do you see the greatest areas of hope or promise for future success in capacity development in mine action? What about the greatest challenges for the future?***

SS: Future success builds upon the acknowledgement of lessons learned and I think we're getting there. Another facet of future success is increasing acknowledgement of the need to mainstream mine action because I think that's the only way you can actually make it sustainable: ensuring that mine action needs are addressed within the broader development planning and implementation.

The future success of capacity development faces a great challenge in our limited understanding regarding diversification in mainstreaming of mine action. Also, one political challenge is if we don't see some of the successes that we want to see in 2008 and 2009 in terms of the Anti-personnel Mine Ban Convention[3] it might be difficult to argue to donors to continue supporting mine action directly.

Another challenge is how to ensure that counterparts are qualified, and not political appointees who are less capable and perhaps even less interested in constructively addressing the mine problem. There are a number of examples where undesirable effects of political appointees and corruption stymied development. There has been a huge amount of money—well over US$2.5 billion—readily available for mine action over the last 15 years. That money has been made available, either bilaterally or multi-laterally, to governments, national or international organizations and operators in various forms. With that amount of money comes a range of opportunities that can be interpreted in a wide variety of ways, but which requires responsibility in ensuring the funds are used effectively and efficiently in solving the mine problem.

There are also a lot of cultural differences and other needs to be met, particularly in countries that are going through a major post-conflict phase and/or are facing severe poverty problems with dysfunctional social services. Often, general and specialized education levels are low, health is poor, income generation is low and so on. For example, I worked with a mine-action center database once where my counterpart literally did not know how to switch on a computer and had no interest of learning to do so, either. He was also rarely present as the state salary he received was not enough to sustain his family. Consequently, he spent more time absent from the job and pursuing other means of income-generating activities. That's a challenge.

In terms of "capacity development" or "capacity building," what if there isn't anything to build on? Where do we start? And at what level do we start? Do we start by giving extremely basic computer-literacy training? Or do we count on at least computer literacy being one requirement in terms of requirements for recruitment? That doesn't mean that it's impossible, but there are many challenges out there that have to be acknowledged.

Working group considering the process of capacity development and transition in Geneva in March 2007 during the Mine Action National Directors and United Nations Program Advisors meeting.
PHOTO BY MELISSA SABATIER/UNDP

DR: ***Any other comments, quotes or important issues you would like to address in regards to capacity building and mine action that you would like to share with readers?***

SS: There has been a common understanding worldwide that the mine problem can be solved and will be solved within a foreseeable future and is the responsibility of affected countries to do so. Having concluded by consensus—strong consensus—that that is the case, capacity development is a must. We will not solve the mine problem without capacity development.

During the program managers' meeting in Geneva [22–27 March 2007], there was an overall understanding amongst donors and practitioners that capacity development is key to solving the mine problem in a responsible way that addresses both efficiency and effectiveness. We have to balance the mine problem vis-à-vis other challenges that many of the affected countries face ... and acknowledge that mine action doesn't necessarily have the exclusive right to be priority number one. While this does not negate the obligations under the Anti-personnel Mine Ban Convention, we need priority-setting and mainstreaming to ensure that the areas affected communities the most are dealt with as a matter of priority. We need to ensure that we clear the right minefields first and we also need to be aware of other, perhaps larger, problems such as HIV/AIDS, malaria or even deadly traffic environments that need to be addressed. That's what I mean by effectiveness: addressing mine action in terms of the overall goal of development.

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News Brief

"Helpful Friend" Establishes Eco-friendly Rehab Center

Helpful Friend, an organization working to address the problem of landmines and meet the needs of mine victims in Nepal, is establishing an eco-friendly rehabilitation center outside the capital city of Kathmandu. The center will be based on HF's property in Kakani village. Construction work will be finished by the end of August and the property open for business in January 2008.

Landmines have been a persistent problem in Nepal since its war with the People's Republic of China. Hundreds of Nepalese citizens are injured or killed every year. Many of these victims become jobless, and the HF rehabilitation center hopes to provide much-needed assistance.

Initially 20 people will be admitted to the center, where they will produce organic vegetables to make the center self-sustainable and provide meaningful labor to the patients. Traditional Nepali cottages from different ethnic groups will be constructed on-site to cater to local expatriates, tourists and other travelers. The center plans to be an eco-tourist site, expanding its appeal with opportunities for bird-watching and pony-trekking.

Residents will not only work on the organic farm but also take advantage of the center's fishery. They will produce handicrafts and other products such as pottery, jewelry, bamboo products and handmade Nepali paper for center use and profit. Power at the center will be provided by solar panels and cooking will be done using bio-gas.

For more information on the Helpful Friend rehab center or the organization itself, visit www.helpfulfriend.org or contact info@helpfulfriend.org.

Building Prosthetics & Orthotics Capacity in the Balkans

The government of Bosnia and Herzegovina (BiH) has been working with the Northwestern University Prosthetics/Orthotics Center in developing the Center for International Rehabilitation's distance learning program to give formal training to experienced prosthetic technicians since 2003. In January 2006, the program's first students graduated with an International Society of Prosthetics and Orthotics Category II certificate.[1] The efforts of the CIR have led to the formation of the BiH Association of Orthopedic Technology, which is in the process of creating an ISPO regional center.

by Nikola Prvulov, Justyna Przygocka and Dr. William K. Smith
[Center for International Rehabilitation]

The CIR students discussing modifications to a plaster mold before making a test socket.
ALL PHOTOS COURTESY OF THE CIR ARCHIVES

The 1992–1995 war in BiH left the country heavily contaminated with landmines and unexploded ordnance. During the conflict, landmines and UXO were used to protect the front lines. After the war, these devices were set next to roads and around houses to prevent people from returning to their homes. As a result, BiH is among the most mine-affected countries in the world, with the largest and most complex landmine-contamination problem in Europe.

Unreliable information on minefield locations and a lack of minefield records make this situation extremely dangerous.1 Since the beginning of the war, there have been 4,921 mine/UXO casualties.2 Members of the international community and various nongovernmental organizations have responded to this urgent humanitarian problem by initiating a variety of programs, working with the local government to clear landmines, promoting landmine education/awareness, and offering landmine assistance programs that provide education, employment and rehabilitation services to landmine survivors.

There are currently 2,280 men, women and children living in BiH who have suffered the amputation of one or more limbs due to mine/UXO incidents.[3] As a result, there is a tremendous need for specialists who are able to provide high-quality prosthetic services quickly and efficiently. To address the demand for more trained prosthetic practitioners, the Center for International Rehabilitation introduced a Distance-Learning Program in prosthetics in BiH in early 2003. The CIR is establishing a regional hub in Bosnia to provide training upgrades to technicians working in rehabilitation centers throughout the Balkan region.

Implementation of the CIR's Distance Learning Program

In June 2002, the CIR conducted a program assessment as the first step toward establishing a distance learning program in the Balkans. Based on this assessment, the CIR selected a group of centers to participate in network activities. A few of the activities were distance-learning data collection and reporting, technology development and clinical consultation.

The CIR Distance Learning Program was launched in January 2003 and is headquartered in the Prosthetics Department at the Univerzitetski Klinicki Centar in Tuzla, BiH. A Category I[4] International Society of Prosthetics and Orthotics certified prosthetic educator was hired to develop the capacity of the prosthetic services and staff at the UKC. Four local individuals were employed in supporting roles as a prosthetics assistant, IT specialist, translator and regional administrator.

The CIR's program was designed for prosthetic technicians who had three to five years of experience providing prosthetic services but had not received any formal training. This innovative education program stresses collaborative, interactive learning and is designed to be adapted to different cultures, learning styles and technological resources. The online portion of the program is supplemented with hands-on instruction, periodic evaluations, weekly quizzes, and theoretical and practical examinations. The content incorporates text, graphics, photographs, case presentations, videos and hybrid CD-ROMs. To facilitate online communication and interaction, the CIR initiated a cooperative agreement with WebCT, an enterprise

software and services company serving the education industry, to develop the first ever Serbo-Croatian (Bosnian dialect) language plug-in for WebCT's Campus Edition 3.8 software. The CIR later switched its online platform to a system called Moodle, an open-source distance-education platform that offers over 50 language packages, offline course-delivery options, and customizable communication and assessment tools.

The CIR's distance education courses were developed in collaboration with the Northwestern University Prosthetics/Orthotics Center. To date, four courses have been developed: Lower Extremity Prosthetics, Upper Extremity Prosthetics, Lower Extremity Orthotics and Upper Extremity Orthotics. Relevant topics within each course are designed based on module sets, which are comprised of individual modules covering specific topics. For example, the Lower Extremity Prosthetics course is comprised of the transtibial module set, the transfemoral module set, the ischial-containment module set and the partial-foot amputation module set. The transtibial module set is comprised of 12 modules covering topics such as anatomy, casting and evaluation. ISPO Category II curriculum guidelines were used to develop the course content so that students would be able to obtain Category II certification upon completion of their studies.

Student in the CIR's distance learning program working on a transtibial socket during the ISPO practical exam.

The first class to participate in the program included 25 prosthetic technicians from 11 different rehabilitation centers located in BiH and one center in the Republic of Slovenia. These students completed the program in approximately three years. In January 2006, 19 graduates of the program took the ISPO Category II Prosthetic Technologist Certification examination, conducted by the Chairman and one member of the ISPO Education Committee. Independent international examiners from Bosnia, Germany and Macedonia also assisted with the evaluation. The exam was comprised of both theoretical and practical components, and students were required to make a case presentation and fabricate a prosthetic device for a patient. Seventeen of the participating students received ISPO Category II Certification in lower extremity prosthetics (transtibial and transfemoral), and the other two students were given the opportunity to successfully complete the exam at a later date. This marked the first time that this certification was awarded to students in the region.

Federal Health and Education in BiH: Incorporating the Distance Learning Program

Creation of a learning environment. Since the program's inception, the CIR has been engaged in a dialogue with the Federal Ministries of Health and Education of the Federation of BiH and the Republika Srpska[5] to facilitate a process for formal government accreditation of prosthetic and orthotic training programs. As a result of these discussions, the Ministry of Education appointed a liaison to work with the CIR and review its curriculum for possible incorporation into a national curriculum for P&O.

The CIR is working in close collaboration with Tuzla UKC and the Cantonal Ministry of Education to explore ways of increasing local recognition and integrating the CIR's program into the higher-education system in BiH. In 2006 the CIR participated in a roundtable discussion with the UKC, representatives of ISPO, the president of the Association of Orthopedic Technology in BiH, and the Federal Ministries of Health and Education (Tuzla cantonal and federal) of both the Federation of Bosnia and Herzegovina and the Republika Srpska. All parties engaged in a positive dialogue regarding the future of P&O education in the region and agreed to work towards recognition of practicing technicians.

Institutional development. Following the ISPO accreditation in January 2006, the CIR began to formally transfer its distance learning program to the UKC. The CIR is licensing the course content and materials to the UKC while continuing to assist its faculty in the delivery of the online portions of the training and oversight of the planning and implementation of all hands-on practical evaluations.

The CIR will provide program development support and assist the UKC in securing human and financial resources to develop new educational content in other areas of rehabilitation. The CIR and the UKC have been working with the Federal Ministry of Health of Bosnia and Herzegovina to leverage funding from the International Trust Fund for Bosnia to support the implementation of a distance learning program for a new generation of prosthetic technicians and an additional orthotics course for the CIR's recent graduates. When the process is complete, the UKC will be in the position to train local and foreign technicians from neighboring countries. It will charge tuition to recover all costs.

The CIR, in partnership with the UKC, is in the process of increasing its efforts to provide assistance to Iraqi prosthetists. They are currently working with the Iraqi Ministry of Health to negotiate the launch of an Emergency Disability Project that would provide upgraded training to Iraqi prosthetists. Furthermore, the CIR, in partnership with the UKC, is currently negotiating with the Iraqi Ministry of Health and the World Bank to provide training to a number of Iraqi professionals in the Rehabilitation sector at the UKC facility in Bosnia. The proposal calls for short courses lasting up to six weeks to be taught to professionals in three different disciplines including physicians, physical therapists and prosthetists/orthotists.

Students preparing test sockets during the ISPO practical evaluation in Bosnia and Herzegovina.

Community participation. Another positive outcome of the CIR's distance learning program activities in the region was the formation of the BiH Association of Orthopedic Technology, which acts as a representative body for prosthetic technicians working in BiH. One of the association's tasks is to create a regional chapter of the International Society of Prosthetics and Orthotics. Once a regional chapter is established, members will be able to participate in ISPO activities and hold regional conferences. An affiliation with ISPO will give local prosthetists access to ISPO resources, including important professional contacts and networks.

Strengthening management and human resources. While running its distance learning program in BiH, the CIR worked closely with administrators from collaborating clinics and centers to discuss management issues, often providing advice and guidance on effective management strategies for prosthetic and orthotic workshops and laboratories.

The prosthetic assistant the CIR hired was an employee of the UKC who had prior experience in provision of prosthetic services. He provided guidance and instruction to students and assisted with logistics and asset management during the evaluation of students. He continues to work for the UKC and now has the advanced program-management skills to assist the UKC in the implementation of future programs.

The UKC will participate in the CIR's Train-the-Trainer program, designed to transfer advanced technical and management skills. Through this program, the UKC lead prosthetics instructor will travel to the United States for further training at the CIR and Northwestern University.

Summary

From 2003–2006, the CIR successfully ran an innovative distance learning program in prosthetics in BiH. Of the initial cohort of 19 students, 17 received ISPO Category II certification upon completion of their studies. The CIR also worked with local and governmental ministries to begin the process for national adaptation of its prosthetics curriculum and made strides toward securing professional recognition for prosthetic technicians in BiH. Going forward, the CIR will continue to build capacity in the region by developing new collaborative initiatives with the UKC and government officials. The CIR will provide technical assistance to the UKC to support the development of a P&O training program and will support the expansion of professional resources and networks such as the Association of Orthopedic Technology. Ultimately, these efforts will improve the services available to landmine survivors throughout the region and strengthen the rehabilitative care infrastructure in BiH.

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Nikola Prvulov, the Center for International Rehabilitation's Field Operations Manager, is bilingual in English and Serbian (Serbo-Croatian) and has extensive experience in the Balkans, having previously worked with organizations that included the United Methodist Committee on Relief, CARE and the American Refugee Committee. Nikola has a master's degree in outdoor therapeutic recreation administration with an emphasis on special populations from Aurora University (Illinois) and an undergraduate degree from Unity College in Maine.

Justyna Przygocka recently joined the Center for International Rehabilitation after graduating from the University of Massachusetts at Boston where she received a bachelor's degree in political science with a certificate in international relations and a minor in economics. Justyna is Office Manager and Administrative Assistant to the CIR's President.

Dr. William Smith is President of the Center of International Rehabilitation and founder of Physicians Against Land Mines. He is a board-certified physiatrist, trained prosthetist and principle architect of the CIR's distance-education program. Dr. Smith serves as adjunct clinical instructor at Northwestern University Medical School and as Principal Investigator on the CIR's International Disability Educational Alliance grant from the U.S. Department of Defense.

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making it personal

Unsung Hero: ALISON BOCK

Landmines Blow! Water Well in Mong Commune, Srey Snam district, Siem Reap province, Cambodia in December 2006.
PHOTO COURTESY OF ALISON BOCK

As the founder and president of Landmines Blow!®, Alison Bock has built an influential organization that raises awareness about landmines and unexploded ordnance, and helps victims all over the world. In the eyes of many people, Bock is truly an Unsung Hero.

by Matthew Voegel [Mine Action Information Center]

In today's world, sometimes it seems intimidating to stand up and make a difference. That feeling was no different for Alison Bock, founder and president of the nongovernmental organization Landmines Blow!, when she attended the summit on a Mine Free World in Nairobi, Kenya in November 2004. "When we attended [the summit] it was the first time I met real landmine survivors from everywhere," says Bock. "I was overwhelmed at how many people needed help and wondered how I could really make a difference because the problem was so huge and we were so small." But in the mine-action community, this defeatist attitude is not an option. "Then I met a landmine survivor from Cambodia who told me to focus on making a difference in the life of one person at a time. You can make a difference in one life. So I did and the rest, as they say, is history."

Bock was selected as a Volvo for Life Award semi-finalist from the state of Illinois because of her work to educate young Americans about the landmine crisis abroad and also because of her determination to help others in need. Stacy Davis of the U.S State Department, who has worked with Bock, says that her "dedication, commitment [and] drive to make a positive difference in this world" are what make her stand out as an individual.

Bock started Landmines Blow! in August 2003 and worked her way from the bottom up with her organization. "I started the organization with about $150 from my spare-change jar," reveals Bock. "I designed the logo and started selling T-shirts online and that is how we paid the bills for the first year." At the time, Bock was also attending school, holding a grade-point average of 3.8 and intending to graduate. "It was hard in the sense that it required a lot of time, especially the first year when I applied for the 501(c)(3)[1] and built the Web site with a book from the local library." However, when it came down to choosing between her education and her work, Bock chose the latter. "There was no way I could work full-time, found and run a nonprofit organization and go to school, so I put [my education] on hold. Once Landmines Blow! took off, I never looked back."

Landmines Blow!

"Landmines Blow! has been a volunteer-driven organization thus far so our overhead is low and most of the money we raise goes toward serving people, which is what it is all about," states Bock. The organization's main goals include raising awareness about landmines and unexploded ordnance and promoting women in their respective communities. However, Landmines Blow! also brings something new to the table. "We asked survivors what they needed," says Bock, "and they told us they needed clean water." With that, Landmines Blow! has made another one of its main objectives assisting survivors, refugees and internally displaced persons by providing them access to clean, safe water, which they do not have access to because of landmines and UXO.

Along with a different focus and approach, the organization's name itself has turned heads and gained attention. "I have a nephew that was about 18 at the time and he used the word 'blows' to describe his relationship with his girlfriend," reveals Bock. "I was in the middle of doing a research project for a cultural anthropology course on landmines, and I said out loud, 'landmines blow,' because they really do. That became the name of my paper and then my presentation and then my organization."

Since the beginning, Bock and Landmines Blow! Vice President Jose de Arteaga have pushed the organization to reach new heights. Landmines Blow! now has over 1,000 subscribers to its newsletter and has sold hundreds of T-shirts, hats and coffee mugs throughout the world to raise money for the cause. The organization's Web site receives thousands of hits each month and can now be found as one of the top 10 Google™ searches under the term "landmines." On top of that, the organization has been able to work closely with the U.S Department of State's Bureau of Political-Military Affairs Office of Weapons Removal and Abatement on certain projects and has also taken part in their Public-Private Partnership Program along with dozens of other organizations. This, of course, has given Landmines Blow! even more recognition. "After we launched Project Safe Water and received our first grant from the Department of State, we gained credibility with larger donors and corporate entities," explains Bock. "We get a lot of in-kind support from businesses [as well]."

Jose de Arteaga and Alison Bock in Kvek village, December 2006.
PHOTO COURTESY OF CHEA PHAN

Project Safe Water, which has become one of Landmines Blow!'s finest achievements so far, is the organization's first step in making sure clean water is available for landmine survivors, refugees and others in Cambodia. In cooperation with the U.S Department of State, Landmines Blow! is currently in Phase One of the operation, which includes the construction of 10 wells that will provide safe, clean water to almost 1,800 victims, refugees, internally displaced persons and amputees. Bock hopes to double that number in 2007 and also replicate the project in other countries for the long term.

Personal Sacrifice and Selflessness

Bock is no stranger to activism and helping others. Some of her work included being team captain for AIDS Walk Chicago for several years. Her team was able to raise over $200,000 for AIDS research. In addition, Bock has worked with include Adopt-A-Minefield, Habitat for Humanity, Human Rights Watch, the American Cancer Society, the American Federation for AIDS Research and many others.

Since Landmines Blow! is completely volunteer-run and non-profit, Bock also holds a full-time job. "I like my day job," says Bock, "but I believe that assisting landmine survivors and refugees is my purpose and it does not feel like work to me. It is the most rewarding thing I have ever experienced in my life."

Bock's selflessness is only amplified more by her determination to continue her work, even in the face of her own personal battles. In 2005, Bock was diagnosed with Multiple Sclerosis, a chronic disease that affects the central nervous system. Despite the gravity of her medical condition, she kept working. "MS was a temporary setback, [but] it gave me 'new eyes' and, if anything, a sense of urgency to get out there and do as much as possible while I have the ability," declares Bock. "None of us knows what tomorrow will bring but we don't think that way when we are completely healthy. We take it for granted. I am a much stronger person mentally and more patient and empathetic." In fact, the day after Bock was diagnosed with the disease, she helped fly a young Croatian landmine victim and his brother from Zagreb to a music camp for the blind in New Orleans.

Conclusion

The future looks bright for Bock and Landmines Blow!. New ideas and developments are circulating throughout the organization and creating a buzz in the mine-action world. "I think that mine action needs some new blood," remarks Bock. "I think that it needs people who are passionate about it to get out there and talk about it. I think that it needs some new champions because it is still a significant problem." New programs are coming soon for the organization, including a new initiative called H2O–Help to Others. Along with this new program, expanding the already successful Project Safe Water to other countries is another goal for the near future. Bock also wants to make strides in advocating for women's rights. "I'd really like to focus on the promotion of women in the communities that we serve," says Bock.

In the realm of mine action, Bock has had a great impact and still keeps contributing in such a spirited manner; others can't help but admire her character. "I like her a lot personally, as well as professionally," states Davis. "She is diligent, anxious to follow the rules and regulations and provide the information and carry out the responsibilities and requirements of the grant. She's very easy to work with." Her continuous work in the mine-action community is slowly making the world a little brighter for those whose world has been darkened by landmines and UXO. "The true heroes are the thousands of survivors out there trying to make ends meet," asserts Bock. "They don't want handouts. They want the opportunity to support their families—basic things like food, shelter, clean water and an education. They want hope."

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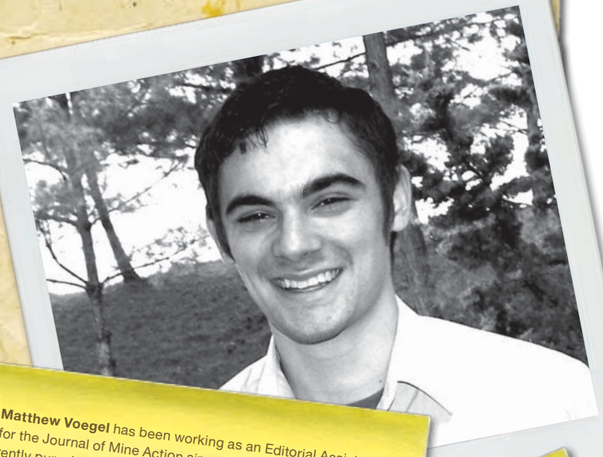

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Unsung Hero: VANJA JOKIĆ RAŽNJEVIĆ

by Jennette Townsend and Rachel Canfield [Mine Action Information Center]

As a single mother, Vanja Ražnjević felt that she had no other choice than to apply for a demining position with Norwegian People's Aid. "I needed a job," says Ražnjević, "and this job seemed really normal for me because I spent time [in Croatia] during the war and became accustomed to danger."

During the war, Ražnjević lived in Benkovac, a little town close to Zadar. The town was a part of former Krajina, a region in Croatia where Serbs live; therefore, Benkovac was on the front line of the war. As a civilian, she encountered danger every day. "Bombs and grenades were all around," says Ražnjević.

Landmines are still a prevalent problem in Croatia, and Ražnjević's children are learning about them as a result of their mother's job. "I always talk with them about the landmine situation and about my job. They understand what I am doing and they know the dangers of demining."

It has been six years since Ražnjević attended the Croatian Ministry of Interior's national demining training course in Zagreb. She was the only woman in the group of trainees. She graduated from the course as one of the best participants and started working in the field alongside veteran male deminers. "In the beginning I was inexperienced," says Ražnjević, "but my more experienced colleagues taught me the demining procedures that I was not familiar with. I can say that I have not received any criticism for my work as a deminer. It is not permissible to make a mistake in this job."

Ražnjević's calm confidence and her ability to coordinate her personal and professional life have won admiration from her colleagues. Silvija Bogdany, Ražnjević's former team leader, says of Ražnjević: "She is under much more pressure. I think that her children are always on her mind. For me, things are rather simple. I don't have as much responsibility. I try not to bring my work home with me, but it is easy for me to do so because nobody is waiting for me at home except for a few spiders that I have and they are good listeners. For Vanja things are different. It is hard to be a mother and a deminer at the same time."

Likewise, Ražnjević expresses respect for her co-workers. "The courage of my colleagues has made an impression on me," says Ražnjević. She recalls one time when a fire started in a mined area: "It was very dangerous, but we did not run. We fought the fire and we won, of course."

In the past six years, Ražnjević has learned a lot about demining and about teamwork. "I can help build the foundation for good relations between us deminers," says Ražnjević. Even with all the knowledge she has already gained, she still wishes to learn more about mine action. In 2007 she will finish her studies in pyrotechnology, which have included subjects such as anti-personnel mines and unexploded ordnance, explosion physics, management and humanitarian demining. "I think that it is important for deminers to be adequately educated and I think that it is important to develop deminers' rights."

Her vision for the future of demining is optimistic: "I believe that we will find a more effective way to remove the problem. I hope that I will still be working in this field when we do," says Ražnjević. "In the future I wish to work as a leader of demining projects all over the world. To do that, I will need practical work experience as an assistant to a person who already is doing this type of work," she says.

Reflecting on her career as a deminer, Ražnjević says her experiences with demining have been good: "I can say that I have found myself in this job. I am clearing landmines with pleasure. I feel happy when I can destroy something that can destroy somebody's life. I am ready to continue demining in the future, but I will never do the opposite—I mean I don't want to lay mines. There is no politician, no idea and no money that can pressure me to do that!"

Vanja Ražnjević demining in Croatia.
PHOTO BY MIROSLAV HORVAT KIKI

Vanja Ražnjević
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News Brief

Angolan Landmine Commission Establishes Monitoring Team

The Coordinator of the Provincial Commission on Landmine Action and Humanitarian Aid (CNIDAH) in Huambo, Angola, announced the formation of a team to monitor demining methods by the end of 2007.

Agostinho Njaka said the team will work in heavily mined provinces like Bailundo, Huambo, Katchiungo and Tchicala-Tcholohanga. The team will evaluate demining policies and strategies with the goal of alleviating long delays in the monitoring of the quality of cleared areas.

The team members will be incorporated into the demining process as soon as possible and will facilitate clearance operations for the opening of new roads and farmland.

CEN Workshop Agreements for Test and Evaluation of Humanitarian Demining Equipment

The Comité Européen de Normalisation has organised workshops to aid the establishment of standard methodologies for demining. This article discusses the workshops and the agreements reached in those workshops. The author includes a list of contacts for additional information on demining equipment and methods.

by Franciska Borry [International Test and Evaluation Program for Humanitarian Demining Secretariat]

The increase of humanitarian-demining activities in the late 1990s awakened the need for a standardised assessment of the equipment used in these activities. Although trials of the capabilities of available demining equipment were already taking place, the lack of testing standardisation made it difficult to compare test results to determine which equipment was best suited to any particular need. Therefore, test results were frequently of limited use to the end-user community. It was within this context that the European Commission mandated in 2000 that the Comité Européen de Normalisation establish standard methodologies for humanitarian demining. In order to fulfil this mandate, the CEN Technical Committee created Technical Working Group 126 (CEN BT/WG126) to ensure coordination and generate specific standardisation initiatives.

The CEN Workshop Approach

CEN has introduced the CEN Workshop, a mechanism and approach to standardisation. It is intended to be a process in which clients can bring their standardisation and technical specification requirements and have the opportunity to find a solution in an environment "tailor made" for their needs. The workshop concept provides an opportunity for any party faced with a technical challenge to find others in a similar situation and develop a result by consensus, validated in an open arena.

