Response to Bob Keeley's Letter to the *Journal of Mine Action*

By Daniel Wolf and Steven Barmazel
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We appreciate Bob being "picky" in examining our article on applying a public-health approach to demining. The lives at stake in demining are worth the extra care. As it happens, we generally agree with his views.

First, let's *do* get our terminology straight. Thanks, Bob, for the lesson in British diction. We had hoped that placing the modifier *mechanical* before *detonator* would make our intentions clear. That it did not, we apologize to our readers. More substantive issues await us.

As Bob rightly points out, our ideas are not new. The public-health/cost-benefit approach predates the birth of everyone reading these words, and using detonation devices to map mine fields is likewise not fresh. Plenty of deminers apply both of these techniques. Our purpose in writing the article was to memorialize the principles involved, and thereby educate and even convince people who have not joined the choir, of whom there are many.

On the other hand, we're not sure we appreciate being likened to a pair of chimps with typewriters . . . .

Bob argues that mechanical detonation is not appropriate because it is less than 100 percent effective. This is valid for complete clearance but beside the point for Level Two Surveys (mine field detection) because 100 percent clearance is not part of the job specification. The crucial question, addressed in our article in this issue, is "*If not 100 percent, then how much?*" Bob's assertion that "machines are not necessarily more cost effective" is absolutely true. Many machines exist, however, and each varies in terms of productivity and costs of purchase and operation, so no general statement can truthfully be made. A machine that would break the budget of one project may be economical in another.

Bob takes us to task for endorsing mechanical detonators *categorically*. That is not our intent, and in fact, we don't find any such endorsement in our article. To clarify, we *don't* assert that mechanical detonation is the most appropriate, effective demining method under every set of conditions. Our article in this issue discusses mechanical detonation at length. Here is what we say:

"In fact, *under many conditions,* using detonators will find mine fields better than manual probing [emphasis added]."

So, under what sorts of conditions do we think mechanical detonators offer advantages? Well, again, let's look at what we say:

"[W]here local knowledge and tactical speculation are unreliable, the larger sample sizes from detonators will produce information that is more dependable. At the other extreme, where mines have been emplaced according to accepted military doctrines and location knowledge is good, traditional trench samples can find mine fields effectively.

"Let us be ***clear,*** *detonators will not always be the best technique to apply in all situations.* Operators will have to account for conditions when deciding when and how to use detonators. Once it is determined that terrain, infrastructure or other local variables do not contraindicate sampling by mechanical detonation, however, the large samples permitted by imperfect detonators are superior to the small samples obtained by 'perfect' human detectors [emphasis added]."

This is hardly a categorical endorsement of mechanical detonation as a panacea for what ails demining operations. Bob's example in which crops could flatten and thereby mask the presence of mines, would be one of those situations where, depending on the crop, mechanical detonation may not be appropriate.

We definitely do not promote flails or rollers as "one stop shops" for demining. Though it would be unfair to draw firm conclusions from the experiment Bob cites (the sample size—four—is just too small), we share his low opinion of flails.

Most of all, Bob points out the need for us to expand on our shorthand notes we made regarding mechanical detonation. We hope our article in this issue clarifies our points sufficiently.