The procedures for setting up and operating CEN Workshops are deliberately kept to a minimum and all the decision-making powers rest with the interested parties themselves (i.e., the workshop participants). They cover their costs and are responsible for the direction of the workshop as well as the approval of the deliverables.

The main activity of a CEN Workshop is the development and publication of the CEN Workshop Agreement. The CWA is a technical agreement endorsed and adopted by interested parties on a voluntary basis. Published CWAs are publicly available on the International Test and Evaluation Program for Humanitarian Demining Web site,[1] among others, and can be used free of charge. They are promulgated in the International Mine Action Standards after consideration by the IMAS Review Board.

Since the creation of the CEN BT/WG 126, the following CEN Workshops have been completed and the associated CWAs published:

- CEN Workshop 7: "Humanitarian Mine Action—Test and Evaluation—Metal Detectors"[2]
- CEN Workshop 12: "Humanitarian Mine Action—Test and Evaluation—Demining Machines"[3]
- CEN Workshop 13: "Humanitarian Mine Action—Competency Standards"[4]

Two of the completed workshops were on the test and evaluation of demining equipment. They were strongly supported by the International Test and Evaluation Program for Humanitarian Demining through active participation of the ITEP participants' experts, as well as the hosting of the respective CEN Workshop Secretariats. These two testing standards are discussed on in more detail below. As the CWA 15464, "EOD Competency Standards," is not of direct interest to the test and evaluation community, it is not discussed further in this article.

CWA 14747, "Test and Evaluation of Metal Detectors," and CWA 15044, "Test and Evaluation of Demining Machines," have been included in the IMAS on test and evaluation of mine-action equipment[5] during the July 2005 amendment.

Mechanical demining equipment tested according to the CWA 15464.
ALL PHOTOS COURTESY OF C. LEACH, QINETIQ, F. BORRY

During 2006 the following new CEN Workshops started:

- CEN Workshop 26—Humanitarian Mine Action—Personal Protective Equipment—Test and Evaluation
- CEN Workshop 7 (reactivated)—Humanitarian Mine Action—Test and Evaluation—Metal Detectors—Part 2: Soil Characterisation for Metal Detector and Ground Penetrating Radar Performance

Both Workshops will publish final CEN Workshop Agreements by the end of 2007.

Published CWAs for Test and Evaluation of Humanitarian Demining Equipment

CWA, Test and Evaluation of Metal Detectors (CWA 14747, June 2003). CWA 14747 provides guidelines, principles and procedures for test and evaluation of metal detectors. As far as possible, procedures for testing have been closely specified. The agreement applies to all handheld metal detectors for use in humanitarian demining and is intended to be used for commercial off-the-shelf detectors, but many of the tests specified could be applied to detectors under development.

It should be noted that few users of the document will wish to or be able to perform all of the tests specified. Different parts of the CWA are intended to be used by research and development laboratories, manufacturers and organisations needing to procure metal detectors, mine-action centres and metal-detector users in the field. A user in the field, for example, may perform the detection reliability test, some of the tests of operational performance characteristics and some of the basic in-air and in-soil sensitivity measurements. Furthermore, users of the CWA who wish to conduct a trial of various metal detectors using the tests specified may also conduct a pre-trial assessment to exclude detectors that clearly do not meet their requirements from the start. Such a pre-trial would include one or more of the tests specified in the CWA, with acceptance levels set by the users according to their own requirements.

In order to help different users get the maximum benefit from the CWA, guidelines are provided under the form of a matrix[6] as to which CWA tests are considered appropriate for different categories of trials.

At the time of the publication of CWA 14747 (June 2003), it was stated that further work was needed on the understanding of the effect of the soil and how to best characterise it, as well as on the design of a practical approach to measure detection reliability. In the meantime, the CWA 14747 test protocols have been verified during several trials, among others, the comparative trial of commercial, off-the-shelf metal detectors.[7] A list of CWA 14747 updates is now being proposed and plans exist to reconvene CEN Workshop 7 in 2007. The main objective of the reconvened Workshop 7 will be to produce an addition to the CWA 14747 that incorporates new scientific knowledge on testing procedures and provides user guidance on key performance tests for field users as well as for laboratory testing.[8]

CWA, Test and Evaluation of Demining Machines (CWA 15044, July 2004). The aim of CWA 15044 was to create industry-accepted criteria for the testing, evaluation and acceptance of COTS mechanical equipment used in humanitarian demining. Among other things, it should help users find the key technique or combination of techniques best suited to a given mine-clearance operation.

In CWA 15044, demining machines are defined as those machines whose stated purpose is the detonation, destruction or removal of landmines. It should be noted this does not necessarily imply a fully demined area following passage of the machine. The machine could be a ground-preparation machine, primarily intended to improve the efficiency of subsequent demining activities.

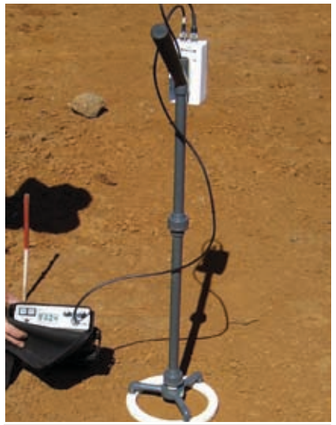
CWA 15044 provides a standardised methodology for test and evaluation of demining machines using a systematic and stepwise approach. It includes provisions and technical criteria for:

- Performance testing: Testing to establish whether the machine and its tool(s) are capable of performing the role for which they are intended under comparable and repeatable conditions, and to evaluate the manufacturer's specifications.
- Survivability testing: Testing of the explosive forces on the machine and operators. The explosive force used is based on the level of threat against which the machine is designed.
- Acceptance testing: Testing to ensure the machine is able to work in the environment in which it is intended to be used. The criteria provide guidelines for local authorities when accrediting machines.
- Test targets: The criteria provide testing agencies with guidelines to develop standardised test targets.

CWA 15044 also provides a list of all information that should be provided by the manufacturer before testing. It further recommends a pre-trial assessment, but does not include specific guidelines. This assessment is a qualitative examination of the equipment looking at the different functions, suitability, basic operating parameters, capabilities and manufacturer specifications and should answer the question: "Is it suitable for continued testing?" The ITEP testing community recommends a pre-trial assessment for all demining equipment considered for testing prior to embarking on a full-scale trial.

It is acknowledged that the current version of CWA 15044 is written with an apparent bias toward flails and similar machines; however, it is noted that other machines including rollers could be tested equally well using the same procedures. In addition, machines intended to remove mines (versus triggering or breaking them), such as sifters, could be tested simply by modifying the proposed test sheets.

At the time CWA 15044 was published (July 2004), it was recognized that the CWA concentrates on the testing of machines to clear mines and there is a need



STEMD metal detectors tested according to the CWA 14747.

to expand future work to address a number of issues, including appropriate testing of ground-preparation devices and vegetation cutters, enhancement of operator/crew safety testing, enhancement of mobility testing and performance-degradation testing.

A series of mechanical equipment trials executed by ITEP during 2006 using the CWA 15044 test protocol has further produced some useful experiences which will be taken into account when the CWA 15044 is updated, probably in 2008.

Ongoing CWAs for test and evaluation of humanitarian-demining equipment. A CEN Workshop (CEN WS 26) on a Test Methodology for Personal Protective Equipment for use in humanitarian mine action kicked off in June 2006.

The Standardiseringen i Sverige (SIS) and the Geneva International Centre for Humanitarian Demining are co-chairing this CEN Workshop. The aim is to establish recognised and clearly defined specifications for vital criteria to be tested and appropriate testing methodologies for PPE for deminers. An open invitation was launched to those with an interest in the test and evaluation of PPE to participate in the Workshop. Two technical CEN Workshop meetings were held during 2006 and a third one was held on 13–14 March 2007.[9]

A CEN Workshop (CEN WS 7/Part Two) on Soil Characterisation for Metal Detector and GPR Performance Evaluation started in November 2006. The Workshop will produce a second part for the CEN Workshop Agreement for Test and Evaluation of Metal Detectors (CWA 14747,[10] part 2) with the following objectives:

- Establish the state-of-the-art effect of soil properties on MD, GPR and dual-sensor detectors combining MD and GPR.
- Create quantitative characterisation of soil properties relevant to MD and GPR performance.
- Provide a methodology for measuring the selected soil properties.
- Create a classification of soils for controlled conditions to help estimate the degree to which the soil properties affect detectors.
- Provide a soil measuring and classification system that is easy to apply in the field.

Four Working Groups, each tasked with drafting different parts of the document, were established at the kick-off meeting. The first technical meeting was held 3 May 2007.[11]

Points of Contact

The contacts listed below are available to provide advice on the planning and conduct of an evaluation according to the described CEN Workshop Agreements. Please do not hesitate to contact them when considering a trial of demining equipment or demining methods.

- ITEP Secretariat: secretariat@itep.ws
- ITEP Working Group on Test and Evaluation of Mechanical Assistance Clearance Equipment: Geoff Coley, geoff.coley@drdc-rddc.gc.ca, or Chris Weickert, Chris.Weickert@drdc-rddc.gc.ca
- ITEP Working Group on Test and Evaluation of Dual (Multi) Sensors: David Lewis, dwlewis@qinetiq.com
- GICHD: Erik Tollefsen, e.tollefsen@gichd.ch
- United Nations Mine Action Service: Noel Mulliner, mulliner@un.org

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2007 Marks 10th Anniversary of Mine Action Standards

The International Mine Action Standards are guidelines set by the United Nations to implement mine-action programs safely and effectively. The author discusses the purpose and processes of the IMAS as well as provides various references for those interested in learning more about the IMAS.

by Faiz M. Paktian [Geneva International Centre for Humanitarian Demining]

Back in March 1997, the United Nations Mine Action Service issued the first edition of international standards for humanitarian mine clearance. These standards have since been expanded to include the other components of mine action and to reflect changes to operational procedures, practises and norms. The original standards were redeveloped and renamed as International Mine Action Standards with the first edition produced in October 2001. Therefore, 2007 marks the 10th anniversary of the original mine-action standards.

The IMAS are standards the United Nations has issued to guide the planning, implementation and management of mine-action programmes. They have been developed to improve safety, quality and efficiency in mine action. The IMAS follow the International Organization for Standardization[1] format and draw on the two main instruments of international law that regulate landmines: the Anti-Personnel Mine Ban Convention[2] and Amended Protocol II and Protocol V[3] to the Convention on Certain Conventional Weapons.[4] The IMAS provide general information on existing regulations and conventions that affect mine action, particularly those referring to international humanitarian law, clearance requirements, hazard marking and general safety issues.

IMAS registration page.

IMAS homepage.
All photos courtesy of MAIC

IMAS in Spanish.

The IMAS are a framework to assist the development of National Mine Action Standards that can more accurately reflect specific local situations in a given country. The IMAS can be adapted as national standards where the United Nations, or another international body, temporarily assumes the responsibility of a mine-action authority. IMAS can also provide the framework for legal contracts between donors and implementing organisations.

There are currently a number of IMAS covering a wide range of issues from establishing to evaluating mine-action programmes. They include not only general guidelines for mine action but also standards for specific field activities such as clearance requirements or marking of hazards in demining operations. New IMAS are produced periodically based on requirements realised either in the field or at the management levels in mine action. The existing IMAS are reviewed every three years and amended or replaced with a new edition as needed.

UNMAS has the mandated responsibility for development and maintenance of the IMAS. The work of preparing, reviewing and revising the IMAS is conducted by technical committees, with the support of international, governmental and non-governmental organisations. The Geneva International Centre for Humanitarian Demining coordinates this process at the request of the United Nations. There is a Review Board of the IMAS that is responsible for overseeing the review and

News Brief

Burmese Separatist Group Signs Statement Against Landmines

The National Democratic Front of Burma signed a statement against landmine use at its January 2007 Central Executive Committee meeting. The statement directs various member organizations, which claimed landmines were an effective self-defense tactic, to find ways to minimize mine use.

The NDF also directed members to apply strict usage rules, regulate/supervise mine activity and ensure villagers in NDF areas are not harmed by the use of landmines. Formed in 1976, the NDF is an umbrella organization for armed opposition groups of Burma/Myanmar's various ethnic nationalities. More than 2,000 people are estimated to be members of the National Democratic Front.

revision of the IMAS. It is composed of representatives of demining NGOs, national authorities and mine-action centres, commercial demining companies, research and development institutions, donors, the concerned U.N. agencies, and as required, subject specialists. UNMAS chairs the Review Board and the GICHD serves as Secretary to the Board. A higher-level IMAS Steering Group, chaired by the Director of UNMAS with U.N. agency representation from UNICEF, the United Nations Development Programme, and the United Nations Office for Project Services, in addition to the GICHD, oversees the work of the Review Board. It oversees the Review Board's work by providing executive direction, agreeing on the membership of the Review Board, determining the Terms of Reference[5] for the Review Board and endorsing or directing the production of new IMAS.

Since the IMAS are continuously amended and new IMAS are being added, all readers should make sure they have the latest version of them. There are two ways to get an up-to-date version of the IMAS: visit the IMAS Web site at www.mineactionstandards.org or ask the GICHD for an updated CD-ROM (see contact information below). If you have access to the Internet, we encourage you to visit the IMAS Web site for additional information.

As part of the continuing efforts to ensure accessibility of the Standards to the mine-action community, UNMAS and the GICHD worked with the Web site managers at the Mine Action Information Center to redesign and streamline the site in 2007. In the new design, in addition to the IMAS in English, unofficial translations of some IMAS are now available in Arabic, Chinese, French, Russian and Spanish for ease of reference. However, for the most up-to-date version, users must refer to the English version.

The Web site also houses and presents a number of National Mine Action Standards—standards produced by the mine-action authority of mine-affected countries that reflect a country's specific situation and are based on the IMAS. These are posted for reference and information to assist the national authorities of those mine-affected countries that have yet to develop their own national standards. If you wish to post your national standards on the IMAS Web site, please send the GICHD an electronic copy of your standards (see contact information below).

An important feature of the new site is that users will have the ability to register for updates at the IMAS Web site. By requesting updates, you will receive an e-mail as soon as a new IMAS, NMAS or Technical Notes for Mine Action is posted on the Web site.

The UNMAS and the GICHD welcome any questions, suggestions or comments about standards or their contributions to the mine-action community (see contact information below). Specialists are available to assist you in understanding the principle of IMAS and NMAS, building structures for NMAS, developing specific standards, reviewing your national standards and providing useful feedback. If you think you need help, please contact UNMAS or GICHD and they will be glad to provide you with appropriate advice.

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News Brief

Investment in Cluster-bomb Manufacturers Criminalized

Belgium is the first country to criminalize the investment in companies that make cluster bombs. The Belgian Senate passed legislation in early March to make such investment illegal and the Parliament will publish a list of companies that manufacture cluster bombs. Several Belgian banks terminated their investments in such companies, as the new law prohibits Belgian banks from owning shares in cluster-bomb manufacturers or offering them credit.

More than 40 countries have pledged to develop new international agreements to ban the use of cluster bombs by 2008. Belgium was also the first country to entirely ban cluster munitions, which at least 23 countries have used.

The Mine Injury and Trauma Seminar: A Way to Save Lives

The author describes his journey to Ecuador for a seminar he was invited to teach for medical personnel working in or around demining sites. Working with the Organization of American States, the author developed a seminar to teach mine-clearance experts what actions to take if someone is injured by a mine, enabling personnel to react to multiple types of stimuli while working in the field. The author explains the details of this seminar and why it is an important part of the mine-action process. He also provides information on Ecuador's own mine problem.

by Adam Kushner, MD, MPH

Sunset over the Rio Coco, the Nicaraguan-Honduran border, in Waspan.
ALL PHOTOS COURTESY OF THE AUTHOR

I am in Ecuador, a Latin American country of 13.3 million people, at the invitation of the Office of Humanitarian Demining of the Organization of American States. The OAS oversees demining projects throughout Latin America. Some of you may remember that two years ago I went to Nicaragua on a similar mission. This time I was asked to conduct trauma-training seminars in Quito and then do a field assessment.

The purpose of my field visit was to evaluate the emergency medical capabilities and evacuation process in the unlikely event of a demining injury. I spent time visiting the worksites and medical facilities, interviewing deminers and medical personnel, and gaining a full understanding of the situation. Overall it was a very productive mission and I received substantial positive feedback.

A Little Background

Ecuador is one of the smallest countries in South America and sits astride the equator—hence its name. There are four distinct regions: the coast, the Andes highlands, the Oriente (the east) and the Galapagos Islands. Quito, the capital city of 1.4 million people, sits in the Andes at about 9,000 feet (2,743 meters) in a long valley surrounded by mountains and volcanoes. The recently renovated Centro Histórico (historical center) is the old part of town designated as a UNESCO World Heritage site;[1] it is quite impressive. The new part of town is quite modern, and plenty of American chain restaurants are visible on numerous street corners.

With a per-capita gross domestic product of US$3,700, Ecuador is better off than many of the countries I have visited recently, but it still has a long way to go. Interestingly, in September 2000, Ecuador switched its currency and began using the U.S. dollar. Now I don't mean that their currency is pegged to the dollar; they actually only use real U.S. dollars. U.S. coins, including the Sacajawea dollars that have all but disappeared from use in the States, are also in circulation.

Ecuador's history includes colonization by the Incas in the early 15th century and later by the Spanish in 1533. The country gained independence in 1822 and soon after, a long border dispute began with Peru. Wars and skirmishes were fought every few years until 1995. A compromise was finally reached and a peace treaty signed in 1998 when Ecuador gained a square kilometer (0.4 square mile) of land that was previously considered Peru's. One of the unfortunate lasting results of the conflict, however, is an estimated 11,000 emplaced landmines.

Santiago's Situation

Since the humanitarian mine-action programs began in Ecuador in 1999, there have been no demining injuries; however, one civilian death and two injuries have been reported in the region around Santiago. The sites we visited most recently began operations in 2004. Clearing is expected to continue until 2008 or 2009. Although clearing landmines is usually a slow, arduous and dangerous task, working in the jungle presents even more complex problems. Unlike minefields I have seen in Azerbaijan, Kosovo, Bosnia and Sudan, in Ecuador the mountainous terrain mixed with the thick jungle vegetation, humidity and high temperatures present even greater challenges.

Dr. Kushner with Peruvian and Ecuadorian doctors and paramedics in Quito, Ecuador.

Ecuadorian and Peruvian doctors and paramedics practice airway skills.

MITS Training

My first week in Ecuador was spent teaching the Mine Injury and Trauma Seminar to Ecuadorian, Peruvian and Colombian military paramedics, nurses and physicians. This seminar, which I created from numerous sources, provides a review for medical personnel working in demining units and concentrates on the basics of trauma care, including the "ABCs": Airway, Breathing and Circulation. Airway, breathing and circulation are the cornerstone of the MITS, which is sponsored by the OAS's Office of Humanitarian Mine Action.

During May 2004 in Nicaragua and again in November 2006 in Ecuador, with OAS support, I ran the seminar for military and civilian paramedics, nurses and physicians. The seminar is designed as a short refresher course for medical personnel with specific emphasis on treating mine victims.

MITS is held over two days, with the first day consisting of lectures, videos, and discussions and a second day devoted to skills practice and role-play scenarios. I taught two full sessions, and all the participants stated that they learned a great deal. Apart from the Quito presentations, in Santiago I was able to teach an abbreviated version of MITS to the paramedics, squad leaders and the local civilian doctor and nurse. Although the seminar is designed for military medical personnel working with demining units, I also cover issues relating to all types of trauma in general. When I am in the field, I eagerly strive to include civilian personnel whenever possible; they are the ones more likely to treat traumatic injuries on a daily basis, unlike the military personnel who are on standby and see few victims.

The goal of the seminar is twofold: to review procedures to keep an injured victim alive and to facilitate transfer to a hospital for definitive care. These goals are accomplished through teaching basic trauma principles, such as the ABCs, which include life-saving maneuvers for getting oxygen to the lungs and stopping bleeding.

The seminar focuses on understanding the principles behind the causes of wounds. As many injury-prevention experts say, injuries are not accidents; there are identifiable and preventable risk factors. Prevention is the optimal therapy, but by understanding the mechanisms of injury, differing patterns of wounds, forces involved, and anatomy and physiology, many injuries can be predicted and efforts made to anticipate the needs of the victims.

According to data from the International Committee of the Red Cross, landmine injuries occur in three distinct patterns. Pattern I injuries result from a person stepping on a blast mine and suffering a traumatic amputation of the foot or leg. Pattern II injuries can affect the entire body, particularly the abdomen and chest, and occur from activation of a fragmentation or bounding mine. Pattern III injuries affect the face and hands (often leading to blindness) and result from handling mines.[2]

Although MITS was designed for military medical personnel working with demining units and specifically for treating landmine victims, the principles which are taught are applicable for all types of traumatic injuries. Students not only learn how to care for mine injuries, but also how to care for injuries resulting from motor-vehicle crashes, gunshot or stab wounds, assaults or falls.

The theory is to provide a framework for medical personnel to assess the entire situation. This includes observing the local environment, determining what types of mines are emplaced in the area and what safety precautions are in place and then determining what the likely injuries will be and what patient needs will result. Controversial topics such as tourniquet use, needle cricothyroidotomy,[3] needle thoracic decompression,[4] and the use of pneumatic anti-shock trousers[5] are covered. Emphasis is placed on each team deciding its own protocols, assigning team members to undertake these procedures and determining what level of training is required. While these procedures are often life-saving, especially in the remote locations of the demining camps, if undertaken by unskilled personnel, substandard outcomes can result. MITS is not designed to certify personnel in new procedures but to review principles and indications.

Additional issues covered include methods for safe transport, intravenous fluid administration, antibiotic use, pain relief, data recording and the importance of mental health.

The second day is a practical session in which scenarios are presented and students demonstrate their skills. Student volunteers act as victims and are cared for as they would be in the field. Immediate feedback is given and situations are altered to test responses and knowledge. A mannequin was incorporated during the Ecuador seminar and was very useful for practicing airway skills.

The primary philosophy of the MITS program is to emphasize the principles of airway, breathing and circulation, thereby optimizing immediate survival for mine victims by allowing stabilization and facilitating transport to a hospital for emergency surgery to begin the long road to recovery and rehabilitation.

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Angola LIS: Guidelines for Using LIS Results in Mine Action Annual Planning

The Survey Action Center and Comissâo Nacional Intersectorial de Desminagem e Assistência Humanitária carried out the Angola Landmine Impact Survey. In July 2006, SAC sent the author on the first of three planned missions to Angola as Technical Advisor for the completion of the LIS. This article explains the Provisional Provincial Reports, which contain a section of guidelines on the use of LIS results for operational planning. The National Mine Action Strategy for Angola was developed based on interim LIS results, and the detailed data supporting those results are made freely available to all interested parties.

by Charles Downs [Survey Action Center]

Starting in early 2003, the Survey Action Center, CNIDAH and six implementing partners carried out the Angola Landmine Impact Survey[1] fieldwork in 10 of the country's 18 provinces. It was nearly complete when the project faced a funding crisis in mid-2005. SAC had to close its office due to lack of funding, CNIDAH assumed responsibility for coordination, the six partner nongovernmental organizations sought funding on their own to continue fieldwork in their agreed provinces, and the United Nations Development Programme established a project to provide key technical support for the database with funding from the European Union. Following an interruption of a few months, an additional five provinces were surveyed by August 2006. Two of the three remaining provinces were completed in February while the last is expected to be completed by May 2007.

Interim results of the ALIS suggest that there will be a total of about 2,000 mine-affected communities covering less than 1 percent of the national territory. This figure is far lower than previous estimates; it is in line with results of the Landmine Impact Surveys performed in many other countries and is accepted by experienced actors in the country and government. The ALIS has identified about 2 percent of affected communities as suffering high socioeconomic impact, about 23 percent as medium-impact, and about 75 percent as low-impact. These results have generated discussion about the scoring system and how impact is measured, including the role the number of recent victims has in accounting for high impact. SAC has welcomed this discussion on alternative scoring systems and has kept attention on the high- and medium-impact communities. CNIDAH used the interim results from the first 14 provinces as the basis for the Angolan National Mine Action Strategy 2006–2011, adopted by the Council of Ministers in September 2006.

Provisional Provincial Reports

With the invitation from CNIDAH to continue joint responsibility for the ALIS, SAC received funding from Germany and sent the author as Technical Advisor on the first of three planned missions in July 2006. In order to increase the usefulness of the LIS results, SAC and CNIDAH agreed to publish a set of Provisional Provincial Reports based on the data from 15 completed provinces, with a general summary, maps, tables, a short analysis of the results of each province and a CD-ROM with the full survey detail. CNIDAH completed this report and provided it to the Provincial Vice-Governors (responsible for mine action) at a national plenary meeting in October 2006. The report is freely available to the mine action operators and other interested parties. The National Mine Action Strategy and these interim ALIS results were key elements in the development of the 2007 provincial operational plans.

Guidelines for the Use of LIS for Operational Planning

The PPRs contain a section of guidelines on the use of LIS results for operational planning, developed by the author and reproduced in the following paragraphs. The guidelines are meant to provide practical guidance to make greater use of the LIS information. Comments and suggestions to improve these guidelines and make them more useful are welcome, as are examples of similar guidelines that may have been developed in other countries.

Using LIS data to develop annual provincial plans. The annual provincial plans implement the national strategy and consider the best available local information. These notes provide suggestions of targets and a wide range of factors that may be relevant; the list below (see Table 1) is not fully comprehensive, nor is it a step-by-step guide. It should assist provincial planning teams in the analysis of the data and development of plans, starting from the specific landmine problems and humanitarian and development priorities of each province, within the framework of the National Mine Action Strategic Plan adopted by the Council of Ministers 6 September 2006.

LIS field visits and community interviews. The LIS assessed and mapped the impact of landmines on communities through field visits and community interviews in all communities suspected to be affected by landmines. The interviews collected included detailed information on the suspected hazardous areas around the community, mine victims and the blockage of a wide range of normal community activities, including agricultural production, travel, and access to water, schools, markets, etc. Blockage of any of these activities implies increased risk and/or higher cost (time or resources) to conduct those activities. By combining the presence of mines, the number of blockages and the number of victims, the LIS results in an impact score for each community, grouped into high, medium and low impact. All levels of impact are of concern, but high and medium warrant greater immediate attention.

National Mine Action Strategic Plan

The driving concept of the National Mine Action Strategy is to solve the landmine problem by focusing on resources to eliminate the blockage of community and development activities, mark other areas that do not impact community or development activities and eventually remove all explosive hazards. The identification of communities impacted by landmines comes primarily from the LIS, while the identification of development projects generally comes from the respective ministries, provincial authorities and local communities. These factors should be reviewed in open discussions of the landmine problem and its solution at the provincial, local and national level to arrive at the mine-action plan. The key points of the National Mine Action Strategy include:

- Identify all LIS high-impact communities in the province and include them in the annual and medium-term plans in order to eliminate all impact and minimize further risk in all high-impact communities within two to three years. (The list of all high-impact communities is provided in the PPR.)
- Identify all LIS medium-impact communities in the province and include them in the annual and medium-term plans so as to eliminate all impact and minimize further risk in at least 50 percent of medium-impact communities within three to five years. (The list of medium-impact communities is provided in the PPR.)
- Identify all high- and medium-impact communities in the province and refocus annual and medium-term plans to address risk according to impact, particularly by reducing risky behavior of population and reconfirming blockages. This task should include prompt response to all new incidents with victims.
- Report all progress, changes in the situation and actions taken to CNIDAH for incorporation into the National Mine Action Database (the Information Management System for Mine Action).

Operational Considerations

The tasks listed in Table 1 are recommended as ways to identify and meet local priorities and national strategic goals.

Survey	• Deploy xxx specialized survey teams to determine more precise boundaries and dimensions of suspected hazardous areas, with priority to xxx high- and medium-impact communities. • Confirm blockage of community or development activity caused by xxx SHAs and identify for clearance the portion of each SHA causing the blockage. • Identify xxx blocked roads, bridges and access routes and plan to open xx percent within two years, with priority to those routes without viable alternatives. • Identify all blocked community facilities (schools, health posts, markets) and clear xx percent of those blockages within one year. • Identify blockages interfering with national development projects (e.g., road network, irrigation, power distribution) and clear blockages as part of respective project.
MRE	• Deploy xxx MRE teams to all high- and medium-impact communities with an appropriate frequency to reduce risky behavior and reconfirm blockages.
Clearance (see guidance under 'Survey')	• Clear xxx portions of SHAs blocking community or development activities.
Marking	• Mark xxx portions of SHAs not blocking community or development activities (except clear small remaining areas and areas within 10 meters (11 yards) of settlement).
Priority Setting	• Give greater priority to clearing blockages affecting more than one community. • Give greater priority to clearing blockages without reasonable alternatives. • Give greater priority to clearing blockages when the resources necessary to fully utilize the previously blocked activity are readily available (and lower priority to clearing those blockages where significant additional resources must be obtained to reactivate the activity).
Budgeting	• Consider logistical costs and address other blockages clustered in same area. • Reconcile the available mine-action resources (clearance, marking, MRE) with the requirements identified, and consider the development of additional or different resources as may be appropriate.
Reporting	• Ensure CNIDAH has accurate information reflecting changes in circumstances and mine-action work completed since conduct of LIS. • Investigate and provide LIS-update reports to CNIDAH on all new mine incidents, newly identified mine-affected communities or SHAs, and changes to previous information. • Submit quarterly progress reports and task completion reports to CNIDAH.

Operational Considerations to Meet Provincial Priorities and Strategic Goals.

To ensure realism and a greater chance of success, each task should include a quantifiable indicator (e.g., number or percentage of coverage per year; examples are indicated below by "xxx," with the number or percentage to be determined at the provincial level during the annual planning process). Planned activities should be consistent with available assets. Implications for an increased number of teams and budgets should also be assessed and translated into realistic resource mobilization and growth plans, as appropriate, since the current assets are likely to be insufficient to respond to all these factors as promptly as would be preferred.

Conclusion

CNIDAH, SAC and the several ALIS implementing partners are striving to ensure the LIS results are as useful as possible. Change in the LIS scores provides a measure of the impact of mine action; it is a measure of "outcome" and not merely of "output" like measures of area cleared or anti-personnel mines removed. The National Mine Action Strategy for Angola has been developed based on interim LIS results, and CNIDAH have made the detailed data supporting those results freely available in CD-ROM format to all interested parties. The preceding "guidelines"

LIS community interview by HALO Trust in Benguela province
PHOTO COURTESY OF MIKE KENDELLEN

have also been widely circulated in an effort to assist with the practical use of the results at the provincial and local level to further both humanitarian and developmental goals. While operators should continue to be concerned with efficiency in clearance of areas and disposal of anti-personnel mines, periodic monitoring of the change in the number of communities that move from high to medium or low impact will be a clear indicator of the outcome of mine-action activities. The acceptance of the LIS as the basis for the National Mine Action Strategy is a major step forward in enhanced accountability and effectiveness of the mine-action program. Comments are welcome to improve the guidelines, and CNIDAH will monitor the results to refine this process.

See Endnotes, Page

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News Brief

Canadian Mine Survivor Gets Custom Motorcycle

When Canadian Master Corporal Jody Mitic lost both his feet after stepping on a landmine in Afghanistan, Mitic never thought he would be able to ride a motorcycle again. After months in recovery at Toronto's St. John's Rehabilitation Hospital, Mitic had two new prosthetic feet and was walking with just a cane but still had little hope of ever riding a motorcycle. Having contacted the Barrie Harley dealership before his accident about purchasing a bike, Mitic had to write back and say, "Things have changed."

In April, owners of the Harley Davidson in Barrie, Ontario, Canada, presented Mitic with a custom-made chopper.

Community organizers heard of Mitic's situation and raised more than CN$50,000 for the custom bike, which includes a hand-operated shifter and a hand brake that works both front and rear brake. To supplement the funding shortfall, bike builders from the Barrie Harley dealership donated 260 hours in labor to build Mitic's perfect custom Harley.

The Child to Adult Method in Mine Risk Education

The author explains a child-to-adult approach to mine-risk education and how it uses the power of children as "little" MRE instructors in their communities. As part of this method, children use MRE lessons to teach adults and peers in their homes about the dangers of landmines and unexploded ordnance.

by Mudhafar Aziz Hamad (Ako) [Iraqi Kurdistan Mine Action Agency]

Mine-risk education is a program carried out at the community level in which MRE operators exchange information with the community to help reduce the risk of death or injury by mines or explosive remnants of war. In many communities, children may not count as the group at highest risk as young men often face the most danger from ERW. However, the risk from mines/UXO may be one that becomes more relevant to the children as they get older, and it is easier to reach them and influence their behavior while they are young.

A young Kurdish girl explains mine warning signs to her family.
ALL PHOTOS COURTESY OF MUDHAFAR AZIZ HAMAD /IKMAA

What is Child-to-Adult?

Child-to-Adult is an approach used to train children to be teachers in their homes teaching family members about MRE messages and instructions. The aim of this approach is to establish a community-based MRE program and to make use of the emotional relationship between the child and his/her parents in order to get parents and other adults to change their attitudes toward mines and ERW.

After IKMAA tested the Child-to-Adult method in a mine-affected village, it became clear that children not only looked after younger siblings but that they could also have a powerful influence on their peers, their parents and even the communities in which they live. The way in which messages are transmitted from children to others differs greatly depending on the experience and skills of the children and the group they may be asked to influence. The easiest group for children to reach is generally their peer group and the hardest is their parents. It is not normal in most cultures for children to "teach" their parents; however, children can involve their parents in activities that indirectly help to educate the parents or inspire them to seek further information. The situation may be different if parents ask their children for information, for example in communities where parents are not literate and they regard their children as important sources of information.

Child-to-Adult: A Different Approach to Learning

The child-to-adult method is an approach to learning that involves children as full participants in learning about and promoting MRE messages to their families, friends and communities. It demands that the children:

1. Participate in developing and designing activities
2. Link what they are learning with problems they face
3. Involve their family members and others outside the immediate learning environment

Child-to-Adult method has powerful links to the United Nations Convention on the Rights of the Child.[1] It is a practical way in which a child's right to participate in decisions that affect him or her can be truly implemented.

Why is the Child is Selected?

The MRE department at IKMAA selected children to deliver MRE through Child-to-Adult approach because:

- Most of the time he/she is available for training and living in the community.
- He/she has more time to meet and participate in different activities.
- He/she is able to stay focused on and easily understand the messages and retain them for a long time.
- He/she follows the adults in the daily activities such as collecting wood and herbs, cultivation, grazing animals, etc.

Which Child is Selected?

Additionally, the MRE operators should look for the following characteristics when selecting a child. The child has to be:

- Between 9 and 15 years old
- Literate
- Clever and active
- Able to relay MRE messages and instructions to his/her family members in an effective way
- Able to use posters, leaflets or any education materials
- Recommended by his/her family to be involved in this method
- Able to take on the role of leader or instructor

Implementation of Child-to-Adult

Child-to-Adult approach is well-suited for implementation under conditions in which adults are unable to meet. For example, if there are difficulties or problems in gathering or meeting with adults due to their occupation with daily activities or because they are civil government officers, members of the military or policemen, the Child-to-Adult method is applicable. Other adults such as shepherds, farmers, smugglers and hunters are usually out of the village and thus unable to participate in traditional MRE activities. Sometimes there may be social, religious or security reasons, or restrictions in some communities preventing the MRE team from meeting with adults. Also, adults are not generally able to meet the MRE team for long hours or consecutive days of MRE sessions.

The children receive training in a tent.

Examples of Emotional MRE Messages from Children to Adults

- Father, please don't get close to mines or ERW because if you die or become disabled, who would run our family?
- Think about our lives when you try to touch mines/ERW.
- We can struggle through the difficulties of life (e.g., we may be hungry for a short time but our lives will be worse if you die or become disabled).
- If you become disabled you will not marry easily.
- If you become disabled our lives will be worse because you will not be able to work.
- We have the right to grow up under the supervision of our parents.

Many conditions must be satisfied to use the Child-to-Adult approach. The first condition involves designing a special MRE curriculum and educational materials such as posters and leaflets for distribution. Next, an area and group to work with the children (who will be chosen using the aforementioned criteria) should be selected. Seven to 10 days of training are necessary. A prepared CD containing information about mines and MRE distributed to the participating children as an educational tool will assist the children later in explaining MRE messages and instructions to their family members. It is important that there be strong coordination among the MRE operator, local authorities and the child's family for the task to succeed.

While implementing MRE instructions, the child has to:

- Respect his/her family members and assist them
- Perform daily chores so his family can rely on him/her
- Try to play his/her role in the family as an MRE instructor and teach them messages in convenient times
- Be patient and kind in relaying the MRE messages

The Child-to-Adult Approach

For many children, mine-risk education is a vital and sensitive topic. Teaching about the risk of mines should start with finding out what children already know and feel about mines. Learning activities must be based on the children's resourcefulness, on the knowledge they have and on their creativity and ability to understand the dangers. Children behave responsibly when adults trust them and foster in them self-respect and respect for others.

There is great potential for children to become involved in MRE programs.

The child-to-adult approach can use helpful local culture and tradition to reinforce messages. It can also challenge local culture and tradition when those traditions lead to unsafe behaviour by involving children and their families in exploring the problems as they apply to the local context. This forms the basis for the design of appropriate interventions.

Advantages of the Child-to-Adult Approach

In rural communities, children are mostly forced to go out either individually or with the adults to perform daily activities such as grazing animals, collecting herbs or wood and to participate in dangerous actions such as dismantling mines or ERW to sell for scrap metal. In this case both of them will be in real danger, but the trained child can help the adults to recognize dangerous items (mines and ERW) and warn them not to touch them because they may detonate. In addition to recognizing mined areas by becoming aware of mine warning signs, children warn the adults not to conduct the mentioned activities in mined areas. Thus the child helps the adults to stay away from the danger of mines and that reduces mine accidents.

Training the Child to be a Teacher

The six-steps of the Child-to-Adult approach can be used to train the child to be a teacher in his/her home are as follows:

Step 1: Understanding activities
Step 2: Finding out more
Step 3: Discussing and planning
Step 4: Taking action

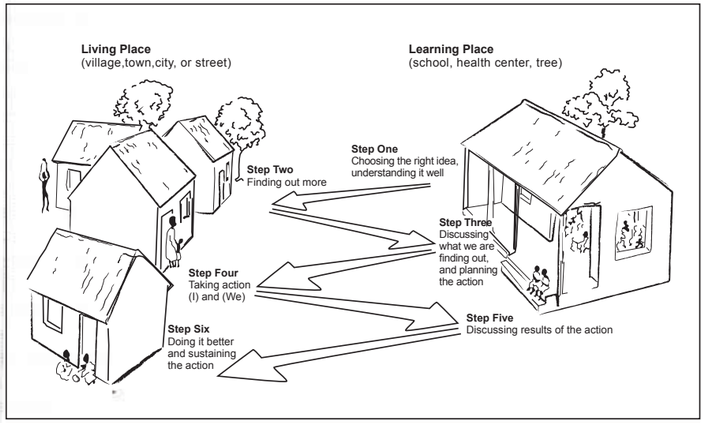

Table 1: The six-step approach to Child-to-Adult method.

Step 5: Evaluating what was done
Step 6: Doing it better

The adults are asked to satisfy and support the idea of the children as "little teachers" or "little instructors." In such cases, selected children are asked to assume the role of an adult, and they are trained to teach other children in much the same way as an adult instructor teaches.

Difficulties with Using the Child-to-Adult Approach

Participation and cooperation. The Child-to-Adult approach needs teachers who believe in the ability of children to participate in their own learning. The approach is different from formal teaching methods. Teachers need training and/or exposure to good practice. The approach needs ongoing support not just by outsiders but by the children's parents and other important people in the community.

Children's self-esteem and communication skills will be greatly developed through participation in child-to-adult activities, but at the start of a project they need plenty of encouragement and careful guidance.

Attitude of adults. Children's lack of skills in this kind of approach must not be overplayed. It is remarkable how quickly children adapt to having their ideas and opinions taken seriously. Observers are often amazed and delighted at how easily and freely children discuss problems and solutions during these sessions, which suggest that the key problem to working with children in this way is the attitude of the adults, not the abilities of the children.

Habits of some communities. In some communities, the adults do not accept their children as instructors or advisers. Their culture and habits do not allow the child to sit with the adult, especially in the nomadic and tribe families; however, some progress has been made due to the effect of media and the technology on the communities and people in general (rural communities in particular). This point has to be taken into consideration and it becomes a challenge for the operators.

Messages must not be wrong. As children are powerful communicators of messages to others, it is essential they get the messages right. If the messages are incorrect, children will effectively learn and repeat the wrong information.

Conclusion

The child is like clay; you can mold him into anything you want by preparing him with the appropriate teachings or instructions. In this case, you train the child and prepare him or her to be an instructor for his/her peers and parents at the same time. The Child-to-Adult method is an effective approach when the child has the right to participate in decision-making in matters that have an effect on his or her life. It is also an appropriate method when MRE officers cannot meet with adults because of security reason, like in Iraq, Afghanistan and other countries. IKMAA has found that children are not only easier to meet with for MRE lessons, but they also have a powerful influence on their peers, family members and others in the community.

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The trainers play games with the children to make them active and aware.

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Armed Non-state Actors: Their Contribution to Solving the Landmine Problem

This article presents some findings and lessons learned from a report on armed non-state actor[1] involvement in mine action. The report shows that it is possible to engage in humanitarian mine action with NSAs. The main conclusion is that engaging NSAs in mine action has significant benefits since their involvement supports the implementation of the main objective of the Anti-personnel Mine Ban Convention[2]: to reduce the humanitarian impact of AP mines and unexploded ordnance.

by Anki Sjöberg [Geneva Call]

Armed non-state actors are currently involved as fighting parties in conflicts all over the world; hence, for a true universalization of the rules and principles of human rights and international humanitarian law, the involvement of NSAs must be considered. This is equally true for prohibiting the use of AP mines because NSAs currently employ these devices. As NSAs are part of the problem, any solution must include them.

This article presents some of the main findings of a 2006 report, Armed Non-State Actors and Landmines. Volume II: A Global Report of NSA Mine Action,[3] which maps and analyzes mine action by NSAs. The report is the second part of a wider project,[4] following a 2005 report that focused on the negative aspects of the involvement of NSAs in the landmine problem.[5] The 2006 report presents:

- Some general findings concerning involvement by NSAs in mine action, separated into the five mine-action pillars: mine-ban advocacy (also including mine-ban policy),[6] stockpile destruction, mine clearance, mine-risk education and victim assistance.
- The findings of an analysis of mine action globally by NSAs—examining mine action, the advantages, difficulties and lessons learned.

NSA's Involvement in the Five Mine-action Pillars

The report found practical mine-action examples in the areas of each of the five mine-action pillars. A total of some 50 groups was documented as involved in some type of mine action, which was more than expected. The mine-action activities recorded were not entirely conducted by non-state actors. They were also performed by indigenous organizations mandated by NSAs or conducted by independent local or international organizations but facilitated by NSAs.

There are important differences in the numbers of NSAs involved in the different mine-action pillars. The greatest numbers of NSAs were involved in activities related to the mine-ban policy—35 NSAs have banned AP mines. Of these, 31 had signed Geneva Call's Deed of Commitment,[7] and at least an additional 14 had allegedly introduced some type of limitations (temporal or applied) to their mine use. At least six NSAs, all of them signatories to the Deed of Commitment, have reportedly been involved in promoting the mine ban to other non-state actors.

NSAs are rarely involved in stockpile destruction, although this has occurred in a total of 10 instances. Sometimes NSAs do not destroy stockpiles because they have not yet agreed to a total ban on AP mines. In some cases, the failure to destroy their stockpiles has also been due to circumstances beyond their control—a lack of funds or non-cooperation by a concerned state, for example.

Landmines and unexploded ordnance cleared by a non-state actor.
ALL PHOTOS COURTESY OF GENEVA CALL 2006

Thirty-one NSAs have participated in mine clearance and related activities. In 10 cases, these activities formed part of a mine-action program. The remainder participated on a spontaneous or ad hoc basis, involving activities such as clearing camps when leaving them, clearing mines on the request of the population and adopting policies to map the mines employed.

Few NSAs have been directly involved in large-scale MRE programs; four groups were conducting mine-risk education programs themselves and 12 were facilitating projects or programs. NSAs engage more frequently in ad hoc MRE by providing information about mines to civilians (14 cases documented).

NSAs have reportedly directly provided assistance to civilian victims of landmine accidents (in 20 cases) and have allowed or facilitated outside organizations to provide victim assistance in areas controlled by the NSAs (15 such cases were documented).[8] While not always reported, it can be assumed that most NSAs generally provide their own combatant victims with assistance to the extent possible.

Assessment of NSAs Involvement in Mine Action and Its Advantages

Generally, NSAs that have banned mines are more likely to be involved in mine action than groups that have not. Some mine-action practitioners (as well as Action 46 of the Nairobi Action Plan)[9] suggest that there should be greater support for mine-action activities when the concerned NSAs have committed to a mine ban.

There are different reasons why NSAs become involved in mine action. Recurring themes are humanitarian and development concerns and self-interest. Community pressure is sometimes highlighted as a main factor. An NSA's decision to engage in mine action could also be motivated by a combination of factors.

The primary benefits of mine action by NSAs are considered to be the same as those arising from other forms of mine action, i.e., principally humanitarian and developmental. Nevertheless, the complementary effects of NSA mine action (employment and stability; peace-building; security and disarmament; and openness to discussing other humanitarian norms) are different, and these are often perceived to be as important as—or even more important than—the primary benefits of working with NSAs. In addition, the primary benefits for the population in an area controlled by or influenced by NSAs may be relatively more significant, given that these areas often greatly lack developmental and humanitarian activities.

The main factors that appear to make humanitarian mine-action organizations regard involvement by NSAs as necessary, rather than merely desirable, are:

- The group's military training
- Its possession of information about the mines in the area (and possibly maps)
- Its links to the territory and the population
- The security and cost-effectiveness of working with these actors

Challenges, Tentative Solutions and Lessons Learned

The Armed Non-State Actors and Landmines. Volume II: A Global Report of NSA Mine Action[3] report showed it is possible to work with NSAs in humanitarian mine action, although various difficulties and challenges involved were identified. The following sections present some of the tentative solutions and lessons learned it found.

Need to understand and adapt to the political and conflict situation. The report found the need for flexibility and understanding of the circumstances in which mine action by NSAs takes place to be particularly important. This open-mindedness requires the situation be carefully analyzed in detail, taking into account local knowledge.

Although it has sometimes been argued that a ceasefire, or even a peace agreement, is a necessary condition for comprehensive mine-action operations, it is generally agreed that some mine-action opportunities may present themselves before the conflict ends. In fact, a step-by-step approach taking certain minimum actions may not only save lives, but also facilitates larger-scale mine-action activities following the cessation of hostilities.

Flexibility and adaptability are crucial features for security-related problems, a major concern for mine action involving NSAs. Mine-action organizations introduce new security procedures and use local guards to overcome such problems. Another possible solution, at least on a temporary basis, has been to work at a distance by training staff in a safer environment and undertaking other aspects of mine action that can be performed at a distance (e.g., certain parts of the survey).

Need for cooperation by the concerned state. One of the main conclusions of a workshop on mine action in the midst of conflict held in Zagreb, Croatia, in 2005 related to the allocation of legal responsibility for mine action in areas under control by NSAs. It was found that States Parties to the Mine Ban Convention

Members of the Polisario Front mine action team preparing for a stockpile destruction.

are responsible for mine-action efforts undertaken in the parts of their territory that, while not under their control, are under their jurisdiction. Although a State Party can justify its failure to fulfill its mine-action obligations in the areas of its territory that it does not control, it is still bound to make "good faith" efforts to fulfill its Convention obligations.[10]

Lack of cooperation of the government is an often-cited difficulty faced in mine action by NSAs. Bureaucratic and administrative barriers have frequently hindered equipment and staff from entering a country. In some cases, the government has completely halted mine-action activities, but more commonly, the state interferes and obstructs the work, stopping short of total non-cooperation. It should be noted, however, that in some cases the concerned states were very supportive of mine-action activities despite complex situations, and successful actions were undertaken without difficulties.

Need for capacity-building and training of NSAs. One major challenge to mine action by NSAs highlighted both by humanitarian actors and non-state actors is the lack of capacity and equipment. In many cases, there is a clear need for training and capacity-building in technical and operational capacity as well as management skills. This would be especially necessary if, as has been proposed, NSAs should assume greater responsibility for facilitating and coordinating operations. General capacity-building and training have also been suggested as ways to confront the problems of NSAs' involvement in mine action that allegedly stem from the NSAs themselves—namely, lack of organization, lack of transparency and a predisposition to set biased priorities.[11]

In working with NSAs, it is important not only to stigmatize their use of mines and failure to participate in mine action but also to raise awareness and educate them about the need for transparency and action. It's a fine line. Too great an emphasis on stigmatizing NSAs could have the counterproductive effect of causing them to withdraw from dialogue about mine action.

Need for financial and priority control. Accusations of corruption arising out of the non-transparency of NSAs (although not numerous) are being taken seriously by international nongovernmental organizations and agencies. Consequently, most international organizations and NGOs choose to maintain some kind of financial and/or priority-setting control. In some cases, the problem has been solved by setting up systems of strict, independent financial control. Such measures may also avoid unnecessary tensions between mine-action organizations and NSAs.

Need for increased support. In general, mine-action practitioners have found third-party states and the international community quite supportive of mine-action efforts involving NSAs, although not sufficiently so. Third-party actors could make greater contributions in raising funds and pressuring non-cooperating states. Both the financial and political aspects of support are crucial; however, despite the problems related to funding for NSA mine action, it has been argued some governments are only interested in supporting mine-action work with NSAs largely because of the expected peace-building gains. It has also been claimed that humanitarian actors themselves ought to make greater efforts to convince governments of the need for mine action and the humanitarian benefits it brings.

Need for confidence-building, commitment and cooperation. To work in difficult situations, mine-action practitioners need to build relationships of trust, not only with the NSAs, but also with the local communities and authorities. In some cases, a mine ban on behalf of the NSAs (such as the Deed of Commitment) would be crucial to ensure non-state actors' cooperation with mine-action organizations. Since some NSAs have begun mine-action activities on their own before enrolling in international programs, this may facilitate the commencement of such programs. Mine-action issues should also be included (but not exclusively) in exploratory discussions and peace negotiations between governments and NSAs.

Implementing mixed demining teams (made up of NSAs and government forces), aimed at confidence and peace-building, is likely to require communication among all parties and leadership by an independent NGO to facilitate the process.

Need for transparency. One key practice to facilitate mine-action activities in difficult situations is transparency. By being open and clear about their activities, humanitarian actors can convince NSAs and concerned states of their neutrality in order to avoid security risks and accusations of "spying." In return, NSAs and the concerned state(s) also need to be transparent with humanitarian actors in order to maximize the benefits from mine action since restrictions on the sharing of information may cause delays or lead to the cancellation of operations. Humanitarian actors should also open with each other in order to solve common problems with joint solutions. Finally, the main parties (NSAs and states) should ideally be as forthcoming as possible with each other in terms of sharing relevant information about mined areas and the progress of mine-action activities.

Need for organization and coordination. When strong NGOs serve as implementing or intermediary agencies, the process works. The donors provide the funding to the NGO, which works directly with the NSAs. It requires coordination, information-sharing and open communication among all the parties.

Need to involve the local communities. Mine-action practitioners are increasingly working with local communities, notably in so-called community-liaison roles.[12] NSAs are sometimes part of these local communities. When NSAs are involved in ad hoc mine-action activities, it is especially important that mine-action practitioners deal with them by considering, consulting and including them in the execution of the mine-action program to avoid tensions between international/national and local efforts. In addition, involving NSAs in mine action is relevant to the issue of accountability, since the people who demine stay in the area afterwards and would therefore have a vested interest in the program's success.

It can be beneficial to include affected communities in the processes of dialogue and negotiation with NSAs since their relationship with the NSAs allows the community representatives to put pressure on the armed actors. However, it can also put the population at risk. In these cases, it is of the utmost importance to carefully analyze the situation and, if necessary, take measures to protect the communities or to limit their involvement in NSA mine action.

Elements of Analysis

When considering involving NSAs in mine-action activities, there are some relevant parallels that can be drawn to the involvement of the regular military in mine action. As for the regular armed forces, the political situation and the NSA's link to the population determine whether:

- NSAs should be involved in mine action during or after armed conflict
- It is more advantageous to work with demobilized rather than active NSA soldiers
- Civilian actors are preferred

Sensitive issues that need to be carefully considered in different conflict and post-conflict situations include:

- Whether the population trusts the NSAs
- The nature of the relationships between the NSAs and other relevant armed actors in the area
- The possible outcomes of the actions

Conclusion

In conclusion, Armed Non-State Actors and Landmines. Volume II: A Global Report of NSA Mine Action[3] shows it is possible to engage in humanitarian mine action with NSAs. Given the benefits of such engagement, it is important not to discriminate against populations in areas under the control or influence of NSAs, which, as compared to populations in areas controlled by a state, benefit less frequently from mine-action programs. The main conclusion of the research is that engaging NSAs in mine action has significant benefits, since their involvement supports efforts to reduce the humanitarian impact of landmines and unexploded ordnance.

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This article is drawn from a report produced by Geneva Call, Armed Non-State Actors and Landmines. Volume II: A Global Report of NSA Mine Action,[3] which was published in November 2006. The report can be downloaded from Geneva Call's Web site at http://www.genevacall.org/home.htm. Hard copies can be obtained by writing to info@genevacall.org.

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Geneva Diary: Report from the GICHD

The GICHD provides operational assistance to mine-action programmes and operators, creates and disseminates knowledge, works to improve quality management and standards, and provides support to instruments of international law. The author discusses changes that have occurred at the Geneva International Centre for Humanitarian Demining, including a redesigned Web site and new publications.

by Ian Mansfield [Geneva Centre for Humanitarian Demining]

In January 2007, the GICHD unveiled a new look for its Web site and publications. The GICHD implemented these changes to give the organization a modern, fresh appearance, and to increase the utility of the Web site as well as reduce the cost of publications. The redesigned Web site can be seen at www.gichd.org and includes a number of new features such as shortcut buttons, an improved search function, an evaluation repository and a training calendar.

Redesigned GICHD homepage.
ALL PHOTOS COURTESY OF GICHD

One of the first publications to be issued in the new style was the Metal Detectors and PPE [Personal Protective Equipment] Catalogue,[1] published in March 2007. This catalogue features handheld, large-loop and vehicle-mounted detectors, as well as the relatively new multi-sensor systems. In April, the third edition of the Guide to Mine Action and Explosive Remnants of War[2] was published. This edition provides updated information, such as the text of the Convention on Certain Conventional Weapons'[3] Protocol V on explosive remnants of war; it also includes new chapters on mine action and development, as well as capacity building and evaluation.

Tenth Annual Meeting of Programme Directors and U.N. Advisers

In March 2007, the GICHD hosted the "Tenth International Meeting of Mine Action Programme Directors and U.N. Advisors" on behalf of the United Nations Mine Action Service. The meeting brought together over 200 people from 35 mine-affected countries, along with representatives from the various U.N. agencies, nongovernmental organizations and donor countries involved with mine action.

Since the first annual meeting was held, attendance has increased tremendously; in March 1998 only 40 people from seven countries attended. The idea for the meeting came about as there was a growing need for better standardization, coordination and sharing of experiences among the emerging mine-action programmes. The initial meeting focused only on U.N.-conducted or -supported programmes, but since then, the meeting has expanded to include nationally run programmes.

Over the years, the topics discussed at the meeting have included U.N. policy updates, capacity building, national ownership, information management, standards, resource mobilisation and technology. Since the beginning, all meetings have been funded by Switzerland and hosted by the GICHD.

Evaluations

The GICHD continues to provide training and advice on the conduct of mine-action evaluations, as well as undertake selected evaluations itself. Early in 2007 the GICHD undertook an evaluation of the United Nations Development Programme's capacity-building project in Albania and also completed an independent assessment of the residual threat in Kosovo on behalf of the United Nations Mission in Kosovo. Later in the year, the GICHD will undertake a thematic evaluation in the Caucasus as part of a rolling series of evaluations for the European Commission.

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Ian Mansfield is the Operations Director at the GICHD and is responsible for all operational, technical and research activities of the Centre. He is also responsible for analyzing existing and potential areas of activity for the Centre, as well as all evaluation, assessment and consultancy activities. Mansfield holds a Master of Business Administration and a bachelor's degree in civil engineering.

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Quality Management in Demining Organisations

In this article, the International Standards Organization 9001:2000 Quality Management System is compared to what leading actors in quality management and business management deem to be current best practise. The aim of this paper is to show the universal application of the ISO 9001:2000 system as a quality-management system and that it complies with best practises in business and quality management around the world. This article will highlight a few of the most important ISO clauses and show how they are supported by best practises.

by Charles Loxton [United Nations Mine Action Centre for Afghanistan]

The International Mine Action Standards, although not prescribing the ISO 9001:2000 Quality Management System, strongly recommend organisations involved in mine action implement such a system. All but a handful of organisations have done so; for reasons that are as yet unclear, some mine-action organisations haven't adopted the ISO 9001:2000 system.

The requirements of the ISO 9001:2000 system are as stated in the Standard: "All requirements of this International Standard are generic and are intended to be applicable to all organizations, regardless of type, size and product provided."[1] Why is it then that organisations are hesitant to utilise ISO as a management tool? If demining organisations are following best practise, then they are automatically practising ISO principles.

The ISO 9001:2000 Standard: General Requirements

The scope of the system is explained in the Standard as follows: "This International Standard specifies requirements for a quality management system where an organization:

- Needs to demonstrate its ability to consistently provide a product that meets customer and applicable regulatory requirements.
- Aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable regulatory requirements."[1]

The usefulness of these general requirements is reflected in the words of Dr. Masaaki Imai, "The Japanese perception of management boils down to one precept: Maintain and improve standards."[2]

Another supporter of standards is W.E. Deming, considered by many as one of the quality masters. He states, "We must use standards as the liberator that relegates the problems that have already been solved to the field of the routine, and leaves the creative faculties free for the problems that are still unsolved."[3]

Management Responsibility

Leadership and top management responsibilities are singled out by all the literature reviewed as the most important aspects of any attempt to implement or enhance a quality-management system in an organisation, or to even just enhance current quality standards in an organisation. Any attempt to introduce quality into an organisation that is not wholeheartedly and actively supported by the top management team is bound to be short-lived and doomed to failure. In defining the exact role of top managers and their detailed responsibilities in and to a quality-management system, the ISO 9001:2000 Quality Management System leaves no hiding place for top management, which may explain why so many organisations are hesitant to fully adopt it.

> How often is it found that nonconformities in the minefield are directly attributable to management? Too often!

Philip B. Crosby, in Quality Without Tears: The Art of Hassle-Free Management,[4] states that the credibility of management commitment is the biggest problem that management faces and that just talking about quality is not enough; managers have to continually reinforce the message of their commitment through actions. Crosby further states that the key to success in making quality improvement lies with the top management team but that management is also the biggest cause of the problem.

How often is it found that nonconformities in the minefield are directly attributable to management? Too often!

Other masters of quality agree with Crosby on this matter. As noted in Oakland on Quality Management, Deming argues that senior management is responsible for 94 percent of quality problems, whilst Joseph M. Juran is a bit more forgiving and says that workers are responsible for less than 20 percent of quality problems.[5] The author, John S. Oakland, is of the opinion that the CEO of an organisation must really believe in the quality policy as well as accept responsibility for it.[5] This responsibility for quality should then cascade down through all levels of the organisation until an attitude of pride in the job and teamwork has permeated all levels and all departments of the organisation.

The Standard has also identified management commitment and responsibility crucial to quality management; hence the detail on this particular topic. I believe

that this aspect of ISO 9001:2000 Quality Management System alone is enough to generate vast quality improvements in an organisation, purely through the domino effect caused by genuine management commitment.

Operations people must realise that they are responsible for quality—good or bad. Quality-assurance/quality-control personnel are only responsible for reporting on the state of quality, not for generating quality.

Product Realisation

The product realisation process is none other than the core business process of manufacturing its product(s) or service(s). It is self-evident that the best practise dictates that this process should be properly planned and developed to meet the requirements of the product and of the customer. This statement is further supported by Oakland who found in his research that "identifying key-business processes"[5] was one of the best practises found among award-winning companies. In demining, all processes in the minefield are described and guided by standard operating procedures. However, the minefield is only the last stage of the product-realisation process. The process stages before that are very seldom described and audited.

In Integrated Process Management: A Quality Model, Rodger Slater makes the argument that entropy is a "universal force which relentlessly presses all activity in the direction of disorder.[6] He contends further that if discipline (measurement and control) is not applied to key variables, they will move to a state of chaos, even if they are not problematic at the moment.

The Standard encapsulates the essence of those variables in the production/service process and seeks to impose the discipline on them that is required to prevent these aspects from drifting into chaos.

Measurement, Analysis and Improvement

Customer satisfaction not only relates to the end user or external customer, it is also applicable for internal customers, i.e., those various people who develop the product through the different stages of the process. The product must fulfil certain requirements before it can be passed on to the next stage of the process. It must be measured to ensure that problems do not occur further down the process. Oakland calls these internal customer relationships "quality chains,"[5] and deems them vital in being able to meet customer requirements.

Slater refers to measurement activities as "the feedback loop"[6] and further states that without it, any system that seeks to address process control will fail. People need to know how well they are achieving in order to progress. An organisation needs to know the same in order for it to survive and indeed prosper.

Oakland states that "a good quality management system will not function without adequate audits and reviews."[5] A further advantage of audits is that they automatically review processes and systems and are therefore useful for continual improvement.

The Standard requires organisations to continually improve their processes through a range of activities from reviewing nonconformities to reviewing corrective action. This should be taken further in that organisations should identify potential nonconformities and their causes in order to take preventive action. Oakland supports this view and expands it to include a focus on prevention rather than cure. Quality is about prevention—you cannot "inspect" quality into a product. It has to happen before the inspection process.

> The Standard is even more useful for demining organisations in developing countries, as it can be a framework to direct the organisation's activities without having to purchase management expertise from developed countries.

Conclusion

The ISO 9001:2000 Quality Management System requirements are an extremely useful set of tools that cover the full spectrum of management best practise as evidenced currently. The Standard is even more useful for demining organisations in developing countries, as it can be a framework to direct the organisation's activities without having to purchase management expertise from developed countries.

The Standard is a clear way to guide such organisations to world-class status. There is, however, a prerequisite to all these statements, and that is management commitment—if the top management team is not going to be totally committed and accept responsibility for quality improvement, efforts will be short-lived.

Oakland[5] contends that any organisation, in essence, competes based on its reputation for quality, reliability and price. Of the three, quality is the most important. It is extremely difficult to change a reputation from bad to good, but very easy to go from good to bad.

The Standard provides transparent proof to customers that an organisation is serious about its business and takes the customers' requirements seriously. In a donor-driven environment, transparency and effectiveness of organisations are the basis on which donors choose to get involved. Organisations wishing to obtain sustainable, long-term donors will find that compliance with the Standard will provide donors with confidence and willingness to engage in lasting partnerships.

The ISO 9001:2000 System is fully compatible with and supported by international best practise. Any demining organisation that seeks to improve its standards and achieve world-class recognition should seriously consider taking a strategic step forward and adopting a quality-management system based on the ISO 9001:2000 standard.

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This article is published posthumously. Charles Loxton passed away in Kabul, Afghanistan, in February 2006. The United Mine Action Centre for Afghanistan is proud to pay a tribute to Mr. Loxton in approving the publication of this article, written during his last assignment. Charles Loxton is remembered for his dedication, hard work and joie de vivre.

Charles Loxton was born in South Africa in 1960 and served in the South African Army for more than 15 years. Building on his strong military and managerial background as Lieutenant Colonel, after serving in the Army, he started a new career in mine action. Between 1999 and 2004 Mr. Loxton worked for commercial demining companies in Kosovo and Iraq before joining UNMACA and the Mine Action Programme for Afghanistan in 2004 as Chief of Quality Management. He was certified ISO 9001:2000 in 2001.

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Needs Assessment in Lao PDR

This article describes the needs-assessment process and findings for mine-risk education in Lao PDR. Specific issues that arise are identifying those who are at risk, why they are at risk, and what can be done about it.

by Jo Durham [Mines Advisory Group]

Mine-risk education is an integral component of humanitarian mine action and, as with other HMA components, should be a planned intervention. A needs assessment—the process of systematically collecting and analysing information in order to identify who is at risk, why, and what can be done about it—is an essential precursor to programme planning and implementation. A good needs analysis can help programme managers develop appropriate, targeted and effective interventions that address the needs of the target populations. It is a crucial step in framing an appropriate response to risk reduction.

Recognising the importance of a needs-assessment in preparation for its new five-year strategy for the Lao People's Democratic Republic and based on an earlier Geneva International Centre for Humanitarian Demining evaluation, UNICEF commissioned Mines Advisory Group to undertake an MRE needs assessment in five provinces in the Lao PDR.

The assessment identified a number of subgroups that are at risk and helped bring into focus the myriad of contributing factors that influence behaviour. It highlighted the differences in the ways the mine-action "experts" and "laypeople" analyse risk, make decisions, and structure and solve problems in order to determine an appropriate response. The findings suggest that in a country such as the Lao PDR, where communities have lived with unexploded ordnance infestation for over 25 years, more traditional mine-risk education may not be what is required. What may be needed alongside traditional message-based interventions is a more holistic and pragmatic risk-minimisation approach, which may also require a collective paradigm shift in the way different stakeholders view UXO risk. Such methodology would help bridge the current gap between experts' and laypeople's opinions and result in more effective MRE. Alongside this risk-minimisation approach, a more complete, integrated style of UXO action and development will help address some of the underlying vulnerabilities of at-risk populations. The assessment also pointed to possible new directions for reaching women and children including integrating MRE into a broader life-skills approach and parenting guides.

Background to the Assessment

Lao PDR has the distinction of being, per capita, the most heavily bombed nation in the world.[1] As a result of intense ground battles and extensive bombing during the Indochina War,[2] especially during the years 1964–

Hidden threat: almost all people living in contaminated areas are potentially at risk of exposure to live ordnance.
ALL PHOTOS COURTESY OF MINES ADVISORY GROUP/SEAN SUTTON

1973, there is widespread contamination of UXO, which continues to act as a barrier to socioeconomic development and causes death and injury to adults and children. These injuries can result in long-term medical and psychological after effects as well as a huge financial burden to affected individuals, families, their communities and health services.

The government of Lao PDR, with assistance from the United Nations Development Programme and UNICEF, established the Lao PDR Trust Fund for UXO in 1995 to finance a national programme of clearance and education. A National Survey on the Socio-economic Impact of UXO was conducted[3] and reported UXO contamination in 25 percent of all Laotian villages. The United Nations Development Assistance Framework for Lao PDR,[4] as well as other government and donor documents, identify UXO and the threat it continues to pose to both livelihood security and personal safety as cross-cutting issues in tackling poverty.

As with most other mine-action programmes, the Lao MRE programme aims to promote safety in UXO-contaminated communities and has been primarily underpinned by psychological theories of behaviour change, such as the Health Belief Model.[5] More specifically, UNICEF has supported MRE for children in several at-risk communities in 12 of the most heavily contaminated provinces. In preparation for its next five-year strategy, UNICEF commissioned MAG to undertake a risk assessment to ascertain who is currently at risk and why, as well as what can be done to mitigate the risk.

Methodology

The assessment took an eclectic approach to the risk assessment combining ecological approaches to health promotion and injury-prevention and risk-management approaches to environmental health. The study was also informed by the International Mine Action Standards (IMAS) Mine Risk Education Best Practice Guidebook 2, Data Collection and Needs Assessment for MRE[6] as well as the other IMAS for MRE Best Practice Guidebooks[7] and the UNICEF technical note Children Participating in Research Monitoring and Evaluation – Ethics and Your Responsibilities as a Manager.[8]

The assessment consisted of four main components: a literature review; development, testing and administration of a quantitative Knowledge, Attitude and Practice questionnaire; a qualitative assessment; and data analysis. An analysis of the available accident data was also used to inform the assessment, which was conducted by a MAG research team.

The KAP questionnaire was administered in five UXO-contaminated provinces. Multi-stage cluster sampling, probability proportional to size to determine the sampling size and random sampling to identify the sampling frame were utilized. The MAG research team analysed the KAP questionnaire using a statistical analysis software package, the Statistical Package for the Social Sciences (SPSS), and provided broad contextual information on a level of community UXO awareness, attitudes, behaviours, assessment of risk associated with certain behaviours, and how and where people gained knowledge about UXO.

The results of the KAP were used to develop qualitative survey tools then administered in two provinces. Using content analysis, the qualitative phase of the research enabled a better understanding of the individual circumstances, motivations and contributing factors which lead to voluntary or deliberate and unintentional exposure to live ordnance. It also allowed for a more detailed understanding of the range of contributing socioeconomic, psychological, cultural, political and legal factors that contribute to risk behaviours and exposure to live ordnance. Qualitative data was gathered from UXO operators—technical staff and programme managers using semi-structured and unstructured interviews to gain an "expert" perspective.

Findings

The assessment found overall a high level of UXO awareness and understanding among both adults and children. For example, 82 percent of the adult respondents indicated that no UXO is safe and provided a range of correct responses regarding common events that cause UXO to detonate—of the children surveyed, 99.6 percent considered UXO to be dangerous, with most of them reporting being afraid of UXO.

Despite these known risks however, many people, including women and children, reported continuing to interact with live or potentially live ordnance on an almost daily basis. Respondents rationally defended this apparent inconsistency, even though their view was often at odds with "expert"[9] views.

The assessment also found the general categories often used to characterize at-risk populations, that is, the uninformed, the unaware, the reckless and the intentional, were less relevant to the context of Lao PDR. Instead, the study distinguished between intentional exposure (i.e. voluntary) to live ordnance—where actors aware of the risk purposefully expose themselves to live ordnance—and unintentional exposure (involuntary). Voluntary exposure may include for example, moving an item of UXO to another location or tampering with ordnance for economic gain. Voluntary exposure included groups identified as high risk, for example:

- Adult scrap-metal collectors
- Adults who move UXO out of farming land
- Scrap-metal dealers
- Adults who deliberately dismantle UXO
- Children who collect scrap metal
- Children who play or tamper with UXO
- Adults and children who work on agricultural land
- Out-of-school youth and young children

Unintentional exposure. Unintentional exposure to UXO injury is when a person's exposure to live ordnance is unplanned and may include exposure due to inattention or lack of knowledge. While some of the prevention activities may be the same, intentionality is an important variable and particularly relevant in Lao PDR where UXO injury due to intentional exposure to live ordnance (for example through the deliberate tampering of ordnance for the scrap-metal trade) is known to be increasing.[10]

Involuntary exposure, such as exposure to sub-surface UXO while farming, is generally feared due to the lack of control people have over the situation. People have reported voluntarily exposing themselves to UXO—for example, removing items from farming land—in order to avoid possible unintentional exposure later. Contributing factors to involuntary exposure include the inability of clearance agencies to respond to the needs of farmers and a lack of alternative agricultural land. The following quote expresses a view shared by many and helps to illustrate the farmers' plight as well as highlighting the higher level of fear that surrounds involuntary exposure: "No clearance team comes and helps us, so even though it is not safe to move, when we find UXO this farming season we need to move them, otherwise the following year when we farm again we don't know where they are."

Intentional exposure. The assessment identified a number of perceptual, cognitive, pragmatic and economic market factors that informed respondents' rational defence of voluntary risk-taking behaviour. Respondents reported weighing benefits and costs of UXO risk activities compared with other household risks. A key household risk, for example, is basic food insecurity, which is often a motivating force in the decision to engage with, or at least potentially engage with, UXO.

In trying to meet basic needs such as food security, individuals and households also consider the costs and benefits of alternative income-generating options, sometimes preferring activities that may expose them to UXO, such as scrap-metal collection. Where other options had more perceived advantages than scrap-metal collection, however, people reportedly abandoned scrap-metal collection for alternative sources of income. Thus, while contributing factors of voluntary exposure to UXO were often rooted in poverty, it was rarely perceived by communities or individuals as the only option. More commonly intentional UXO risk-taking was found to be based on a rational decision-making process involving weighing the potential costs and benefits of a range of available options.

Fifty-two percent of children surveyed reported collecting scrap metal.

The most common ways in which people voluntarily expose themselves to UXO risk is through collecting or dealing in scrap metal, moving UXO from farmland and dismantling UXO. The following quote from one of the female respondents illustrates how contamination levels combined with the need to uphold basic food security and an insufficient UXO clearance response contribute to people deciding to voluntarily take risk: "I found more than 10 BLUs[7] in my new farming land. Each time I moved them into one place and kept farming as my family land is very small so I need to keep farming in that area."

Predisposing factors that contribute to high-risk behaviour include level of contamination of farming land, belief that some UXO are relatively safe to move, perceptions of safe behaviours and the desire to investigate metal-detector signals. Enabling factors include ease of picking up and moving UXO items, availability of metal detectors and inability of clearance agencies to respond in a timely manner to reports of UXO on farming land, UXO removal being sometimes perceived as the removal of a legitimate cash crop, and a certain level of social and parental acceptance of UXO risk-taking behaviour, even where a UXO incident may have economic and social consequences for families and communities. Reinforcing factors include food-security problems, which motivate people to engage in the collection of scrap metal, lack of alternative income-generating activities, price of scrap metal and lack of access to alternative farming land that is not contaminated with UXO.

A respondent stated, "I moved three bombies from the bottom of a bomb crater. When I was digging I hit one of the bombies so I slowly

picked it up and moved it out from the bomb crater to a nearby area. I was afraid when moving the bombie but I needed the money. In one bomb crater I could get 40 kilograms (88 pounds) of scrap metal." Currently, scrap metal is approximately 1,700 kip per kilo (approximately US$0.08/lb.[11]). Nearly all UXO contamination is in rural Lao where most people—about 80 percent of the population—are subsistence rice farmers and have limited options for generating a cash income if they stay within their communities and home base.

Almost all respondents who reported voluntary exposure to potentially live ordnance were able to provide examples of the risk-reduction strategies they took. These indigenous risk-reduction strategies are often at odds, however, with expert views of safe handling of UXO. Indeed, some respondents also recognised that their strategies might still result in injury and tried to learn more by watching village experts or surreptitiously observing UXO clearance teams to learn from the way they handle UXO. Scrap-metal collectors, including men, women and children using locally-procured metal detectors also had a number of risk-reduction strategies including the one described in the following statements:

- "I feel safer when digging, more confident that it isn't a UXO when I hear the small beeps."
- "The system of the detector is that if we find a small piece of scrap, we get a different sound; if we find a large piece of metal, we get a loud sound."

While a number of respondents were able to describe strategies they use for distinguishing between safe and unsafe ordnance, respondents identified accurate recognition skills as an area in which they felt they needed more knowledge, according to one scrap-metal dealer: "Without knowing it, I have bought many things from villagers—BLUs[12] with explosives, hand grenades with no pins, bullets, mortar shells with gunpowder inside."

The survey also identified a number of contradictions. For example, scrap-metal collection on the one hand is perceived as being potentially risky but on the other hand is not necessarily associated with accidents. This may be due to a cognitive coping strategy whereby the risk is explained away as being exaggerated or a belief that the person has the necessary skills to remain in control.

Conclusion

The assessment found UXO risk-takers, including women and children, are generally aware of the risk and engage in some form of risk-assessment process, which they use to make rational and deliberate decisions regarding acceptable risk. However, from other stakeholders' perspectives such as humanitarian mine-action experts, regulatory bodies, educators and decision makers, there are different views on acceptability and rationality of local risk-assessment processes. This conflict is largely about a divergent definition of risk, differences in how problems are structured and solved, differences in judgments about the probability of an accident, and different kinds of knowledge.

While awareness is an important prerequisite to change and ongoing awareness campaigns may be essential for children, the assessment did not identify it as a major determinant of risk behaviour. Focussing on traditional message-based approaches to MRE is likely to result in developing an intervention that does not address the major underlying determinants of behaviour. Traditional messages on expert-perceived positive behaviours common in MRE programmes may include "Don't touch UXO" and "If you see UXO, report it to a mine-action agency." However, this approach could result in MRE planners falling into the common pitfall of developing an intervention that does not address the major determinants of high-risk behaviour.

To be effective, the MRE programme will have to take into account the determinants of behaviour identified in the assessment. Such an approach may include life skills and communication training. It should also take into account the information and skill-development needs of at-risk communities as identified by respondents in this assessment. In this sense, it represents a paradigm shift from current "expert" HMA practice and message-based MRE. With its emphasis on standards, safety, technical expertise, and zero- or minimal risk, implementing such an approach, which actively engages high-risk populations and builds on current coping strategies and knowledge, is likely to be challenging. Such an approach will require a change from zero-risk to risk minimisation and recognition of the often valid risk-assessment processes and risk-reduction strategies indigenous communities employ. It may also involve a more meaningful and useful transfer of knowledge from experts to laypeople. As M. Worden[13] noted, speaking in the field of health promotion, even when it is known how to undertake successful prevention activities and the people are aware of the preventative tools, such interventions are often unpopular with policy makers, lobby groups, the public and even practitioners themselves. Recent examples of risk-minimisation approaches in HIV prevention like safe needle exchange and safe injecting practices may provide some insight into effective strategies in taking a pragmatic approach to UXO risk reduction.

As the assessment has shown, the complex milieu in which behavioural decisions are made calls for a shift to a risk-minimisation approach. A range of integrated interventions that aim to address the underlying vulnerabilities of UXO-affected communities is also needed. From this perspective, UXO contamination in Lao PDR requires a collaborative, multi-sectoral and multi-level response that includes a range of legislative and regulatory strategies, improved UXO clearance methodology and targeting of resources, skills training, MRE and an integrated approach to UXO action that enables the implementation of broader poverty-alleviation and sustainable-livelihood strategies. Such an approach will save lives, reduce injuries and promote economic growth and development, which in turn will contribute to addressing underlying vulnerabilities and reduce UXO risk.

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Special thanks to Lisa Ognjanovic, International Team Leader for the project and author of the original needs assessment report for Lao PDR. MAG would also like to thank UNICEF for its support in the implementation of the assessment.

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The Mine-action Process in Iraqi Kurdistan

The Iraqi Kurdistan Mine Action Agency has been working to clear Kurdistan of landmines and unexploded ordnance that were placed by the former Iraqi government over the past 40 years and the Iranian Army during the Iran-Iraq War from 1980–1988. The Agency is overcoming many challenges and has cleared a vast number of minefields so the land can be handed back to the owners. Casualties from explosive remnants of war are extremely high but a new mine-risk-education program will inform people who live in dangerous areas how to minimize the threat of explosive remnants of war.

by Jamal Jalal Hussein [Iraqi Kurdistan Mine Action Agency]

The existence of landmines and unexploded ordnance in any community has a direct impact on the local people, especially in regard to their economic, social and physical well-being. The previous Iraqi governments systematically contaminated Kurdistan's land with mines.

Since the initiation of the Kurdish freedom revolution and other Kurdish struggles, this practice was continuously applied to Kurdish lands and was prolonged when the former Iraqi regime came to power in February 1963. An "Arabization" strategy was used in an attempt to change the demographics of northern Iraq whereby the Iraqi government displaced Kurdish families from their land and replaced them with Arab families from other areas of Iraq. In addition to dealing with this, during the consecutive conflicts that consumed all of Iraq and Kurdistan, huge areas of Kurdish land were heavily contaminated with mines and explosive remnants of war. This led to thousands of Kurdish citizens being killed or facing lifelong handicaps.

A mine-detection dog handler and a trained mine-detection dog are searching a marked hazardous area for landmines.
ALL PHOTOS COURTESY OF THE AUTHOR

Clearance Goals

The vision of the Iraqi Kurdistan Mine Action Agency is to rid Kurdistan of ERW. Currently the mission is to reduce the impact of mines and unexploded ordnance in the affected communities of Kurdistan. This will be achieved through the demining process (survey of contaminated communities, mapping, marking of hazardous areas, and destruction of mines and UXO), mine-risk education and victim assistance. It is a great challenge to clear mines from Kurdistan due to the difficulty of the demining process, the large areas that were contaminated and the approximate quantity of emplanted mines numbering in the millions.

Achievements

There are 3,512 registered minefields in Kurdistan. From the beginning of the demining process in Kurdistan in early 1993 through late 2004, a total of 567 minefields and battle areas have been cleared and returned to their owners.

Approximately 5,615,989 square meters (2.17 square miles) of mined areas have been cleared, with 25,226 anti-personnel mines, 890 anti-tank mines and 273,404 pieces of UXO destroyed. Throughout 2005 and 2006 a total of 100,083 people have directly benefited from IKMAA's clearance, explosive ordnance disposal and MRE efforts.

Factors Influencing Demining Difficulties

Experience shows many factors directly affect the clearance process and lead to a slowdown in progress. The age of the minefields, as they are already 20–26 years old, leads to a number of complicating factors and difficulties in conducting demining operations. Some of these factors are related to Kurdistan's natural terrain and topography while other factors stem from the difficulty of mine clearance, the risks associated with mine clearance and difficulty of implementing the International Mine Action Standards due to safety concerns. Specific factors that affect mine clearance are:

- Limited period of time to work in some minefields due to weather
- Hard ground
- High, dry vegetation in most mined areas
- Lack of desire by deminers to work in mine clearance because of the threat of dealing with suspected areas
- The existence of high numbers of metal fragments that slow progress because mine-clearance personnel must check each square meter of ground with metal detectors. Most of Kurdistan's large minefields were battle areas during the Iran–Iraq War (1980–1988).

Governorate	Years of Accidents	Mine		UXO		Total	
		Injured	Killed	Injured	Killed	Injured	Killed
Duhok	1965-1989	165	87	43	6	208	93
	1990-2003	514	190	134	30	648	220
Erbil	1963-1989	469	275	261	79	730	354
	1990-2003	1000	584	959	289	1959	873
Sulaimaniyah	1950-1989	480	277	389	129	869	406
	1990-2003	2228	1409	1235	413	3463	1822
Kirkuk	1955-1989	124	94	89	43	213	137
	1990-2003	700	567	331	79	1031	646
	Total	5680	3483	3441	1068	9121	4551

Table 1: Mine and UXO victims in four Kurdistan governorates from 1950 to 2003.

- Unavailability of minefield information and maps—the former Iraqi regime did not release them to the United Nations or Kurdish demining organizations so there is no reliable information on the exact location of contaminated areas.
- Unintentional enlargement of minefields—villagers transferred mines from mined areas to previously safe areas. Most of the minefields have been disrupted; in some cases, local villagers have attempted to clear their land by collecting or disarming visible mines or by removing the mines from the minefield and stockpiling them in another area
- Emigration of mines from uneven or steep ground, especially in mountains due to rain and snow
- Shortage of modified clearance machines such as front-end loaders and excavators within the demining program
- Qualified and well-skilled deminers abandon the program for better salaries or easier jobs—it is a challenge to recruit veterans or skilled deminers to replace those leaving.

Other Activities

IKMAA presented its achievements and activities via a comprehensive demonstration at a photography exhibition on 4–5 July 2006 at Media Gallery in Erbil, the capital city of the Kurdistan region. Photographs of all aspects of IKMAA activities were displayed, such as explosive ordnance disposal, surveys, demining assets used in Kurdistan (manual, mechanical and mine-detecting dogs), cleared minefields in Kurdistan and the handing over of land to owners.

The role of mine-risk education in IKMAA was presented via a number of photographs which were taken as MRE teams conducted and provided mine awareness to communities affected by landmines. MRE materials and publications were displayed. Additionally, the role of mine-victim assistance as one of the mine-action pillars was demonstrated through presenting prosthetic limbs and orthopedic devices to mine victims.

An outdoor demonstration of the demining process was also given. It highlighted the difficulty of the deminer's job.

The organization has handed over 39 cleared minefields (more than one million square meters [0.4 square mile]) to the landowners. There has been significant work toward reducing the impact of ERW in contaminated communities, clearing and returning them to their Kurdish owners and reviving the socio-economic infrastructure of the region. In 2006 IKMAA held four ceremonies to transfer the 39 cleared minefields. It is worth mentioning that the 39 minefields were cleared by local deminers from mine-affected communities. Direct beneficiaries of landowners signed the transfer-of-land documents and accepted the cleared lands during special ceremonies.

The MRE section at IKMAA has conducted three summer-school courses in mine/UXO-contaminated villages. The courses aim to: enhance the awareness of children and pupils regarding the danger of mines/UXO; teach children skills such as using a computer, painting, learning music, acting, protecting the environment, administering first aid and understanding children's rights while also using the summer holiday to provide information in the form of special classes, rather than spending time inside dangerous areas around the children's villages.

Conclusion

The Iraqi Kurdistan Mine Action Agency is proud of its accomplishmentsand is doing all that it can to make Kurdistan safe from landmines. IKMAA will continue to demine dangerous areas, educate peopleon the risks of mines and assist mine victims. Despite themany difficulties, IKMAA strives to inform the Kurdish people of thedangers of landmines and UXO.

The IKMAA legislation was formally announced and approved by the parliament of the Kurdistan Regional Government on 7 May 2007. The legislation's 23 articles are in five sections that cover IKMAA Definitions, Establishment and Objectives, Structure and Responsibilities, Finance and Final Provisions.

Jamal Jalal Hussein is a mine-action expert with the Iraqi Kurdistan Mine Action Agency and Director of the Fria Society of Mine Action Professionals in Erbil, Iraq. He earned a Bachelor of Science in Chemistry in 1986. He began work in the field as a deminer in 1998 with Greenfield Consultants. He became a Demining Team Leader in 1999 and a Demining Training Instructor in 2000. He has also worked with the United Nations Office for Project Services as a Technical and Safety Guideline and as a Training Monitor. Contact Information

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MAIC Survivor Assistance Projects

New projects under way at the Mine Action Information Center are described here, including a best-practices guidebook on casualty data, survivor-assistance training and a catalog of adaptive technologies.

by Lois Carter Fay and Dr. Suzanne Fiederlein
[Mine Action Information Center]

Most of our Journal of Mine Action readers know the MAIC at James Madison University as an information clearinghouse, complete with a robust Web site, training programs and various publishing ventures including this journal. And our newest products are no exception.

Recently, the Mine Action Information Center was chosen to work on three survivor-assistance projects:

1. Casualty-data best-practices guidebook
2. Survivor-assistance training
3. Adaptive Technology Catalog

All three projects being conducted at the request of the U.S. Department of State Office of Weapons Removal and Abatement Bureau of Political-Military Affairs. The survivor-assistance training is being conducted under the leadership of The Polus Center for Social and Economic Development.

Sample instructional materials from the Economic Reintegration Training Workshop.
IMAGE COURTESY OF THE POLUS CENTER

Casualty-data "Guidebook" Project

Many in the mine-action/unexploded-ordnance community have trouble effectively gathering, managing and interpreting casualty data, although some mine-affected countries have created good casualty-data systems and planning procedures. In our research, we have found that while there is a significant amount of casualty data collected by various entities around the world, it is often not effectively used to inform the decision-making and planning processes in mine action. It is the use of the data that is really driving this guidebook, which will be published in September 2007.

Some countries and programs are challenged to effectively collect needed landmine/UXO casualty data; others collect the data and then seem to do little with it. Many programs collect and use landmine/UXO "accident" data to inform their mine-risk education and clearance projects. For instance, if the data shows that there has been one or more casualties in a particular location, the country's mine-action authority will assume there is a pocket of landmines or unexploded ordnance located there and consequently choose to mark and clear the area. More recently, with the increased focus on developing mine-victim assistance plans, national authorities are more interested in obtaining additional information about accident survivors in order to plan and deliver rehabilitative services. The guidebook will research what is actually being done in selected mine-affected countries and assess their effectiveness, drawing conclusions regarding which approaches should be considered "best" practices.

The guidebook will be comprised of lessons learned and identified "best practices," instructive, detailed case studies, and a set of recommendations to guide planners, which will be short and broadly applicable to most situations.

Survivor-assistance Training

In a recent survey conducted by the MAIC (as a follow-up to the Senior Managers Courses we have presented for the United Nations Development Programme), more than half of the mine-action centers responded that landmine survivor assistance was a "top" or "high" priority, yet an even greater number reported that "no one [in their mine-action center/agency] had received any training" in survivor assistance. Consequently, the MAIC and The Polus Center for Social and Economic Development are working together to create a series of training workshops for national mine-action and survivor-assistance staff to aid them in developing and implementing programs that effectively meet the needs of landmine survivors and other people with disabilities in their countries.

The Polus Center assists people with disabilities in developing countries to become valued members within their communities. Its programs emphasize community-based rehabilitation, self-advocacy and community inclusion. It has extensive experience in working with local partners to create and implement projects to assist people with disabilities, particularly landmine survivors, in several countries. The Polus Center takes a social approach to landmine survivor assistance. It is focused on developing sustainable, person-centered projects for full social integration of landmine survivors.

Polus began working internationally in 1997 in Nicaragua and later expanded to Ethiopia, Honduras, Guatemala, El Salvador and Mexico. These collaborative efforts have resulted in two community-based prosthetic outreach projects, an accessibility project, a disabilities leadership center, a regional wheelchair-manufacturing project, and a series of capacity-building mini-grants to local organizations and individuals. The Polus Center uses a locally based, holistic approach to ensure that project beneficiaries are the ones driving services forward, and broad support is created in the community where they live.

The MAIC staff and JMU's faculty consist of subject-matter experts in survivor assistance, mine action and management; we are also experienced in developing and delivering curricula for a variety of constituencies, including program planners and project implementers, such as those for whom this survivor-assistance training program is designed.

These workshops will provide tools to understand and apply current best practices and integrate a social approach into planning and programs. Workshops can be delivered individually (one day each) or as a series spread over five days.

Adaptive Technology Catalog

The project goals for the Adaptive Technology Catalog are to assist communities and nations recovering from conflicts in providing economic security for individuals who have become disabled by landmines and other explosive remnants of war. We will do this by finding and compiling into a catalog a variety of tools to help survivors get back to work and gain independence.

The Catalog was researched with the help of the Canadian firm, Project Assistance, and will be published in September 2007. It will incorporate low-cost, low-technology products that can either be used directly off-the-shelf or can be easily modified by local vendors. It focuses primarily on the agricultural and mechanical sectors, and is designed to help landmine/ERW survivors become gainfully employed using simple, inexpensive technology. There are also several products related to kitchen work, computers, personal hygiene or grooming and transportation. Most of the tools are under US$500; a few are about $1,500. With about 800 tools listed, organized by tool function—auto, agriculture, construction, kitchen, mobility, recreation, etc.—there are ideas for overcoming many disabilities. Two of the supplying company owners are active and accomplished upper-extremity amputees themselves.

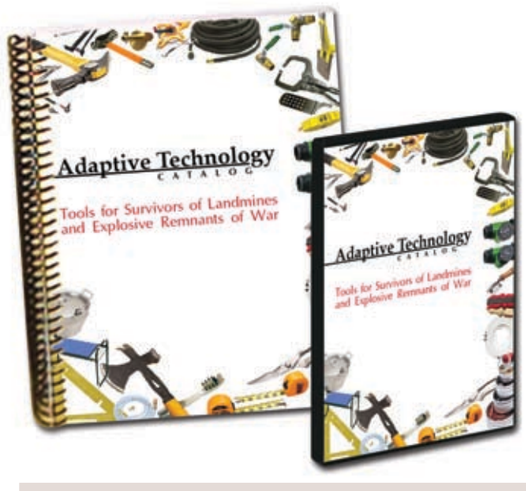
It is expected that the Adaptive Technology Catalog will be an excellent resource for survivor-assistance personnel, governments and organizations planning rehabilitation projects, donors and physical trauma survivors.

There are many benefits to a catalog of this type, including that it:

- Allows people to get back to work
- Gives donors something specific to fund
- Creates survivor independence

The Mine Action Information Center staff enjoys providing useful, needed products to the mine-action community as well as partnering with like-minded organizations to develop and deliver the projects. For more information about any of these projects, please contact Dr. Suzanne Fiederlein at fiedersl@jmu.edu or Lois Carter Fay at editormaic@gmail.com.

The Adaptive Technology Catalog project was inspired by Purdue University's Breaking New Ground Resource Center Agricultural Project, which was developed to help farm accident victims from the United States. For more information about this resource, visit: http://snipurl.com/1hu1a



The Adaptive Technology Catalog will be available as a DVD/CD or PDF in September 2007.
IMAGE COURTESY OF MAIC

Ms. Lois Carter Fay joined the Journal of Mine Action as Editor-in-Chief in 2005 and more recently has also served as Project Manager of the Adaptive Technology Catalog project. Her project management, writing, publishing and editing skills have been a solid addition to the MAIC's staff. Lois is an accredited public relations professional (APR) and holds a B.A. in psychology from the University of Wisconsin-Milwaukee.

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International Symposium Draws 170 Participants

Numerous key figures in mine action recently gathered in Croatia to attend the international symposium, "Humanitarian Demining 2007–Mechanical Demining." The symposium featured several presentations on demining, including a live field demonstration, discussed in detail here.

by Lois Carter Fay [Mine Action Information Center]

The symposium, "Humanitarian Demining 2007–Mechanical Demining," held in Sibenik, Republic of Croatia, at the end of April 2007,[1] had something for everyone. There were 170 people from 35 countries registered for the week-long conference, and each presentation drew a minimum of 100 participants. The donor, manufacturing, governmental, research and development, testing and evaluation, and user communities were represented at the symposium.

Topics covered use of demining machines in area reduction, cost-effectiveness of using demining machines, risk management, machine methods and use in combination with other demining methods, along with a few miscellaneous subjects. Everything was presented in Croatian and English using live translators and state-of-the-art audio headsets in the Congress Center of the Solaris Holiday Resort. An exhibit room housed posters and trade booths for various demining machines and the respective manufacturers.

The conference was hosted by the Croatian Mine Action Centre and the Centre for Testing, Development and Training (HCR-CTRO), with assistance provided by the United Nations Mine Action Service and the Programme Planning Committee.[2] This was the fourth symposium in a series of meetings hosted by Croatia.

Lois Carter Fay with Jawher Omer of the Iraqi Kurdistan Mine Action Agency at the machine demonstration.
PHOTO BY DONALD CRAWFORD

Field Day

The most interesting presentation at the conference was the demonstration held 25 April. Participants were shuttled to the outdoor demonstration site and seated comfortably upon stadium chairs to safely view the demonstration without exposure to the hot sun or flying debris.

Machine Model	Total Time (min)	Average Depth (cm)	Average Speed (km/h)	Machine Capacity (m^2/h)
MineWolf	5.35	19.00	1.193	3,327.77
RM-KA 02	9.50	17.53	0.708	1,791.04
Bozena-5	16.53	25.06	0.374	975,00
Samson 300	11.26	12.14	0.562	1,367.57
MV-10	11.25	17.71	0.571	1,400.00
M-FV 2 500/770	13.41	15.25	0.492	962.14
Mini MineWolf	12.39	22.05	0.532	1,206.52
MV-4[2]	5.33[2]	10.38[2]	0.540[2]	891.89[2]
Bozena-4	26.10	19.44	0.239	523.12

Table 1: Preliminary results of the equipment demonstration.

This machine and quality-control demonstration took place offsite in a very dry, hard, light-vegetation, dirt terrain that had been specially readied for the demonstration with two detonation imitations prepared for remote activation emplaced to varying depths and three fiberboard boards buried to a depth of at least 20 centimeters (7.87 inches) in each 50-meter (55-yard) lane. The temperature that day was 25 C (77 F).

Seven of the machines demonstrated were remote-controlled; three were manned. The demining machines tested were divided into categories as follows:

- **Heavy Machines:**
  - MineWolf (tiller, manned)
- **Medium Machines:**
  - DOK-ING MV-10 (flail and tiller)
  - Bozena-5 (flail)
  - RM-KA 02 (flail)
  - Samson 300 (flail, manned)
  - Mini MineWolf (tiller)
  - M-FV 2 500/770 (flail; manned)
- **Light Machines:**
  - MV-4 (flail)
  - Bozena 4 (flail)

Testing proceeded one machine at a time, with each traveling down and back in its 50-meter (55-yard) lane, clearing two rows. The machines' performances were timed, and when all completed the demonstration, the fiberboards used for testing were dug up and measured. The clearance-depth goal for each machine was 20 centimeters (7.9 inches).

The Results

Preliminary results were presented at the conference; see Table 1 for average ground-penetration depth of the equipment demonstrated.[3] CROMAC plans to publish the final results in its Book of Papers during the summer 2007, which will be sent to participants and posted simultaneously on its Web site, www.ctro.hr.

About 150 people watched the outdoor demonstration of demining machines.
PHOTO BY MINEWOLF SYSTEMS

Conclusion

The organizers followed a very strict testing procedure in accordance with international testing standards, which contributed to the overall results being regarded as representative under testing conditions. In these conditions, there was an astonishing difference between the flail and the tiller. It became apparent in the case of the flail that under dry conditions the operations are heavily affected by limited visibility due to dust. Whether the machines were remote-controlled or manned, lack of visibility affected the performance of the operators because they couldn't see where to "drive" the machine.

The two Bozena flail machines both adequately cleared the test lanes, although the Bozena-4 was the slowest machine, clearing to an average depth of 19.44 centimeters (7.65 inches) in a total time of 26.10 minutes. The Bozena-5 flail cleared its lane to an average depth of 25.06 centimeters (9.87 inches) in 16.53 minutes. Both Bozena machines were unmanned.

The superiority of the two MineWolf tillers in terms of clearance capacity was indisputable among observers. The larger MineWolf cleared the two 50-meter (55-foot) lanes in 5.35 minutes. This corresponds to an hourly clearance capacity of 3,328 square meters (3,980 square yards). It also seemed that having the machine manned adds to more control when operating. The Mini MineWolf, on the other hand, received positive remarks for very good clearance results despite its compact size. The machine cleared consistently to a depth of over 20 centimeters (7.87 inches).

Although the MineWolf and Mini MineWolf tillers demonstrated superior results under these test conditions, the use of a flail is sometimes preferred in certain circumstances, for example, shallow top soil over bedrock. For this reason the MineWolf machines may also be fitted with a flail, according to the manufacturer.[4]

"Humanitarian Demining 2007–Mechanical Demining" was a well-organized and important symposium for the international mine action community. In just one week, participants from 35 countries learned the value of various demining technologies and had the opportunity to witness several demining machines in action. Several people commented that the controlled nature of the testing made it very easy to follow and comprehend. Each participant of the symposium will take this experience back to his or her country to continue making progress in the field of humanitarian demining.

See Endnotes, Page

The author would like to express a special thanks to Sanja Vakula and Nikola Pavkovic of HCR-CTRO and Carl Fenger of MineWolf Systems for their assistance in clarifying details of the demonstration.

The Samson 300 is a manned machine that became totally engulfed in dust, making it nearly impossible for the operator to see where he was going.
PHOTO BY LOIS CARTER FAY

The flail machines really stirred up the dust as shown in this photo of the Samson 300 in action.
PHOTO BY LOIS CARTER FAY

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What Ever Happened to. . .?

This article covers the activities of the Japan Alliance for Humanitarian Demining Support in Thailand, and can be seen as a sequel to the article, "They Started With a Temple," found in Issue 7.2 of the Journal of Mine Action[1] which described the expansion of JAHDS from a small, research-based nongovernmental organization into a capable, effective mine-clearance nongovernmental organization in Thailand. Things have changed since then, and this article gives the rest of the story.

JAHDS in Thailand
by Paddy Blagden [International Mine Action]

The idea of forming the Japan Alliance for Humanitarian Demining Support was conceived by Hiroshi Tomita in November 1992 when it was discovered that a ground-penetrating radar tool developed by his company, Geo Search, which was used for the detection of sinkholes under roads in Japan, could detect an anti-personnel mine in a sandbox. This discovery started a period of research that led to the development of a mine-detecting GPR tool called Mine Eye. Since Geo Search was too small a company to fund a large-scale development programme, Tomita recruited the moral and practical support of major industrial companies operating in Japan such as Toyota, Honda, IBM, Omron and Secom Co. to help with development.

Practical Experience Needed for Product Improvements

JAHDS was founded as a nonprofit NGO to support mine action in March 1998 and donated funds and equipment to existing mine-action NGOs. In return, the NGOs were asked to assist in Mine Eye development by providing access to minefields and trials reports, but such support was difficult to obtain.

Consequently in January 2001, JAHDS set up its own small mine-clearance team, preferring to work in Thailand. It created a clearance team in alliance with the General Chartchai Choonhavan Foundation, a Thai NGO. Since the border demarcation adjacent to the Preah Vihear (Khao Phra Viharn) temple area was still contested by Thailand and Cambodia, the first demining task JAHDS undertook was at Sadok Kok Tom, another temple near the main road between Thailand and the Anghor Wat complex in Siem Riep, a main artery between Thailand and Cambodia. This site was identified by Norwegian People's Aid in 1991 as being of high priority for clearance, and this was endorsed by both the Thailand Mine Action Center and provincial authorities. Clearance began in December 2002 and was JAHDS' first demining experience. It was carried out successfully and without incident.

JAHDS Makes Use of Clearance Skills

After the successful clearance of the temple at Sadok Kok Tom, the situation at Preah Vihear was sufficiently resolved for JAHDS to work there. The JAHDS demining team reformed itself, splitting off from the GCCF, and recruited another group of deminers from the Kantharalak district of Srisaket province. These deminers underwent a six-week basic course at the Thai Army Engineer School in Ratchaburi province and were then added to a field team by Johan van Zyl, an experienced mine-clearance manager who had also trained the deminers at Sadok Kok Tom.

The new team set up camp on Khao Phra Viharn, part of the land belonging to the Thailand Department of National Parks, Wildlife and Plants Conservation (DNP) in the Kantharalak district of Srisaket province, near the famous temple of Preah Vihear on the other side of the Cambodian border. It began clearance work on ground known to be contaminated with mines and unexploded ordnance. The DNP needed the land for the development of a cultural heritage site, camping ground and educational facility, all connected with the temple and its construction.

Built circa 900 A.D., the temple is 900 metres (984 yards) in length and sits atop a cliff with a sheer drop of about 400 metres (437 yards) on three sides. The temple itself lies in Cambodian territory, but the easiest access is from Thailand because in many places the cliff forms the national frontier between Thailand and Cambodia. The site is usually open from the Thai side because the temple is a candidate to become a UNESCO World Heritage site.[2]

Mines and UXO were placed at the site when the border area was contested from 1983–1998. The temple is not far from Pol Pot's former headquarters. The Thai Army, Vietnamese Army, Khmer Rouge,[3] Cambodian Army and some irregular militias fought over the area, leaving behind many mines. A number of army or militia camps were set up, and some local valleys were used for rifle- and rocket-propelled-grenade-firing practice, which left an abundance of scrap metal and some UXO. There were also bounding and fragmentation mines and at least one artillery shell rigged as a trip-wire booby-trap.

The JAHDS demining team.
ALL PHOTOS COURTESY OF P. BLAGDEN

From an operational point of view, the clearance was fairly straightforward, although the majority of the area was thickly covered with trees, bushes and tall grass. There were rocky outcrops and steep slopes that made manual clearance very difficult. The area was divided into blocks, and each block was cleared in accordance with priorities determined by the DNP. One of these blocks surrounded an old reservoir, dating from the same period as the temple, with an earthen dam at one end.

The clearance was initially managed by van Zyl, and later supervised by Yutaka Koike, aided by Raungrit Luanthaisong, TripopTrimakka, and Commander Rabiab Maneerat. They had a team of 24 deminers and five surveyors. Introduced to integrated demining by van Zyl at Sadok Kok Tom, the JAHDS team made extensive use of handheld grass-cutters, a Hitachi vegetation cutter and a Bozena 4 flail.[4] In addition to their clearance duties, JAHDS staff carried out mine-risk education in local schools and communities, which was effective, and soon the MRE was passed to the locals by deminers from their own communities.

The area cleared was 668,000 square metres (165 acres) and, although there were some difficulties due to delays of UXO demolition, the work proceeded on schedule. Quality Assurance was carried out by the Thailand Mine Action Center, but the DNP was confident enough with the clearance that redevelopment of each site began as soon as JAHDS left the block. It was heartening to see how quickly previously-mined areas were developed for civilian purposes.

JAHDS also funded the building of a perimeter-safety barrier beside a walkway near the cliff edge. The view over Cambodia from this walk is breathtaking, but the cliff is almost vertical at this point, and there was a need to prevent people from falling off.

The summit of the temple, overlooking Cambodia.

...And They Finished with a Temple

Despite its successful demining experience, JAHDS ceased operating as an NGO at the end of October 2006. The decision to fold was mainly due to the difficulty of obtaining sufficient funding (close to US$1.8 million annually) from corporations and private donors in Japan. Thailand is seldom seen by international donors as an underdeveloped country, mainly because foreign visitors see only major cities like Bangkok or the well-developed tourist resorts on Phuket Island. Much of the funding provided for the clearance of Sadok Kok Tom and Khao Phra Viharn National Park came from private Japanese donors, but the burden of seeking such donations became too high for the small group of enthusiasts involved.

Future Plans

Although JAHDS' NGO operations have ceased, it is expected that the mine-clearance capacity it created will not. A Thai civilian NGO called the Peace Road Organisation will continue the project. The JAHDS Board donated all funds and equipment to the new NGO in November 2006, allowing the group to carry out further clearance for the development of this important sector of DNP lands. It could also be highly important for the economy of the local area, especially if a new road is constructed linking Preah Vihear with the complex of temples at Angkhor Wat, expanding the "temple circuit" and increasing the number of visitors to this important cultural area. This road would also be a commercial artery because a border market would likely establish itself, further enhancing the economy of the area. In addition, mine clearance would further remove the hazard of mines for villagers who harvest the local forests for timber and roof grass. Construction of the road is expected to be completed by September 2007.

Above all, the skills JAHDS transferred to local deminers could be used as the nucleus for a larger Thai NGO, established in accordance with the latest TMAC mine-action programme, and supplementing the work of the TMAC Humanitarian Mine Action Units. There is still much clearance work to be done along the border and this extra clearance capacity is sorely needed.

In Summary

The Japan Alliance for Humanitarian Demining Support had six years as a research and development NGO for GPR mine detectors and nearly two years as a mine- and UXO-clearance NGO in Thailand. Of the clearance teams, it could fairly be said, "They started with a temple, and they finished with a temple." It was a short life perhaps, but a good one.

See Endnotes, Page

Paddy Blagden started demining in 1991. The United Nations recruited him in 1992 and he joined the Department of Peacekeeping Operations (which eventually became the United Nations Mine Action Service). Blagden also helped start the Geneva International Centre for Humanitarian Demining in 1997 and later served as its Technical Director until June 2002. He began working with the organisation that became JAHDS in 1992. His company, International Mine Action, is a consultancy; he now works for a number of organisations, mostly carrying out programme evaluations.

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Albania

by Kateland Shane [Mine Action Information Center]

For many citizens of Albania the current mine problem is a haunting reminder of the Kosovo Crisis of 1999. Upon returning home after an evacuation of the Albania-Kosovo border area, residents discovered the border polluted with mines and unexploded ordnance.

The Landmine/UXO Problem

The threat now facing Albania stems from anti-personnel and anti-tank mines laid by forces of the Former Republic of Yugoslavia as well as from UXO released from NATO cluster strikes during Operation Allied Force. There is also an abandoned explosive ordnance problem resulting from looting during internal civil unrest in 1997.[1] Affected areas of Albania include 39 villages located in the districts of Kukes, Has and Tropoja.[2] After the Kosovo Crisis ended, the Albania Armed Forces' Level One Survey concluded there were about 102 areas or 15.3 square kilometers (5.9 square miles) of mine-affected land along the border of Albania.[3]

The mine threat presents an obstacle to Albania's potential for development. Restricted access to valuable farming land has had a negative impact on the local economy of the border areas, which rely heavily on agriculture. Contaminated areas have blocked passage to some drinking water sources and prevented land development for ecotourism. The contamination problem has also slowed law-enforcement response to incidents of crime and human trafficking along the Albanian/Kosovo border. Since 1999, 13 police officers have suffered casualties while patrolling the mine-affected borders.[3] From 1999 to 2005, 272 mine/UXO-related casualties have occurred in Albania with 34 resulting in death.[2] There were no casualties reported in 2006.[4]

Today, Albania no longer produces anti-personnel landmines. On 8 September 1998, the Republic of Albania signed the Anti-personnel Mine Ban Convention[5] and ratified it on 29 February 2000. Destruction of APM stockpiles began on 15 January 2001 and ended on 4 April 2002, two years before the specified Ottawa deadline.[1] Albania is also a party to Amended Protocol II and has consented to Protocol V of the Convention on Certain Conventional Weapons.[6]

Institutional Development for Mine Action

The Albanian Government established the inter-ministerial Albanian Mine Action Committee in October 1999 as the policy-making and supervisory body for mine action. The Albanian Mine Action Executive was established to carry out, coordinate, and monitor the mine action program under direction of the AMAC.[7]

Albanian MA Completion Plan, 2006–2010

The Albanian Mine Action Plan for Completion is a five-year plan developed by the Albanian Mine Action Executive. The overall goal of the Mine Action Completion Plan is to clear all suspected hazardous areas and release all contaminated land back to the community by 2010. At that time, all mine-clearance operations in Albania will come to a close. In addition, the AMAE hopes to maintain mine casualties to zero and build its capabilities in survivor assistance.[8]

Mine Clearance

Major challenges in mine action lie in the area of clearance; there is currently only one demining organization in the country and the working season is only from April to November. DanChurchAid is currently the sole demining organization conducting clearance activities under the supervision of AMAE.[2] RONCO Consulting Corporation, the German nongovernmental organization HELP International and Fondation Suisse de Déminage are other organizations that have previously conducted clearance operations in Albania. At the end of 2006, the AMAE reported that 1,360,853 square meters (336 acres) were cleared and released to the community that year, leaving only 2.1 million square meters (518 acres) of land contaminated with mines and UXO.[4] The Albanian Completion Plan aims to clear the remaining land in 2007–2009 with the support of donors and a minimum of six manual-clearance teams, assuming current funding levels continue.[4]

Victim Assistance

As part of a 2004 United Nations Development Programme victim-assistance project, a community-based rehabilitation network with a staff of 30 nurses has been developed for emergency mine/UXO victim treatment.[1] Amputees in Albania are able to receive prostheses from the National Prosthetic Centre in Tirana and the Slovenia Institute for Rehabilitation. In mid-2006, Handicap International also became involved in victim assistance in Albania, providing training and support for local health workers. The Victims of Mines Association, a local NGO, also administers a revolving loan fund for a pilot project assisting mine survivors in becoming socioeconomically independent through home-based business training.[8]

Mine-risk Education

In the area of MRE, organizations such as the VMA and the Albanian Red Cross will continue to provide MRE in the 39 affected communities. MRE activities such as concerts, competitions and plays are being delivered in affected communities to familiarize citizens with the risks of mines and UXO. An MRE curriculum has already been integrated into mine-affected community classrooms, with the goal of being fully incorporated into Albania's national educational system by 2009.[8]

A Hopeful Future

Thirteen of the original 15.3 million square meters (3,781 square miles) of affected land have already been cleared according to national mine-action standards, thanks to organizations such as RONCO, HELP, Fondation Suisse de Déminage, DanChurchAid[9] and with the financial support of the international community and Albanian government. Last year the number of mine casualties dropped from 152 in 1999 to only two incidents in 2005,[1] and zero incidents reported in 2006,[4] a trend the country hopes to continue with the nationwide implementation of its MRE curriculum and continued clearance efforts.

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Armenia

by Joseph Keane [Mine Action Information Center]

Armenia has been gaining strength since recovering from the 1988 Spitak earthquake, the collapse of the Soviet government and Turkey's trade embargo. The country experienced economic depression in the 1990s[1] but the government turned the economy around, creating positive growth rates from 1995 to 2006.[1] As a member of 35 international organizations, Armenia is moving out of the post-Soviet era and onto the international stage. Part of becoming a modern nation is removing all possible threats to development. Landmines and unexploded ordnance are a threat to every aspect of development in Armenia.

Current Landmine Situation

The majority of Armenia's landmines and UXO are a result of the Armenian-Azerbaijan conflict (1988–1994) over the Nagorno-Karabakh region in southwest Azerbaijan. Following the ceasefire, the Armenian Army surveyed the border where most landmines were placed and estimated that there were from 50,000 to 80,000 active landmines.[2] The two countries have not signed a peace treaty and Armenia reports security issues to be the reason the country has not signed the Ottawa Convention.[2]

In 2005 a Landmine Impact Survey was conducted in Armenia. It did not include areas under the control of Armenia that are considered part of Azerbaijan, such as Nagorno-Karabakh).[3] The United Nations Development Programme, the European Commission and the Armenian government financed the LIS. It concluded that there were 102 suspected hazardous areas that covered a combined 321.7 square kilometers (124.3 square miles), including 20 "UXO hotspots."[3] Sixty communities with a total population of 68,737 live close enough to the 102 sites to be directly affected.[4] The Ministry of Defense has claimed it marked all known minefields with barbed wire and warning signs; however, the LIS found that only five of the 60 impacted communities had any blocked off areas.[3] There were five people injured by landmines and UXO in 2005; no reports have been made since.[3]

Armenia has supported the banning of anti-personnel landmines at the annual U.N. General Assembly meeting by voting in favor of the universalization and full implementation of the Ottawa Convention.[3] Armenia is not a member of the Ottawa Convention nor the Convention on Certain Conventional Weapons[5] but volunteered to submit a report to the U.N. Secretary-General on the status of landmines in 2005, which, according to the United Nations Disarmament and Development Web site, is the last time Armenia submitted such a report.[7]

The Armenian Ministry of Defense, the Armenian Humanitarian Demining Centre and the Ministry of Territorial Administration and Infrastructure Coordination have recently completed a three-year plan to coordinate and implement a demining program.[4] The goals of 2006 were "conducting a Technical Survey, Marking and Clearance (one community, as a pilot project); conducting a public awareness campaign and mine-risk education in mine-affected areas; conducting targeted victim assistance in mine-affected areas; supporting the Armenian Humanitarian Demining Centre; and assisting the government of Armenia in drafting a national mine action strategy and legislation."[4]

Armenia faces a number of challenges in demining. Weather permits landmine clearance for only six months per year, from May to October.[3] Of the three 18-person teams, only two are active in Armenia; the third is currently working in Iraq.[3] In October 2005 the Inter-Agency Governmental Committee on Mine Action researched the leading factors for the lack of mine action. The committee concluded that "limited national expertise and funding" were the main obstacles to a national mine-action strategy.[6] These are contributing factors, according to the Ministry of Defense, for less than one square kilometer having been cleared since 2003.[3]

Mine-action Organizations in Armenia

The Armenian Humanitarian Demining Centre was created in March 2002 through funding and training from the United States Departments of State and Defense.[7] The Centre is a part of the Armenian Ministry of Defense and is in charge of mine action in Armenia. UNDP–Armenia, as the driving force behind much of Armenia's mine action, works in coordination with the national government and humanitarian organizations to achieve a "safer, more efficient, and effective implementation of mine-action components."[4] The Inter-Agency Governmental Committee on Mine Action is in the process of becoming the managing body of all branches of mine action in Armenia. The UNDP has appealed for funds that will strengthen the organization's ability to function effectively.[8]

Other organizations working on mine action in Armenia include the Marshall Legacy Institute, which introduced the Mine Detecting Dog Partnership Program in Armenia in 2002 to use handlers and professional dogs capable of "sniffing out" the explosives in landmines and UXO.[9] The International Committee of the Red Cross helps the UNDP with victim assistance, mainly finding artificial limbs for landmine survivors, helping support healthcare and creating safe play areas for children.[10] The Armenian Red Cross and UNICEF work with the UNDP to promote mine-risk education programs.

Looking Ahead

Armenia has set out a mine-action strategy for 2006–2011, based on "the assumption that the nature of the mine problem requires more effective risk management through continuous assessment of the situation and effective planning and coordination."[11] A few of the specific goals being accomplished through cooperation with the international organizations listed above include enabling continuous and efficient humanitarian-demining operations; establishing improved capacities for implementing MRE within the education system in Armenia; and working in conjunction with local and international research and development centers to create conditions for more effective mine action.[11]

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Azerbaijan

by Kateland Shane [Mine Action Information Center]

From 1988 to 1994, Azerbaijan was engaged in an armed conflict with its neighbor Armenia and armed forces of the territory of Nagorno-Karabakh. A ceasefire was negotiated in 1994, but a peace agreement is still underway. During the conflict, both sides used landmines. Forces from both Armenia and the self-declared Republic of Nagorno-Karabakh currently occupy about 20 percent of land within Azerbaijan, making demining difficult in those areas.[1]

The Landmine/UXO Threat

The 2002–2003 Azerbaijan Landmine Impact Survey conducted in accessible territories identified an extensive mine and unexploded ordnance problem with a reported 970 suspected hazard areas and heavy contamination along the ceasefire line and the border of Armenia. The survey recognized a total of 18 affected districts. The extent of the threat in the occupied territories is unknown, although the Azerbaijan National Agency for Mine Action estimates the amount of contaminated land could be anywhere between 350 and 830 million square meters (135 to 320 square miles).[2] The types of mines found in Azerbaijan include not only anti-personnel and anti-tank mines but also homemade mines and field-charges.[3]

In addition to mines, remains from the abandoned Soviet depots and stockpiles are scattered all over the country. One of the most serious contaminations involves a massive Soviet-military ammunition storehouse destroyed in the Agstafa region that resulted in the contamination of 44 million square meters (17 square miles) of land. Following its destruction there have been 152 UXO-related accidents reported in Agstafa, mostly in the Saloglu village, where the explosion took place.[4]

Although the exact number of mine/UXO victims in Azerbaijan is unknown, there are believed to be over 3,000 victims. Of the victims, over 200 were children and 1,300 are believed to have died. In 2005, mine/UXO causalities were at a 10-year high in Azerbaijan. [3]

The Ottawa Process

While the Republic of Azerbaijan contends it cannot become a signatory of the Ottawa Convention[5] until the conflict over Nagorno-Karabakh has been resolved, it has shown support for many terms of the Convention.[6] Azerbaijan states that it is already satisfying some conditions of the Convention because it does not produce or transfer anti-personnel mines and it actively participates in mine-clearance and mine-victim-assistance activities. Azerbaijan also is not party to the Convention on Certain Conventional Weapons.[7]

Azerbaijan National Mine Action Strategic Plan (2005–2008)

Although Azerbaijan has not signed the Ottawa Convention, ANAMA has developed a National Strategic Plan based on the 2003 Landmine Impact Survey to help meet clearance objectives within the timeframe of the Convention. This includes both short- and long-term strategic plans for mine action in Azerbaijan in the areas of clearance, mine-risk education and victim assistance.[8]

Mine Clearance

At the end of April 2007, ANAMA reported that about 47.9 million square meters (18.1 square miles) of accessible land had been reduced or cleared of landmines and 216,845 explosive items had been destroyed. ANAMA plans to clear about 15 million square meters (5.7 square miles) of land in 2008.[4] As part of the National Strategic Plan, all high- and medium-impact land is scheduled to be accessible in Azerbaijan by 2008. In addition, all low-impact areas are to be marked and fenced by 2008.[8] Local nongovernmental organizations involved in mine clearance include the International Eurasia Press Fund and Dayag (Relief Azerbaijan).[4]

In response to the contamination in Agstafa, ANAMA launched the Saloglu Project jointly with the NATO Maintenance and Supply Agency, a UXO clearance project set to begin its second phase in April 2007.[4] The project, a NATO Partnership for Peace Trust Fund venture, is set to clear the 5.6 square kilometers (2.1 square miles) of contaminated land around the Saloglu and Poylu villages.[6]

Mine-risk Education

In 2006 mine-risk education in Azerbaijan was circulated within schools and communities. Working with UNICEF and the Ministry of Education, ANAMA implemented an MRE curriculum in about 600 schools in 20 mine-affected districts, including the districts currently under occupation.[4] International and local nongovernmental organizations are also working to make Azerbaijan safer for the children. In 2006 the Red Crescent Society of Azerbaijan helped create 10 safe play areas for children in several local communities with the support of the International Committee of the Red Cross in addition to the 15 safe play areas that were created in 2005. In 2007 ICRC reports plans to implement safe play areas in 10 more communities throughout Azerbaijan.[9]

From 22 to 23 February, Azerbaijan was one of 43 nations to participate in a workshop on the NATO Partnership for Peace Trust Fund held in Washington, D.C. Participants in the workshop received information and training on carrying out Trust Fund projects.[10]

Victim Assistance

In 2006 there were several mine-victim-assistance projects implemented in Azerbaijan. One of the projects being implemented by the IEPF with the support of the U.S. State Department involves the socio-economic reintegration of local survivors. An initiative group of 10 survivors received training in management, medicine, small business, mine-risk education and computer literacy. An additional 20 mine survivors also volunteered to help with the project, which ended in May 2007. In 2007, with the financial support of the U.S. DOS, the IEPF plans to establish other branches of the Association and ensure their sustainability.[11] Following a 2005 needs assessment survey, ANAMA and other NGOs also organized several recent MVA projects in Azerbaijan.[12]

Conclusion

With the presence of such an organized and dedicated mine-action program, the mine and UXO threat in Azerbaijan is slowly disappearing. ANAMA and other organizations are helping to make Azerbaijan safer by ensuring the recovery of survivors and the prevention of future mine and UXO accidents, one project at a time.

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Bosnia and Herzegovina

by Katie FitzGerald [Mine Action Information Center]

Shortly after Bosnia and Herzegovina's[1] declaration of independence from the Socialist Federal Republic of Yugoslavia in March 1992, the country broke into conflict that lasted three years. A peace agreement ended the conflict in 1995, but the country had already become littered with landmines and unexploded ordnance. Today BiH is the most mine-affected country in Europe, with an estimated 1.3 million people, roughly one third of the population, living in 1,366 mine-impacted communities.[2] The latest government statistics disclose that there are more than 12,000 locations requiring clearance.[3] The country's goal of being mine-free[4] by 2009 set by the National Mine Action Strategy will require a great deal of time and cooperation, but steps are being taken to give the citizens of BiH a safe place to live.

Mine Situation in BiH

The Bosnia and Herzegovina Mine Action Centre reports that from May 2002 to May 2006, there were 187 mine-related incidents. In total almost 5,000 people have been killed or injured by mines, including 1,520 since the end of the war.[2] In 2006 the number of mine victims significantly increased in comparison to previous years, according to Svjetlana Trifkovic, the Public Relations Officer for BHMAC. In 2005 there were 19 mine victims, compared to 34 victims in 2006 (17 killed, 17 injured).[4] The BHMAC has also recorded more than 18,000 minefields and believes that 670,000 landmines and 650,000 UXO items contaminate more than 2,000 square kilometers (772 square miles) of land.[5]

Handicap International conducted a 2002–2003 Landmine Impact Survey[6] with funding from the United States, Canada and the European Commission.[7] The survey revealed minefields and UXO affected 1,366 of 2,935 communities to some degree and enhanced BHMAC's ability to develop effective mine-action plans.

Mine/UXO Clearance

Nongovernmental organizations (such as Norwegian People's Aid), the Bosnian Armed Forces, and civil protection and commercial companies carry out mine clearance and Technical Survey in the country. In 2005, 4,009,051 square meters (991 acres) of land were cleared of mines while in the first six months of 2006, 848,763 square meters (210 acres) were cleared.[3] In accordance with NATO's Partnership for Peace Trust Fund, the South Eastern Europe Initiative Trust Fund was launched to support the defense reform efforts of BiH in June 2006. The SEEI Trust Fund is designed to provide transition assistance to military and civilian personnel made redundant by the ongoing transformation of the Armed Forces of BiH into a NATO-compatible single military force.[8]

While there is an obvious commitment by all mine-action players in BiH to mine clearance, the main obstacle for BiH's mine-action plan is funding. According to the Electronic Mine Information Network, "In terms of government institutions addressing mine action (namely, the Bosnian Armed Forces and civil-protection authorities), limited funding has caused difficulties in procuring demining equipment and introducing new demining techniques. Nongovernmental organizations and demining companies also struggle with funding challenges."[3] In 2007, mine clearance in BiH will cost a projected US$2,469,356.[3]

Mine-risk Education

MRE is one of the largest BiH mine-action activities. BHMAC estimated over 100,000 people received MRE in 2005 through the activities of organizations such as Genesis, Spirit of Soccer and the Red Cross Society BiH.

Genesis. Genesis devotes its efforts to providing interactive education through live puppet shows representing diverse educational topics such as ecology, environmental protection, mine-risk education, children rights and prevention of diseases of addiction.[9] Genesis has provided school-based MRE since 1996, and 6,497 children have benefited from the MRE puppet shows so far. Genesis, with the support of UNICEF, has produced and broadcast 15 educational TV shows for children and adolescents since 2001.[10]

Spirit of Soccer. The British NGO Spirit of Soccer provided MRE to over 7,500 children through its sport-related activities and during 2006 distributed nearly 10,000 posters featuring world famous soccer stars endorsing MRE messages in BiH. "I feel that the project we implemented in BiH has proved to be a solid method of promoting MRE to at-risk children through the medium of soccer and other sporting activities," says Spirit of Soccer Director Scotty Lee.[11] In 2005, 6,259 children in 57 sporting clubs received MRE messages through soccer clubs and summer youth camps.

Red Cross Society of BiH. The Red Cross Society BiH's goal is to reduce death and injuries caused by mines and other unexploded ordnance,[12] and the organization is one of the key players in MRE in BiH. It planned to produce seven MRE plans and implement two of them in impacted communities in 2006; no update was available at the time of printing. Their main focus has changed from school-based MRE to working in the community, especially with adult males.

The Future

The United Nations Assembly declared the International Day for Mine Awareness and Assistance in Mine Action on 4 April 2006, and the second annual observance of the day was marked in Bosnia and Herzegovina where local authorities and international organizations analyzed past achievements in the area of mine action and "reiterated their commitment and willingness to solve the issue of the presence of landmines and the danger they represent in the country as soon as possible."[13] The United Nations in BiH, along with the global mine-action community, wanted to draw more attention to the problem of landmines and explosive remnants of war in this area to emphasize their commitment to strengthening their response.[2]

The goal of Mine Action Day is to recognize the importance of mine action in the country and to continue taking action. The vision behind creating an annual Mine Action Day is to one day see people living in a community that is safe and mine-free.

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Chechnya

by Kateland Shane [Mine Action Information Center]

More than a decade of conflict between Russian armed forces and Chechen separatists has left Chechnya polluted with landmines, improvised explosive devices and unexploded bombs. Although clearance has been limited, organizations such as UNICEF have brought victim assistance and mine-risk education to Chechnya and its neighboring regions.

Continuing Violence

Two periods of fighting, known as the First and Second Chechen Wars, have rendered Chechnya heavily contaminated by mines and unexploded ordnance, with an estimated 123 minefields recorded in 2003.[1] The first conflict lasted from 1994 to 1996 and the second period began as a Russian military campaign in October 1999. Today, ongoing violence between Chechnya and Russia continues. The conflict has been so severe that several human-rights groups have accused Russian forces of brutality.[2] In 2006, Russia reported that its forces were still laying anti-personnel mines in Chechnya for the purpose of protecting important facilities.[3] Russia has also dropped cluster bombs in several locations in Chechnya during both periods of fighting, causing many civilian casualties and leaving unexploded ordnance. One of the most serious attacks involved the bombing of the Grozny Market in 1997, which left 137 people dead and many more injured.[4] It is estimated that 15 percent of the munitions used in Grozny alone failed to detonate.[1]

Chechen insurgents have also used mines, improvised explosive devices and other guerrilla tactics extensively against Russian forces. Although there have been no reports of large-scale mine production in Chechnya, authorities discovered several rebel arms caches in Chechnya in 2005 and 2006, containing weaponry such as mines, IEDs, mortars, grenades and other explosives.[5] Since 1994, UNICEF has recorded over 3,000 mine- and UXO-related casualties in Chechnya, and over 700 of these incidents have involved children.[6] Chechnya is not an internationally recognized state and therefore cannot participate in any legislation concerning the use of mines or other weapons.

Clearance Activities

Despite the urgent need for mine and UXO clearance in Chechnya, it has been difficult for demining agencies to enter the region for large-scale clearance activities due to the ongoing conflict. The political sensitivity surrounding the conflict is illustrated in the example of The HALO Trust, an international nongovernmental organization that entered Chechnya in 1997 to conduct trainings in mine/UXO clearance. The group was forced to leave Chechnya in 1999, however, after the Federal Security Service of Russia accused HALO of espionage and aiding the Chechen rebels, which HALO vehemently denies.[7] In 2005 the Emergency Committee of Russia entered Chechnya for a short demining mission, in which they cleared 61 hectares (151 acres) of land and located and destroyed 3,845 pieces of UXO.[8] UNICEF also reports that the Russian military has been conducting some clearance along the main roads and railways of Chechnya.[9]

Mine Action in Chechnya

Due to the lack of a mine-action authority in Chechnya and the surrounding region, UNICEF has assumed the position as the coordinating body for mine action activities in the North Caucasus.[1] UNICEF has had a strong presence in both Chechnya and neighboring Ingushetia[10] since 2001 and, with the support of local and international nongovernmental organizations, has helped to bring mine action and other humanitarian activities to the North Caucasus. Organizations have particularly focused their efforts on the safety and health of the children of Chechnya and Ingushetia. UNICEF has reached children both in and out of schools with the creation of a mine-risk education curriculum and presentations in affected communities with the assistance of Let's Save the Generation and Voice of the Mountains, two local Chechen NGOs. A total of 400 children received psychosocial support at the Psychosocial Center in Grozny through activities such as counseling, music, dance and art.[11] Thirty-two leisure centers have been created for children living in the most mine/UXO-affected communities.[9]

In addition to UNICEF, the International Committee of the Red Cross and Danish Demining Group have also been very active in Chechnya. In 2006 DDG conducted MRE workshops for construction workers, educating them about the dangers of mines and UXO, as numerous accidents have occurred in Grozny during the reconstruction of roads and buildings. In total DDG reached over 3,000 people in Chechnya with its MRE materials and school presentations.[12] Both the ICRC and DDG have been responsible for the construction of safe play areas for Chechen youth.

Mine Action in 2007

This year, UNICEF plans to support the formation of a Mine Information Center in Chechnya, headed by Voice of the Mountains. The center will be the main resource for information concerning mine- and UXO-related casualties, the most mine/UXO-affected communities, and the preparation of MRE and other activities. UNICEF will also continue to support mine victim-assistance activities in Chechnya, such as the Grozny Prosthetic Workshop, which provides trainings in the enhancement of prosthetic-orthopedic devices for survivors. In the area of MRE, UNICEF also plans for the implementation of a large festival, "Mines Free Chechnya," to be held on two occasions, which will involve youth and media to heighten awareness of the need for clearance activities. MRE presentations will be also conducted by Voice of the Mountains' instructors and by the State Chechen Drama Theatre actors.[9]

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COUNTRY PROFILES

Croatia

by Adam Gosney [Mine Action Information Center]

On 25 June 1991, Croatia became an independent nation. Serbian and Yugoslav forces soon invaded the country, with the area known as Slavonia being a major battleground changing hands frequently throughout the conflict. The Dayton Peace Accords in November 1995 ended the fighting and Slavonia returned to Croatia on 15 January 1998. In 2003 Croatia applied for European Union membership and in 2004 received official candidate status. Prime Minister Ivo Sanader stated that 2007 is a critical year if Croatia wishes to become an EU member. While not directly included in these discussions, Croatia's substantial mine-affected areas are seen as a humanitarian concern.

Mine/ERW[1] Problem

The primary focus of mine action in Croatia centers upon agricultural land and areas near population centers, while most of the unexploded ordnance from the war resides within mountainous and high-wilderness areas. Since 1991, over 1,880 victims have suffered as a result of explosive remnants of war. Between 1998 and 2007 the number of ERW-related victims was 273, with 101 being killed. As of 2004, 14 of 21 counties were believed to contain contaminated areas equaling 1,174 square kilometers (453 square miles). By the end of 2006, mine-suspected areas had decreased to 12 counties, covering an area of 1,044 square kilometers (403 square miles). Within that area, 250 square kilometers (112 square miles) are "high priority" and include agricultural areas, houses and yards, infrastructure, meadows, and pastures.[2]

Croatia signed the Anti-personnel Mine Ban Convention[3] on 4 December 1997 and became a State Party in 1999. It completed the destruction of its anti-personnel mine stockpile in October 2002. During November–December 2005 and for most of 2006, Croatia served as president of the Sixth Meeting of States Parties to the Ottawa Convention. While serving as the 6MSP president, Croatia focused on the need to be strict in regards to all ERW.[4]

Clearance

In February 1998 the government of the Republic of Croatia established the Croatian Mine Action Center to manage and coordinate mine-action activities in Croatia. Several organizations are involved in mine action in Croatia. Some of these groups include Adopt-A-Minefield, the International Trust Fund for Demining and Mine Victims Assistance, Norwegian People's Aid, the Croatian Red Cross, the International Committee of the Red Cross, the Bembo Association, and many others. AAM raised US$4 million dollars in 2006 and is beginning to work in mine-risk education as well.[5] In Croatia, 28 commercial mine-clearance companies and the NPA utilize 583 deminers, 45 demining machines and 103 mine-detection dogs to perform demining.

According to Kristina Ikić Baničk of CROMAC, the country's target goal to remove all known minefields by March 2009 depends upon funds available for mine clearance.[2] During 2006 a total of 25 square kilometers (10 square miles) was cleared and 78 square kilometers (30 square miles) were released through survey. Items destroyed included 1,514 anti-personnel mines, 1,184 anti-vehicle mines and 5,409 items of unexploded ordnance. These efforts led to a decrease of 103 square kilometers (40 square miles) of mine-suspected area in Croatia.

A majority of MSAs are located in wooded, mountainous areas. More tourists are visiting these remote areas for hiking and camping, so their importance has increased. Baničk explains, "If some mountain area has some significance in relation to nature preservation, protection of plants and animal species or even just as a fire-prevention line or forest-exploitation line, then [CROMAC has] no problem convincing the funding party that it is a good project" worthy of their funding.[2]

Mine-risk Education

The Croatian Red Cross in Vinkovci performed a theatrical show called "Mines are an Invisible Killer" for 100 children in early 2006. The CRC program "Playgrounds Without Mines," has installed over 40 playgrounds in 14 counties since 2001. Using funds from donors, the CRC assists local communities in building playgrounds so children will not play in mine-suspected areas.[6] The CRC and CROMAC also visit schools and inform children and their parents about ERW.

Since 2002, Norwegian People's Aid and the Bembo Association have used Croatian celebrities in their play, "Bembo and Friends Against Mines," to educate young children about ERW. In 2005, NPA, CMVA and the Bembo Association organized 10 MRE plays in seven municipalities in NPA areas of operation for 3,000 people (two-thirds were children). During April and May 2006, NPA and the Bembo Association organized 16 more shows in elementary schools, which were widely publicized through mass-media coverage; over 2,000 children and 20 teachers attended.[7]

Conclusion

Croatia has made significant gains in mine action. With such CROMAC projects as the Geo Information Project database and the Scan Center,[8] Croatia is developing and using technology to identify MSAs at a rate never seen before. Several factors depend on 100-percent removal becoming a reality, but CROMAC is optimistic that with this amount of MSA cleared over the past nine years, Croatia is on its way to becoming completely mine-free.

See Endnotes, Page

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Georgia

by Jina Kim [Mine Action Information Center]

Since Georgia claimed independence in 1991 from the former USSR, periods of war and unrest have disrupted the country, particularly within the regions of South Ossetia and Abkhazia. During these conflicts all sides emplaced mines in both regions. Landmines and other explosive remnants of war[1] also remain following the withdrawal of Russian forces after the USSR dissolved.

Landmine/ERW Problem

Although the landmine situation in Georgia is of relatively low impact, and "overall, the mine problem in Georgia, outside of Abkhazia, is not large in scope,"[2] some renewed mine threats surfaced in 2005 and 2006. On 21 June 2006, Sergei Bagapsh, de-facto President of Abkhazia, "threatened to mine the border with Georgia if Russian peacekeepers were withdrawn from the area," and in May 2005, military officials said, "There are special units in Abkhazia that are ready to install landmine fields at any moment providing it is necessary for the defense of national security."[3] Although these threats were made, no additional mines were laid and Bagapsh's de-facto minister continued to allow for demining to take place.[4]

There is also an ongoing conflict between Georgia and its breakaway region of South Ossetia. It has been reported that mines have been laid by both sides in this conflict. At the present time, the security conditions and political climate in South Ossetia are not conducive to mine-action activities.[4]

In Georgia there is also a significant problem of abandoned explosive remnants of war left in firing ranges and former Russian military bases and unexploded ordnance from the 1992–1993 conflict in Abkhazia.[3] Additional mined locations are cause for concern as well. The borders between Georgia and Chechnya, Armenia, Azerbaijan and the Russian regions of Ingushetia and Daghestan have a record of emplaced mines.[5]

Mine Action

Mine action in Georgia has been unstable due to lack of a formal mine-action program and no single coordinating authority for mine action. Ineffectiveness of mine-action programs is also due to the fact that "land in Georgia has been mined without any registration, mapping, or other records."[5] In May 2006, the Ministry of Foreign Affairs again noted the intention to establish a permanent working group on landmines under the National Security Council, "but due to recent reorganization of the Council, the issue is still open."[2]

Another contributory factor to the unorganized mine action-program in Georgia is the country's refusal to join the Mine Ban Convention.[6] Georgia states that it is unable to join the Convention because of lack of jurisdiction concerning the civil unrest with South Ossetia and Abkhazia, and thus would be unable to fulfill the Convention's requirements.

The HALO Trust is the biggest mine-action authority in Georgia and is in the final stages of implementing a fully integrated mine-action program in Abkhazia, which will see the territory declared impact free[7] in 2008. HALO also runs the Abkhaz Mine Action Center, which manages and disseminates all information regarding mine action and victims within the territory.[4]

In response to accidents occurring within the boundaries of abandoned military bases in Georgia, mine-risk education programs were carried out by the ICBL–Georgian Committee, UNICEF and HALO during 2005–2006. However, "given the lack of support HALO received in Georgia, it decided to suspend MRE operations in early 2006."[2]

In February 2004, Georgian First Lady Sandra Roelofs requested that HALO conduct an emergency survey of abandoned military bases. Clearance could not occur due to "political reasons and the fact that some of the bases were still used by the Georgian military. In order to minimise the number of accidents occurring in these areas, HALO conducted emergency MRE with the support of the Georgian Ministry of Education." [4] This program has since been suspended.[4]

Civilian Implications

The lack of an organized mine-action program in Georgia also makes it difficult for authorities to compile an accurate list of casualties and injuries caused by mines or ERW. The ICBL–Georgian Committee has been collecting data on UXO- and landmine-related accidents and deaths since 2001. In 2005 alone, the Committee collected the data about 31 casualties.[8] Since 2006 there have been reports by the Georgian press of four mine accidents in South Ossetia and one new mine accident in Abkhazia.[4] These statistics may not be entirely accurate due to unreported accidents and lack of an official mine-action organization. In the territory of Abkhazia, HALO keeps an accurate mine/UXO victim database and has recorded the names of 683 mine and UXO victims in the territory as of May 2007.[4]

Future Prospects

It is difficult to predict what will happen in Georgia. It is still in transition and the continued unrest with Abkhazia and South Ossetia affects each party's willingness to destroy mines. These factors prevent Georgia from being able to join the AP Mine Ban Convention and creating an official organization to demine the country. But there are signs of hope for the country as it tries to resolve its differences with the two territories. Georgia is currently lobbying to join NATO and the European Union,[9] and thanks to the help of organizations such as HALO and the U.S. Department of State, the territory of Abkhazia will be declared mine-impact free in the near future.[4]

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COUNTRY PROFILES

Former Yugoslav Republic of Macedonia

by Rachel Canfield [Mine Action Information Center]

Ten years after gaining independence, the Former Yugoslav Republic of Macedonia faced the uprising of an armed group of ethnic Albanians demanding greater civil rights.[1] The hostility between the ethnic Albanians—who called themselves the National Liberation Army—and the Macedonian government lasted seven months and ended with the signing of the Framework Agreement in August 2001.[2] This conflict, in addition to World Wars I and II, left Macedonia with contamination from landmines and other explosive remnants of war[3] along the northern borders with Kosovo and Albania and the southern border with Greece. In September 2006, five years after the end of the internal conflict, Macedonia completed landmine clearance[2] and continues to work towards clearance of other ERW.

Landmine/Unexploded Ordnance Contamination

After the fighting between the NLA and Macedonian government forces ended, the United Nations Mine Action Coordination Centre and the International Trust Fund for Demining and Mine Victims Awareness conducted surveys to assess the ERW threat.[4] The northern region of the country, specifically the northwestern borders with Kosovo and Albania, was found to be rife with landmines.

While landmines posed a serious threat, the surveys established that "the greater threat 'by far' came from UXO."[4] According to government authorities, mines and UXO from the conflict contaminated 80 villages, including the regions of Kumanovo, Tetovo and Skopje.[1] During the conflict, 70,000 people fled their homes, and mine contamination hindered their safe return.

In November 2002 the United Nations Mine Action Office assessed the UXO problem in the southern region of the country caused by World Wars I and II. The Thessalonica Front, the 250-kilometer (155-mile) border with Greece, was found to be contaminated in the areas of Gevgelija, Kavardaci and Bitola.[4]

Macedonia's landmine threat was considered "localized and easily defined" because the NLA laid mines specifically in areas that led to their defensive locations.[4] The threat was limited to certain areas where minefield locations were identified. However, this knowledge does not extend to the UXO threat. ERW have still prevented the use of land while also affecting economic development, communication and tourism. An estimated 40 people have been killed and 1,043 injured by mines and UXO from 1965 to 2003.[5]

The Road to Clearance

Macedonia became a State Party to the Ottawa Convention[6] 1 March 1999 and is a State Party to the Convention on Certain Conventional Weapons.[7] Macedonia completed stockpile clearance two and a half years before the Ottawa Convention-mandated deadline. In September 2006, four years after starting, Macedonia completed landmine clearance.[2] The Macedonian government set priorities for mine clearance, which began in 2002. Among the greatest concerns were areas that prevented internally displaced persons from returning home and Slupchane village, because a hospital was to be built there.

Organizations that participated in clearance of the region contaminated after the 2001 conflict were Handicap International, MineTech International (contracted by CARE International) and the International Trust Fund for Demining and Mine Victims Assistance.[4] The U.S. Department of State also contributed to mine action in Macedonia through the ITF and by funding the deployment of six demining teams from Bosnia and Herzegovina.[2] By the end of 2004, 200,000 mines/UXO had been found and destroyed.[5]

A United Nation Mine Action Office was established in September 2001 after the UNMACC survey,[4] and the Ministry of Defense took over in 2003. Shortly thereafter, the Protection and Rescue Directorate was formed, becoming the only body responsible for mine/UXO clearance in Macedonia. The Directorate began its work in 2005. The Directorate's role in mine action involves surveys, clearance, mine destruction, marking and fencing minefields, and medical treatment of victims.[5]

Mine-risk Education

The 2001 conflict and resulting border contamination created a need for mine-risk education campaigns in the northern region of the country. The International Committee of the Red Cross led MRE efforts with help from the Macedonian Red Cross. MRE activities ranged from community-based sessions to media campaigns and a traveling theater program. The International Committee of the Red Cross ended its MRE work in 2003. ICRC's two years of activities along with UNICEF's involvement in 2001 resulted in over 17,000 individuals being reached.[8]

The Road Ahead

The Directorate formulated an action plan in 2005. The plan details the period 2006 to 2010 and involves three phases:[5]

1. Developing national capacities and obtaining equipment. This phase has been completed.
2. Conducting surveys to establish future clearance priorities. This phase is set to take two years and should be completed by 2008.
3. Developing operationally and establishing international and national partnerships. This phase is a continuing process.

Although landmine clearance has been completed, UXO still pose a threat to the southern region of the country, and the Directorate will continue to carry out its action plan. This contamination is expected to be cleared by 2009

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Serbia and Montenegro

by Matthew Voegel [Mine Action Information Center]

The State Union of Serbia and Montenegro has faced many political and social difficulties since the dissolution of the Federal Republic of Yugoslavia. On 18 September 2003, the then-unified country of Serbia and Montenegro acceded to the Ottawa Convention,[1] becoming a State Party on 1 March 2004. In June 2006, Montenegro declared independence from Serbia. Montenegro subsequently acceded to the Convention as a separate country; Serbia remained bound by the original agreement. Both Serbia and Montenegro are party to the Convention on Certain Conventional Weapons,[2] having assumed the obligation of the Federal Republic of Yugoslavia. Though a ratification bill was drafted by the foreign ministry and sent to the defense ministry for finalization while Serbia and Montenegro were united, neither country has yet to become party to the 1996 Amended Protocol II[3] on landmines.[4]

Landmine and UXO Problem

Serbia has recorded 710,000 mines and, as of March 2006, cluster bomblets remained in six main areas of Serbia, affecting approximately 24 square kilometers (9.27 square miles).[5] The Regional Center for Underwater Demining, which was founded in 2002, controls mine action in Montenegro and focuses primarily on underwater mine and UXO removal but also oversees general demining.[5] As of April 2006, RCUD found that contamination consisted of about 46 minefields of unknown size containing around 424 mines in Montenegro.[4]

Border territories around Serbia and Montenegro remain contaminated by landmines and other explosive remnants of war.[6] Cluster bombs and large aerial bombs from the NATO action in 1999 are spread throughout the area. There are also significant amounts of landmines and UXO on the coast of Montenegro, some of which date to the First World War.[7]

In the province of Kosovo the danger from anti-personnel mines is decreasing, but the threat of cluster bombs and other UXO remains large. Due to conflict, these bombs and other UXO lie in many areas, including heavily forested ones.

Mine Action

The Mine Action Center of Serbia formed in March of 2002. It was originally part of the Ministry of Foreign Affairs but then came under the General Secretariat's control in 2003. When a new government was formed in 2004, the mine-action center was made solely responsible for mine-action activities independent of government interference. The Serbian government supervises the MAC but the center refuses to allow federal institutions (i.e., the army) to participate in demining operations in civilian areas.[5]

In Montenegro, the RCUD observes all aspects of mine action. It was established by the government of Montenegro in 2002 and organized by its Ministry of Internal Affairs. It is recognized as a public institution and yet works independently to achieve the tasks set forth by the government of the Republic of Montenegro.[7]

The Office of the Kosovo Protection Corps Coordinator, under the authority of the Special Representative of the U.N. Secretary-General, handles all mine action and explosive ordnance disposal in the province of Kosovo. As the status of Kosovo is still being decided, there is no current mine-action organization run by Kosovo citizens; however, the Explosive Ordnance Disposal Management Section of OKPCC, which currently serves as the national mine-action authority, has plans to become an actual mine-action organization as soon as Kosovo's status is decided.[9]

Progress

Demining in the region has taken a turn for the better. Serbia, which began to destroy its stockpile of anti-personnel mines in August 2005, destroyed a total of 649,217 cached mines, nearly half of its stockpile as of 2 March 2006.[5] Additionally, 1,373,520 square meters (339 acres) of land were cleared in 2005 with 634 mines and 27 cluster bomblets destroyed.[5]

In Montenegro, the RCUD was able to clear the Verige trench in the Bay of Kotor in November 2004 with financial help from the United States.[5] Additional projects included UXO clearance in other locations in the Bay.[5] Also, demining of UXO around the coastal resort of Budva has begun, along with on-shore demining around the town of Ulcinj.[5]

In 2005, demining in Kosovo was very successful with the help of several different organizations including the Kosovo Protection Corps, the internationally-staffed Kosovo Protection Force, Handicap International, HALO Trust and others. They were able to collect 719 AP mines, 30 anti-vehicle mines, 977 cluster bomblets and 1,378 pieces of UXO in 2005.[9] From June 1999 to the end of 2005, an estimated 41,488,255 square meters (10,252 acres) of land were cleared.[9]

The Future

Even though the breakup of the Federal Republic of Yugoslavia led to the formation of new countries, relationships have not been severed. Organizations such as the South-Eastern Europe Mine Action Coordination Council have helped all the countries in the region share the burden of the landmine problem and work together to resolve it. The organization currently seeks to make all the countries in Southeast Europe "mine free" by 2010.[10]

Serbia and Montenegro, under Article 5 of the Ottawa Convention, must destroy all AP mines under their control no later than 1 March 2014. Serbia plans to clear all anti-personnel and anti-vehicle mines by the end of 2008, which could be achieved given that the country is well underway with minefield clearance.[5] A meeting in Sarajevo in April 2005 concluded that, "similarly, Montenegro should be declared free of landmines if demining projects at the border with Albania progress as planned."[4]

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RESEARCH & DEVELOPMENT

The Mine Action Express, Barlow [from page 8]

1. Kjellman, Kjell and Harpviken Kristian. "National Ownership in Mine Action." *International Peace Research Institute Policy Brief 1/2006*. September 21, 2006. http://snipurl.com/ynqw. Accessed October 10, 2006. For more info on the International Peace Research Institute please visit http://www.prio.no.
2. U.N. Millennium Development Goals. Can be viewed at http://snipurl.com/ynqs. Accessed October 10, 2006.
3. **Editor's Note:** Some organizations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices
4. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. September 18, 1997. http://snipurl.com/yccr. Accessed October 10, 2006. The document was opened for signature in Ottawa, Canada, December 3, 1997, and thus is commonly known as the Ottawa Convention.
5. *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects*, Geneva, Switzerland, October 10, 1980. http://snipurl.com/yi7e. Accessed October 10, 2006.
6. Nergaard, Per. "Intervention on NPAs Land Release Concept to the RMCG." Norwegian People's Aid. September 19, 2006, speech at the seventh Meeting of States Parties to the Ottawa Convention, Geneva, Switzerland. Speech text available at: http://snipurl.com/yoes. Accessed October 10, 2006.
7. Kidd, Richard. "Mine Free: Note Anytime Soon." *Journal of Mine Action*. Issue 9.2, February 2006, pg. 4. http://snipurl.com/yoeq. Accessed October 10, 2006.
8. *The European Roadmap Towards a Zero Victim Target*. The EC Mine Action Strategy and Multi-annual Indicative Programming 2005–2007. http://snipurl.com/ynqi. Accessed October 10, 2006.
9. The ninth International Meeting of Mine Action Programme Directors and U.N. Advisors was held in Geneva, Switzerland, July 3–6, 2006. Presentations and documents of these proceedings are available at: http://snipurl.com/yoel. Accessed October 10, 2006.
10. Keeley, Robert. "Are We Setting the Wrong Target?" *Journal of Mine Action*. Issue 9.1, August 2005, pg. 40. http://snipurl.com/ynqo. Accessed October 10, 2006.

The Rise of ERW as a Threat to Civilians, Nema [from page 10]

1. **Editor's Note:** Some organizations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices.
2. The F-117 is a precision-strike aircraft that deploys such weapons as laser-guided bombs and air-to-surface missiles. More information is available online at http://snipurl.com/ykv5. Accessed October 9, 2006.
3. The B-52 is a long-range, heavy bomber that deploys such weapons as gravity bombs, cluster bombs and precision-guided missiles. More information is available online at http://snipurl.com/yku6. Accessed October 9, 2006.
4. The Patriot missile, also known as the MIM-104, defends against aircrafts and ballistic missiles. It was used extensively during the first Gulf War to defend against Iraqi Scud missiles and is subject to much criticism about its actual success rate. More information is available online at http://snipurl.com/ykum. Accessed October 9, 2006.
5. "Latest update on cluster munition problem in south Lebanon." Cluster Munition Coalition. http://snipurl.com/yog4. Accessed October 10, 2006.

Closing the Circle, Banks [from page 14]

1. More information about the ISO at http://www.iso.org/. Accessed September 26, 2006.
2. More information about the IMAS at http://www.mineactionstandards.org/. Accessed September 26, 2006.
3. Assessments and surveys refer to a multitude of documents that are based on the same or similar premise but with varying differences of thought, conclusions and principles.
4. The IMAS identify a framework of standards and guidelines to improve coordination of mine action activities and tasks which are conducted by the various organizations and agencies at all levels, including all United Nations mine action operations. IMAS documents can be found at: http://snipurl.com/15cd2. Accessed September 26, 2006.
5. TNMA documents are designed to accompany or supplement IMAS by providing principles, advice and information relevant to a specific IMAS or technical subject. TNMA documents can be found at: http://snipurl.com/15cd5. Accessed September 26, 2006.
6. *Socio-Economic Approaches to Mine Action—An Operational Handbook*, Geneva International Centre for Humanitarian Demining/United Nations Development Programme, Geneva, May 2002. This publication is an operational manual written to improve long-term social and economic development through more effective mine action, and can be accessed at: http://tinyurl.com/ndw4n. Accessed September 26, 2006.
7. *IMAS 8.10: General Mine Action Assessment,* United Nations Mine Action Service, New York, January 2003, p.1. http://snipurl.com/y075. Accessed September 26, 2006.
8. *A Guide to Socio-Economic Approaches to Mine Action Planning and Management*, Geneva International Centre for Humanitarian Demining, Geneva, November 2004. http://snipurl.com/y076. Accessed September 26, 2006.
9. In the Islamic Republic of Iran alone, E&I has conducted more than 100 EIAs, SIAs and baseline studies in the last five years for a variety of clients.

Quality Assurance for Mined and Survey Areas, Rath and Schröder [from page 17]

1. One such publication is Philip C. Paterson's *The Use of Mechanical Means for Humanitarian Demining Operations*. Handicap International, 2000. Available in hard copy or on CD-ROM through the Handicap International Web site, http://www.handicap-international.org. Accessed 22 September 2006.
2. *A Study of Mechanical Application in Demining*. May 2004. Geneva International Center for Humanitarian Demining, Geneva. http://snipurl.com/15cd9. Accessed 14 August 2006.
3. The total area perceived to be at risk, according to surveys, is 292,050,515 square metres (113 square miles); however, the total area representing actual risk averaged to 6,092,268 square metres (2 square miles), according to *A Study of Mechanical Application in Demining*, page 65 (see endnote 2).
4. **Editor's Note:** Some countries and mine-action organizations are urging the use of the term "mine free," while others are espousing the term "mine safe" or "impact free." "Mine free" connotes a condition where all landmines have been cleared, whereas the terms "mine safe" and "impact free" refer to the condition in which landmines no longer pose a credible threat to a community or country.

Explosive Remnants of War in Azerbaijan, Ismaylov and Hasanov [from page 20]

1. **Editor's Note:** Some organizations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices.
2. *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* Geneva, Switzerland, October 10, 1980. http://snipurl.com/yi7e. Accessed August 31, 2006
3. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. September 18, 1997. http://snipurl.com/yccr. Accessed October 13, 2006. The document was opened for signature in Ottawa, Canada, December 3, 1997, and thus is commonly known as the Ottawa Convention.
4. See "ANAMA Work Plan 2006" at http://www.anama.baku.az and "Azerbaijan is in Favour of Ottawa Process." December 7, 2005. http://snipurl.com/yy7z. Accessed October 13, 2006.

Protection of Soft Vehicles Against ERW, Hvidtfeldt [from page 22]

1. **Editor's Note:** Some organizations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices.
2. The purpose is to provide common operational and administrative procedures and logistics, so one member nation's military may use the stores and support of another member's military. See http://snipurl.com/yo2e. Accessed 10 October 2006.
3. A fully armoured SUV is normally designed to withstand rifle ammunition (usually complies to the norm EN [European Standards] 1522 Level FB6 in Europe, or the National Institute of Justice Standard 0101.04 Level III in the United States, both of which define a level of protection against 7.62-mm rifle ammunition), whereas flexible solutions are primarily designed to defeat fragments (and in addition are capable of stopping powerful pistol rounds). To provide protection against rifle projectiles with flexible solutions would require either steel or ceramic, which would be very difficult because there are limited flat surfaces on the outside of an SUV.
4. It is important to note that in some contexts, different types of landmines are sometimes described indifferently as "mines," but in connection with passenger's safety there is a huge difference between the aforementioned anti-personnel mines and anti-vehicle or anti-tank mines. In general, it is not possible to provide any good level of protection against the effects from AV or AT mines in a light and low vehicle like the SUV.

Explosive Remnants of War and Their Consequences, Rajabov [from page 24]

1. Amended Protocol V (which addresses the effects of explosive remnants of war on civilian and civilian economies after conflicts end) of the *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* Geneva, Switzerland, 10 October 1980. http://tinyurl.com/yxpjqp. Accessed 19 October 2006.
2. Formally known as the *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* Geneva, Switzerland, 10 October 1980. http://tinyurl.com/yxpjqp. Accessed 25 October 2006.
3. "Landmine Fact Sheet." Adopt-A-Minefield (UK). http://www.landmines.org.uk/325. Last updated 14 August 2006. Accessed 16 October 2006.
4. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. 18 September 1997. http://snipurl.com/yccr. Accessed 26 September 2006. The document was opened for signature in Ottawa, Canada, 3 December 1997, and thus is commonly known as the Ottawa Convention.

Industrial Ammunition Stockpile Recovery, Lauritzen, et al. [from page 29]

1. *International Mine Action Standard (IMAS) 11.10 Guide for Stockpile Destruction* and *IMAS 11.20 Open Burning and Open Detonation*. http://snipurl.com/10w9j. Accessed 31 October 2006.
2. Nitrogen Oxides are mixtures of nitrogen and oxygen, which are often produced as air pollutants.
3. Insensitive munitions are munitions that fulfill performance readiness and operational requirements on demand but minimize the probability of inadvertent initiation and severity of subsequent collateral damage to the weapon platform logistic systems and personnel when subjected to unintentional stimuli. See NATO Munitions Safety Information Analysis Center. http://snipurl.com/10wch. Accessed 31 October 2006.
4. Nitramines is the generic name of a group of chemical substances composed of nitrogen, oxygen and hydrogen. See IUPAC Compendium of Chemical Technology, Electronic Version. http://snipurl.com/10yb7. Accessed 1 November 2006.
5. A cross-linked polymeric matrix is a complex chemical structure, consisting of multiblock chains (i.e., polymeric molecules—long molecules constituted by repetition of the same chemical unit) bound by strong chemical bonds.
6. Prepared by the Islamic Republic of Afghanistan, the United Nations Assistance Mission to Afghanistan and United Nations Development Programme, June 2005.
7. In accordance with the ANBP Project Document, Annex 2.
8. Erik K. Lauritzen, Robert J. Scott and Max Wenbo. *EU Support to Mine Action and Ammunition Stockpile Destruction, Assessment Mission and Preparation of Formulation Proposal and Financing Proposal*, Afghanistan. February 2006.
9. EC Integrated Pollution Prevention and Control, reference document on the Best Available Techniques for Incineration, July 2005.
10. *IMAS 11.30 Guide for the Destruction of Stockpiled Anti-personnel Mines, IMAS 11.20 Principles and Procedures for Open Burning and Open Detonation Operations,* and *IMAS 11.30 National Planning Guidelines for Stockpile Destruction.* http://snipurl.com/10w9j. Accessed 31 October 2006.
11. Owen Greene, Sally Holt, and Adrian Wilkinson. *Biting the Bullet—Briefing 18: Ammunition Stocks: Promoting Safe and Secure Storage and Disposal*. London: International Alert; Saferworld; University of Bradford, 2005.

Mine-risk Education and the Amateur Scrap-metal Hunter, Vosburgh [from page 32]

1. Qtd. in "Mine Risk Education." Adopt-A-Minefield. http://snipurl.com/10tqh. Accessed October 30, 2006.
2. "Monthly Mine/UXO Victim Information Report, August_2006." Cambodian Red Cross and Handicap International–Belgium. August 2006. http://snipurl.com/10e5w. Accessed September 10, 2006.
3. "On the other hand, almost **90% of casualties had received mine/UXO risk education training sessions** before the accident. 41% of them received direct training (meetings, school training, in-house training…). The others were only informed by indirect education (posters, leaflets, radio, TV)." From *Cambodian Mine/UXO Victim Information System, Annual Report 2005 Summary.* December 2005, p.22. http://snipurl.com/10tp0. Accessed October 13, 2006.
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The Aftermath of War, FitzGerald [from page 34]

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Cluster Munitions and ERW in Lebanon, Ressler and Wise [from page 39]

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40. "CBU-52B/B; CBU-58B, A/B; and CBU-71/B, A/B." *Vipers in the Storm: Weapons Bunker.* Last updated 2003. http://snipurl.com/11rze. Accessed November 9, 2006.

Explosive Remnants of War in the Republic of Croatia, Simunović [from page 42]

1. For more information about the Croatian Mine Action Centre, visit http://www.hcr.hr. Accessed October 31, 2006.
2. *Explosive Remnants of War (ERW)—A Threat Analysis*. Geneva International Centre for Humanitarian Demining. Geneva, 2002. http://snipurl.com/10w17. Accessed October 31, 2006.
3. For more information concerning the past conflict in Croatia, visit http://www.domovinskirat.com.
4. This information refers to the total surface, the six locations where mine clearance has been executed in order for UXO removal.
5. The international symposium "Humanitarian Demining 2006" was hosted by CROMAC along with the Centre for Testing, Development and Training. It was held in Šibenik, Croatia, on April 24–26, 2006, with the intention to bring together representatives from mine action centres all over the world to share ideas and new demining technologies and techniques. Participants from 26 different countries attended the event. For more information on the symposium, visit http://www.hcr.hr.
6. According to *IMAS 09.10—Clearance Requirements* the specified depth at which demining projects much search in the ground is determined by technical surveys, assessments, etc. done by the demining organisation of that area, in this case CROMAC and the Republic of Croatia. Other considerations are made when deciding a specified depth, including the types of mines and UXO in the country and their technical threat. The IMAS, or International Mine Action Standards, are the standards used by all United Nations mine-action operations. Available at http://snipurl.com/10w1b. Accessed October 31, 2006.
7. According to *Explosive Remnants of War (ERW)—A Threat Analysis* from the GICHD, the use of the term "medium risk" or "medium threat" is purely qualitative. Labeling certain munitions as either low, medium or high was, "based on the experience of a small group of EOD technicians with extensive post-conflict EOD clearance experience."
8. "INE" is the Yugoslav abbreviation for "nuclear blast simulator."

Explosive Remnants of War in North Africa, Sorour [from page 47]

1. **Editor's Note:** Some organisations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices.
2. "North African Campaign." *Wikipedia*. http://snipurl.com/11i6b. Accessed 7 November 2006.
3. Statement made by a representative of the Ministry of Interior before the International Symposium on Implementation of the Mine Ban Treaty, Algiers, Algeria, 8–9 May 2005.
4. "Algeria." 2004 *Landmine Monitor Report*. http://snipurl.com/11i6g. Accessed 7 November 2006.
5. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. 18 September 1997. http://snipurl.com/yccr. Accessed 30 October 2006. The document was opened for signature in Ottawa, Canada, 3 December 1997, and thus is commonly known as the Ottawa Convention.
6. A "wind farm" is a power plant that uses wind turbines to generate electricity.
7. For more information about these sanctions, visit http://tinyurl.com/yhg5ct. Accessed 30 October 2006.
8. "Libya." 2006 Landmine Monitor Report. http://tinyurl.com/ykbwoo. Accessed 30 October 2006.
9. For more information on of each of these munitions, see http://snipurl.com/10y9t. Accessed 12 December 2006.

Successful Implementation of Protocol V, Brinkert [from page 49]

1. *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* Geneva, Switzerland, 10 October 1980. http://snipurl.com/yi7e. Accessed 2 November 2006. This Convention is also referred to as the CCW or CCCW.
2. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. 18 September 1997. http://snipurl.com/yccr. Accessed 2 November 2006. The document was opened for signature in Ottawa, Canada, 3 December 1997, and thus is commonly known as the Ottawa Convention.
3. **Editor's Note:** Some organizations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices.
4. Preamble, "Protocol on Explosive Remnants of War" of the *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* Geneva, Switzerland. November 2003. http://snipurl.com/112e6. Accessed 2 November 2006.
5. As of 1 November 2006, 25 State Parties had signed Protocol V. For a list of the signatories see http://snipurl.com/112e8. Accessed 2 November 2006.
6. Article 6, paragraph 3, *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction*. See endnote 2.
7. Article 3, paragraph 2, "Protocol on Explosive Remnants of War." See endnote 3.

Spacetoon Kids TV: Educating Kids ERW, Ressler [from page 50]

1. E-mail correspondence on November 13 and 16, 2006 with Rami Allawama, Program Planning Director for Spacetoon Kids TV Regional Office–Jordan. Email statements were written by both Allawama and Hussam Hadi, Regional Manager for Spacetoon Kids TV Regional Office–Jordan.
2. "Mine Action Coordination Centre South Lebanon Unexploded Ordnance Fact Sheet." Mine Action Coordination Centre of South Lebanon. November 13, 2006. http://snipurl.com/12cgr. Accessed November 16, 2006.

Unsung Heroes: Elnur Gasimov, Shane [from page 52]

1. Personal interview with Elnur Gasimov, Team Leader of Training and Quality Assurance, Azerbaijan National Agency for Mine Action. May 17, 2006.

Finally, Safe Demining, Souza and Eugênia Sá [from page 54]

1. "Peru." *Landmine Monitor Report* 2005. International Campaign to Ban Landmines. Updated October 2005. http://tinyurl.com/yhxopt. Accessed October 23, 2006.
2. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Olso, Norway. September 18, 1997. http://tinyurl.com/y7w4um. Accessed October 17, 2006. The document was opened for signature in Ottawa, Canada, December 3, 1997, and thus is commonly known as the Ottawa Convention.

The Killer Toy, Sisawath [from page 55]

1. For descriptions of these munitions, visit http://snipurl.com/10y9t. Accessed November 1, 2006.

Increasing the Impact of Mine-action Survey, Downs [from page 63]

1. The Information Management System for Mine Action is a software-based data-management tool that combines a geographical information system with a relational database. It allows mine-action practitioners to enter pertinent data, and access, edit and manage that mine information efficiently and quickly. IMSMA is distributed by the Geneva International Centre for Humanitarian Demining. For more information see http://www.gichd.ch/22.0.html. Accessed September 26, 2006.
2. *Blockage* is a term referencing the impact landmines have on community life, particularly through interference—blockage—of normal access to important resources (e.g., agricultural land, schools, water sources, bridges). Eliminating these blockages is the focus of attention to remove socioeconomic impact of landmines on communities. Focus on blockage is an important step forward to increase the effectiveness of mine action in benefiting communities, in comparison to the previous focus on technical features of minefields and their complete clearance.
3. See Downs in *A Study of the Role of Survey in Mine Action* regarding the rapid appraisal roots of the LIS. "Chapter 1: Key Lessons, Challenges and Recommendations for Survey in Mine Action." Geneva International Centre for Humanitarian Demining. Geneva, March 2006. http://snipurl.com/10bbz. Accessed October 24, 2006.
4. The *Task Impact Assessment* is a methodology created by Norwegian People's Aid to prioritise and plan projects. NPA notes that "key components of the methodology establish: who the mine-affected groups are; what their needs are; what activities are hindered by landmines; the intended/planned post-demining land use; and the potential for these activities to materialize." From "Principles and Objectives of NPA Mine Action," Norwegian People's Aid. March 22, 2004. http://snipurl.com/10ba1. Accessed October 24, 2006. For more information see NPA's Web site: http://www.npaid.org. Accessed September 26, 2006.
5. The *Task Assessment and Planning* methodology of the Survey Action Centre, piloted in 2003 in Bosnia and Herzegovina, evaluates "high impact" communities after the LIS by collecting and analysing socioeconomic and terrain data to recommend if SHAs should be cleared, Technically Surveyed and fenced, monitored or left with no action taken. Goslin, Belinda. "Making Analytical Tools Operational: Task Impact Assessment," *Third World Quarterly,* October 2003, Vol. 24, No. 5. See SAC's Web site at: http://www.sac-na.org/index.html. Accessed September 26, 2006.
6. See "Landmine Impact Survey: Bosnia and Herzegovina." Survey Action Centre and Handicap International, 2003. http://snipurl.com/10bc5. Accessed October 24, 2006.
7. Demex and Scanteam. *Evaluation of the Global Landmine Survey Process, Final Report*, Oslo, February 2004.

Contributing to Progress in Sri Lanka, Wegman [from page 65]

1. **Editor's Note:** Some countries and mine-action organizations are urging the use of the term "mine free," while others are espousing the term "mine safe" or "impact free." "Mine free" connotes a condition where all landmines have been cleared, whereas the terms "mine safe" and "impact free" refer to the condition in which landmines no longer pose a credible threat to a community or country.
2. The Liberation Tigers of Tamil Eelam (LTTE) is a separatist terrorist group that seeks an independent state in areas in Sri Lanka inhabited by ethnic Tamils. Definition taken from http://snipurl.com/11cyl/. Accessed November 6, 2006.

Humanitarian Landmine Action in China and the Role of the NGO, Dequan [from page 67]

1. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. September 18, 1997. http://snipurl.com/11d8a. Accessed November 6, 2006. The document was opened for signature in Ottawa, Canada, December 3, 1997, and thus is commonly known as the Ottawa Convention.
2. *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* Geneva, Switzerland, October 10, 1980. http://snipurl.com/yi7e. Accessed November 6, 2006.
3. Since China signed the CCW and its Amended Protocol II in 1998, it has stopped producing and exporting landmines that do not meet the standards and has begun modifying mines to the standards. It is also destroying its landmine stockpiles that are not in compliance with the standards. So far, 1,700,000 anti-personnel mines of old types have been destroyed, including 500,000 mines destroyed in the past three years. Some mines have been retained for research and development purposes.
4. With limited resources, China sent mine-clearance experts to Eritrea in 2002 and 2003 and to Kampuchea (Cambodia) in 2005 to train the local engineers. It also ran two workshops in 1999 and 2001 on mine-clearance training for participants from several mine-affected countries. These efforts were undertaken in addition to its own comprehensive mine clearance and rehabilitation of mine victims in China.
5. From January to July 2005, an area of 97,000 square meters (24 acres) has been cleared and 350 mines and pieces of UXO have been removed inside China along the Chinese-Vietnamese border.
6. Under guidance from the Chinese experts, the Eritrean trainees cleared 90,000 square meters (22 acres) of 600 mines and pieces of UXO within 14 days during the 2002 training course.
7. In addition to China, eight mine-affected countries (Afghanistan, Cambodia, Eritrea, Burma [Myanmar], Sri Lanka, Tajikistan, Thailand and Vietnam) and five donor countries (Australia, Canada, France, Switzerland and the United States) attended the workshop. Eight international nongovernmental organizations (the Australian Network of the International Campaign to Ban Landmines, the Geneva International Centre for Humanitarian Demining, Handicap International–Belgium, the ICBL, Mines Advisory Group, UNICEF, the United Nations Mine Action Service and the United Nations Development Programme) and the China Arms Control and Disarmament Association participated.
8. To find out more about CACDA, see http://www.cacda.org.cn or http://www.armscontrol.org.cn.

Geneva Diary Report from the GICHD, Mansfield [from page 71]

1. There are 12 Guidebooks available free of charge from the GICHD at http://snipurl.com/124wf.

Mine Victims Needs Assessment and Assistance Coordination, Aliyev, et al. [from page 76]

1. The MVA Needs Assessment Survey was created with the specific objectives of establishing an extensive database, a well-articulated strategy and an effective network with relevant stakeholders on MVA. This sub-task was an integral part of a larger overall project titled Support to Azerbaijan Mine Action Programme that was funded by the European Commission through the United Nations Development Programme from June to October 2004.
2. This survey defines *husbandry* as working on growing crops, vegetables fruits, etc.
3. People with first-degree disabilities are completely disabled and incapable of working. They require constant assistance. People with second-degree disabilities are disabled but do not require constant attention. People with third-degree disabilities are partially disabled and cannot complete usual work. For more information see "Old Age, Disability, and Survivors" *Social Security Programs throughout the World, Asia and the Pacific*, 2004: Azerbaijan. http://snipurl.com/122nb. Accessed November 13, 2006.
4. The disability degree is given for a period of time and subject to review by special medical-social expert commissions to ensure the classification is still correct.
5. According to this survey, the monthly average of personal income including pensions from the state received for persons with a disability degree were US $50 for first-degree, $37 for second-degree, $28 for third-degree and only $8 for those not having an officially recognized disability. The respective figures for total average monthly family income were $62, $50, $43 and $24.
6. The information gathered from the Azerbaijan Free Trade Unions Confederation was through an informal phone interview for purposes of the MVA Survey. The Azerbaijan Free Trade Unions Confederation is the national free trade union center for Azerbaijan with 1.3 million members.
7. A *consumer basket* refers to a sample of goods and services used to track the prices of basic commodities and as a base for the Consumer Price Index. The minimum consumer basket is the minimum commodities and services needed to survive and is used to determine the minimum cost of living.
8. A minimum expenditure shows how much each working person actually needs to spend at a minimum to survive. Compared to the minimum consumer basket, minimum expenditure per working person is higher because additional real-life expenses are included, such as daily transportation expenses.

Effects of Landmines on Sri Lanka, Hemapala [from page 78]

1. "Sri Lanka." *The World Factbook*. http://snipurl.com/10eaj. Accessed October 25, 2006. Last updated October 17, 2006.
2. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. September 18, 1997. http://snipurl.com/yccr.

Accessed October 25, 2006. The document was opened for signature in Ottawa, Canada, December 3, 1997, and thus is commonly known as the Ottawa Convention.

3. "Peace in Sri Lanka." Official Web site for the Sri Lankan Government's Secretariat for Coordinating the Peace Process. http://snipurl.com/10jq0. Accessed October 27, 2006.
4. An anicut is a dam or mole made in the course of a stream for the purpose of regulating the flow of a system of irrigation. http://snipurl.com/10eb0. Accessed October 25, 2006.
5. Media Center for National Security. http://snipurl.com/10jq2. Accessed October 27, 2006.
6. "Sri Lanka." *Landmine Monitor Report* 2003. http://snipurl.com/10ebh. Accessed October 25, 2006. Last updated February 28, 2005.
7. "Sri Lanka." *Landmine Monitor Report* 2005. http://snipurl.com/10eb9. Accessed October 25, 2006. Last updated November 10, 2005.
8. In Sri Lanka a rake process is currently used for manual demining and it guarantees nearly 100-percent clearance but takes quite a bit more time than using a metal detector.
9. The MV-4 Mini Flail is a remote-controlled demining machine designed to clear anti-personnel landmines from various terrains. For more information visit http://snipurl.com/10ebb. Accessed October 25, 2006.
10. The Bozena 4 is a mine clearing flail system designed for clearing anti-personnel mines that are both pressure and tripwire fused, and some anti-tank mines. For more information visit http://snipurl.com/10ebc. Accessed October 25, 2006.
11. *Mechanical Demining Equipment Catalogue 2006.* Geneva International Centre for Humanitarian Demining. Geneva, March 2006. Available online at http://snipurl.com/10ebr. Accessed October 25, 2006.
12. Schoeck, Peter A. "The Demining of Farmland: Cost/Benefit Analysis and Quality Control." *Journal of Mine Action,* Issue 4.3, August 2006, p. 89–93. http://snipurl.com/10ebi. Accessed October 25, 2006.

2006 UNMAO Planning Process in Sudan, Heymans [from page 82]

1. *Sudan National Mine Action Strategic Framework,* Government of Sudan and SPLM, 27 August 2004.
2. *Portfolio of Mine Action Projects 2007,* Tenth Edition. United Nations Mine Action Service, United Nations Development Programme and United Nations Children's Fund. New York: 2007. Available at http://tinyurl.com/y4q69q. Accessed 13 December 2006.
3. For the United Nations and Partners 2006 Work Plan for Sudan, as well as for Sudan's work plans from other years, visit http://www.unsudanig.org/workplan/. Accessed 13 December 2006.
4. *Mine Action Annual Operational Plan 2006.* United Nations Mine Action Office. Version 1.2. 30 November 2005. The full Operational Plan is available from the United Nations Mine Action Office.
5. Primary roads are the main roads used for logistical support by the mission and other humanitarian agencies while secondary roads can include roads not in this category but still a priority in terms of mine action.
6. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction,* Oslo, Norway. 18 September 1997. http://snipurl.com/yccc. Accessed 20 November 2006. The document was opened for signature in Ottawa, Canada, 3 December 1997, and thus is commonly known as the Ottawa Convention.

Information Management System for Mine Action in Sudan, Kabir [from page 83]

1. The information-management policy is a document approved by Programme Managers designed to follow the information flow from the field to IMSMA and is available at each mine-action office in Sudan.

Mine Action Support Group Update, Davis [from page 87]

1. The full text of this newsletter can be found at http://snipurl.com/13nz5. Accessed October 25, 2006.
2. "Middle East Crisis, UNICEF Situation Report–Lebanon." UNICEF, Thursday, September 28, 2006. http://tinyurl.com/y6w32s . Accessed October 25, 2006.
3. In 1994, the Voluntary Trust Fund for Assistance in Mine Action was established to provide resources for mine-action programs and projects when other immediate funding is not available. For more information visit, http://tinyurl.com/y5eyyz. Accessed October 25, 2006.
4. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction.* Oslo, Norway. September 18, 1997. http://tinyurl.com/y7w4um. Accessed October 25, 2006. The document was opened for signature in Ottawa, Canada, December 3, 1997, and thus is commonly known as the Ottawa Convention.
5. The 7th Meeting of the States Parties to the Mine Ban Treaty took place September 18–22, 2006, in Geneva, Switzerland. For more information, visit http://tinyurl.com/y7942h. Accessed October 26, 2006.

Explosive Harvesting Program, Hess [from page 93]

1. We already knew the technologies commonly used and did a market survey to assess the cost/performance of each system. We personally did not test a sample of each system as that would have been expensive and time consuming, so we used the available data from other tests that were already conducted.
2. We haven't fully captured all the costs involved with the band saw approach yet; so 75 percent is a safe figure to use at this point in time on the cost reductions over using the hydro-cutter. We've had to do modifications to the band saw for remote operations and there are other expenses that go into using it, such as special carbide blades instead of the standard tempered steel versions, cutting fluid, etc.
3. The 25 percent reduction was over the previous system we used. We have weekly reports covering a four-month period which include the steaming times for the various sized projectiles; however the information is not in an individual table.

ITEP Test and Evaluation of Humanitarian Demining Equipment, Borry [from page 95]

1. *ITEP Work Plan* (database). International Test and Evaluation Program for Humanitarian Demining. http://snipurl.com/10t84. Accessed 28 September 2006.
2. Additional contacts for this article are:
   - ITEP Secretariat (secretariat@itep.ws)
   - Systematic Test and Evaluation of Metal Detectors (STEMD): Dieter Guelle (Dieter.guelle@bam.de), Christina Muller (Christina.Mueller@bam.de)
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   - APOPO-PARADIS: Marc Acheroy (Acheroy@elec.rma.ac.be)
   - Testing of Conditioned Bees: Chris Weickert (Chris.Weickert@drdc-rddc.gc.ca)
   - Test and Evaluation of Magnets: Goran Danielsson (goran.danielsson@mil.se)
   - MINE STALKER Testing: Lee Offen (Lee.offen@nvl.army.mil)
3. *ITEP Test and Evaluation of Humanitarian Demining Equipment, 2006.* International Test and Evaluation Program for Humanitarian Demining. http://snipurl.com/10t89. Accessed 23 October 2006.
4. *Reports.* International Test and Evaluation Program for Humanitarian Demining. http://snipurl.com/11d7q. Accessed 6 November 2006.
5. *Projects.* International Test and Evaluation Program for Humanitarian Demining. http://snipurl.com/10t8e. Accessed 23 October 2006.
6. *Evaluation of Metal Detector Arrays for Humanitarian Demining 2.1.2.5.* http://snipurl.com/10t8k. Accessed 30 October 2006.
7. *CEN Workshop Agreement on T&E of Metal Detectors.* CWA 14747-2003. http://tinyurl.com/y33xdk. Accessed 28 September 2006.
8. *Final Report.* International Pilot Project for Technology Co-operation. Eds. Y. Das (CA), J.T. Dean (EC), D. Lewis (UK), J.H.J. Roosenboom (NL), G. Zahaczewsky (US). http://snipurl.com/10t8p. Accessed 28 September 2006.
9. *Handheld STAnd-off MIne Detection System (HSTAMIDS) Operational Field Trials and Demonstration 2.4.2.6.* http://snipurl.com/10t8v. Accessed 30 October 2006.
10. *Assessment of the Next Generation of the ERA Dual-sensor Mine Detector 2.4.2.6.* http://snipurl.com/10t92. Accessed 30 October 2006.
11. *MINEHOUND™ Trials, 2005–2006.* http://snipurl.com/10yai. Accessed 1 November 2006.
12. *Test and Evaluation of Available Dual Sensors to be used in Humanitarian Demining 2.4.1.3.* http://snipurl.com/10t94. Accessed 30 October 2006.
13. *BAM-ITEP Workshop on Reliability Tests for Demining, 30-31.01.2007.* Call for papers. http://snipurl.com/10yau. Accessed 1 November 2006.
14. *Bozena 5 Flail Test and Evaluation 3.2.33.* http://snipurl.com/10t96. Accessed 30 October 2006.
15. *MV 10 Test and Evaluation 3.2.35.* http://snipurl.com/10t9b. Accessed 30 October 2006.
16. *MV 20 Test and Evaluation 3.2.36.* http://snipurl.com/10t9e. Accessed 30 October 2006.
17. *ITEP Cerovac Test Facility.* http://snipurl.com/10ypw. Accessed 28 September 2006.
18. *In-country Trial of the MV-4 and Bozena-4 Mini-flails 3.2.41.* http://snipurl.com/10t9l. Accessed 30 October 2006.
19. *CEN Workshop Agreement (CWA 26) on Test Methodology for Personal Protective Equipment (PPE) for use in Humanitarian Mine Action (HMA) 5.1.2.* http://snipurl.com/10t9q. Accessed 30 October 2006.
20. *CEN Workshop Agreement on Test and Evaluation of Metal Detectors 2.1.1.1.* http://snipurl.com/10t9u. Accessed 30 October 2006.
21. *CEN Workshop on Characterisation of Soils for Electromagnetic Sensors – Test and Evaluation 2.4.1.2.* http://snipurl.com/10t9z. Accessed 30 October 2006.
22. *APOPO-PARADIS Field Tests 1.2.4.* http://snipurl.com/10ta2. Accessed 30 October 2006.
23. *Evaluation of Conditioned Bees for Detecting of Buried Landmines 2.3.2.6.* http://snipurl.com/10ta6. Accessed 30 October 2006.
24. *Test and Evaluation of Magnets 2.5.2.6.* http://snipurl.com/10tab. Accessed 30 October 2006.
25. *Integrate and Test and Evaluate the "Mine Stalker" NIITEK Ground Penetrating Radar System 2.2.2.3.* http://snipurl.com/10taf. Accessed 30 October 2006.

Visor Scratch Repair and Prevention, Heafitz, et al. [from page 99]

1. "What Use is a Database of Demining Accidents?" Andy Smith, *Journal of Mine Action*, Issue 6.2, p. 98, August 2002, http://snipurl.com/12nf3. Accessed November 13, 2006.
2. "How Product Design Can Improve Manual Demining," Anders Ilsøy, *Journal of Mine Action*, Issue 7.1, p. 29 , April 2003, http://snipurl.com/122n0. Accessed November 13, 2006
3. Database of Demining Incidents and Victims, version 4, record #310, http://snipurl.com/122lu. Accessed November 13, 2006.
4. "Methylene Chloride (Dichloromethane) Hazard Summary"—Revised January 2000, U.S. Environmental Protection Agency, http://tinyurl.com/sw9r8. Accessed November 14, 2006.
5. The term "jig" refers to a device used to hold pieces of material into position during fabrication.
6. For example, data sheets for Lexan brand polycarbonate are available from GE Plastics, http://www.geplastics.com. Accessed July 21, 2006.
7. Security Devices (PVT) Ltd., http://secdevinc.com/. Accessed July 21, 2006.
8. PETN or *Pentaerythritol Tetranitrate* is a very sensitive and powerful type of explosive. It is often mixed with either TNT or wax to reduce its sensitivity.
9. *The Use of Plastic Laminations to Protect Polycarbonate Blast Protection Visors*, Brian McLean, 1998 UWA Demining Project. http://snipurl.com/122la. Accessed November 13, 2006
10. *MIT Design for Demining*, http://mit.edu/demining. Accessed July 21, 2006.

Throwing Out Mines: The Effects of a Flail, McLean, et al. [from page 104]

1. *A Study of Mechanical Application in Demining.* Geneva International Centre for Humanitarian Demining, May 2004; http://snipurl.com/z86l. Accessed 30 September 2006.
2. For example, many mines found in Bosnia today in ground where there is regular frost are not functional.
3. 1 meter= 1.1 yard; 10 centimeters = 3.9 inches; 10 millimeters = 0.39 inch
4. *Mechanical Demining Equipment Catalogue* 2006. Geneva International Centre for Humanitarian Demining. http://snipurl.com/14v3d. Accessed 13 December 2006.
5. 60 mm: orange; 90 mm: green; 110 mm: blue.

MineWolf Flail and Tiller Machines, Rath and Schröder [from page 108]

1. For more information on of each of these munitions, see the Mine Action Information Center's "Munitions Reference." Available at http://snipurl.com/10y9t. Accessed 12 December 2006.
2. Nies, TROI O. *Report/Subtask: Mine-clearing Vehicle MINEWOLF–Biomechanical Assessment of Mine-Clearing Tests with Live Mines in March 2004.* WTD 91: German Federal Armed Forces Technical Center for Weapons and Ammunition. Report ID: WTA-Nr.: E/ KP0A/ 31880/ 1F050 TA, Nr.: 507. 2004. http://snipurl.com/14v7r. Accessed 12 December 2006.
3. Wagner, BR z.A. M. *Final Report: MineWolf Clearing of Live Mines.* WTD 91: German Federal Armed Forces Technical Center for Weapons and Ammunition. Report ID: WTA: Nr. E/ KPOA/ 31880/1F050. 2004. Available at http://snipurl.com/14s36. Accessed 12 December 2006.

Fact Sheet: Recent Use of Cluster Bombs in Lebanon

Background

- "34-day war" in Lebanon and northern Israel, occurring from July 12 to August 14, 2006.
- Israeli government vs. Hezbollah (Lebanon-based Islamic militant group).
- Ended with a U.N.-mediated ceasefire on August 14, 2006.
- Israel used cluster bombs in Lebanon and there are allegations Hezbollah used cluster bombs in Israel.
- Cluster bombs were used in many wars before this, including in Afghanistan, Iraq, Kosovo and Vietnam as well as previous conflicts in Lebanon .

How cluster munitions work

- Small bomblets called submunitions released from larger cluster munition; these submunitions are designed to explode, maim and kill as they scatter across a target area from the air and hit the ground.
- Developed by the Germans in World War II to increase efficiency of aerial attacks against "soft" targets (personnel), first one called the "butterfly bomb."
- Unguided munitions deployed by aircraft, rocket launcher or artillery and containing—depending on type—anywhere from three to over 2,000 submunitions.
- Wide area of effect (about that of two football fields).
- Almost always leave behind unexploded submunitions, 2–40 percent failure rate (range and variations due to factors such as type and age of munition, environmental conditions, deployment technique and testing conditions).
- Different kinds of cluster munitions are produced today by about 30 countries.

Multiple Launch Rocket System (MLRS)

- Multiple Launch Rocket Systems were used in the 2006 Israel-Hezbollah conflict.
- The MLRS is one of the most lethal missile launch systems; can deploy high numbers of cluster munitions very quickly, spreading submunitions over a large area.
- Track- or tire-carried mobile rocket-launching platform with 12 rockets.
- Can send rockets up to 20 miles away.
- In one minute, 12 M26 rockets can be fired, each containing 644 M77 submunitions (U.S.).
- Total = 7,728 submunitions in one minute.
- Reported failure rates for M77 submunitions range from 5–23 percent, which means hundreds or thousands of potential duds left after every MLRS launched.

Cluster munitions and their effects in Lebanon

- Most of the submunitions were dropped in final 72 hours of conflict "when we knew there would be an end" (source: Jan Egeland, U.N. Under-Secretary-General of Humanitarian Affairs) and included M77 (U.S.), M42 (U.S.), M46s (U.S.), M85 (Israel) and BLU-63 (U.S.) submunitions.
- It is estimated that up to four million submunitions may have been dropped and scattered (source: Handicap International).
- Over 830 cluster munition strike sites with up to one million unexploded submunitions are estimated, covering over 32 million square meters (7,900 acres) as of December 14, 2006 (source: United Nations Mine Action Coordination Centre–South Lebanon).
- Up to 200,000 displaced Lebanese cannot return due to danger from UXO as of November 1, 2006 (source: United Nations High Commissioner for Refugees).
- Between August 14 and December 14, 2006, 26 people died (six of them under the age of 18) and 160 others were wounded (57 under 18) by unexploded munitions.
- Clearance of unexploded ordnance and submunitions is estimated by the UNMACC-SL to take anywhere between 12 and 15 months.

Action against cluster munitions and what's been happening since August 14, 2006

- Convention on Certain Conventional Weapons (CCW), Protocol V: international law regarding post-conflict clean-up of unexploded ordnance and abandoned explosive ordnance (covers ERW other than landmines and booby traps, which are covered by Amended Protocol II); suggests voluntary preventive measures. Protocol V came into force November 12, 2006.
- Discussions continue on further steps to take in order to restrict use of cluster munitions and decrease failure (dud) rates. Third CCW Review Conference was held November 7–17, 2006, and during that time efforts were made to address cluster munitions and the threat unexploded submunitions hold for civilians. The conference failed to reach a deal to restrict the use of cluster munitions, instead agreeing only to keep talking about the issue.
- After failing to reach an agreement within the framework of the CCW, civil society activists and countries (led by Norway) have called for a new international treaty separate from the CCW that would control or ban cluster munitions.
- Two U.S. senators, Dianne Feinstein (D-CA) and Patrick Leahy (D-VT), tried to stop U.S. production of cluster bombs, but the measure was defeated on September 6, 2006, by a vote of 70-30.
- Lebanon's National Demining Office in partnership with the Mine Action Coordinating Centre of South Lebanon is collecting information and coordinating the response to cluster munitions.
- Continued clean-up by many individuals and organizations including the Lebanese Army, United Nations Interim Forces in Lebanon, and groups contracted under the United Nations Mine Action Service: MAG, Swedish Rescue Services Agency and BACTEC.
- UNICEF is supporting the National Demining Office to implement mine risk education.
- Along with many other donors, USAID humanitarian assistance to Lebanon is being provided. http://www.usaid.gov/locations/asia_near_east/middle_east/

For an overview of cluster munitions and their use in Iraq, go to http://snipurl.com/10ho5

Interactive, day-by-day map of 34-day war available at http://snipurl.com/15fc4

Report of the Third CCW Review Conference available at http://snipurl.com/15fc8

Errata

The editorial staff of the *Journal* goes to great effort to make sure that what is printed in our magazine is accurate, properly documented and unbiased. However, in Issue 10.1, we expanded a short caption to fit the story and we should not have done so. In the editorial, "An Alternative Perspective on Landmines and Vulnerable Populations" by Dr. Shelby Weitzel, the caption of the photo, which was used with ICRC's permission, was modified without ICRC's permission to state: "Minefields can be used to create barriers to defend vulnerable populations." The original caption accompanying this photo reads "Champs de mines," and means "minefields" in English.
We also failed to properly credit the photo used on the cover of issue 10.1. The photo was provided by Vinicus Souza and Maria Eugênia Sá.
On page 54 of issue 10.1, we gave an incorrect URL for additional references pertaining to the article by Daniele Ressler. The proper URL should be htt://snipurl.com/15lqm.