Environmental Applications in Demining

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The author takes a look at the environmental impact of demining and shows how demining not only affects the environment but also bears heavily on development and economics.

As the demining industry moves towards its rightful place as just another member of the community of organizations supporting development in post-conflict situations, a new layer of responsibility is emerging. It is no longer acceptable to simply get the mine out of the ground in the safest possible way with minimal regard to consequences. It is agreed that demining supports some vague notion of subsequent use of the land. But the development perspective imposes a new reality. Subsequent use should inform, influence and perhaps even dominate decisions about the demining process.[1]

When I first joined the demining industry in 2000, I arrived with experience as a biologist dealing with environmental issues. I immediately recognised remarkable overlap between post-conflict and environmental management in terms of need and consequence. Wars pollute the landscape and destroy infrastructure. So does deforestation, for example. Human society depends as much on ecological infrastructure as on human-created infrastructure, even if we do not value the former because it is self-maintaining and inconspicuous. Lost or destroyed infrastructure leads to precarious human existence. In terms of this principle, it makes no difference if the loss is of sewage disposal systems (which means high rates of sickness) or of roots that bind soil on hillsides (leading to erosion, landslides, destroyed agricultural land and famine). The result is the same—ruin.

Wars dramatically change the way in which local environments are used and managed by local people, often with devastating consequences. For example, through the 1990s, the elephants of western Africa suffered massive mortality because of an increase in the availability of weapons as a result of local wars.[2] The destruction followed an earlier period of increased mortality due to poaching for ivory. These pressures are now somewhat reduced, but neither has been eliminated, and pessimistic reviewers already regard the forest elephants of western Africa as a species being driven to extinction.[3]

But let it be said, wars can have ecologically positive effects. Wars frequently remove people from the landscape, reducing an impact that in at least some cases may have been unsustainable. Examples include reduced grazing pressures that improve the diversity of local vegetation communities and allow native wildlife to return to land from which it has been excluded. Reduced rates of firewood collection allow recovery of stressed forests subject to unsustainable levels of wood removal. Perhaps there are endangered orchids that thrive today in the mine-infested hills around Sarajevo. And so on.

The above examples all have the same theme. Positive environmental effects are obtained when human impact is reduced. Clearly, such a perspective has little relevance from a development perspective—or does it? Environmental science is **not** about removing humans from the landscape. It **is** about repairing damage and achieving sustainable use. In a post-war scenario

landscape. It **is** about repairing damage and achieving sustainable use. In a post war scenario, there is no more central theme than sustainable reintroduction of humans to a destroyed environment, and reintroduction biology is a core theme of environmental science. Clearly, environmental science has much to offer the science of post-conflict development. But what does any of this have to do with mines?

Having joined the demining industry, I inevitably began asking questions about environmental issues. I remember one early conversation beginning, "Is there any demining technique that reliably removes all mines?" The answer described a gravel crusher being used in Afghanistan. The soil is dug up (to a designated depth), passed through the crusher and then returned to the source. I was shocked at this cavalier treatment of desert soils, which are extremely sensitive to disturbance and are well-known (to biologists) to be the most difficult on which to mitigate even limited impact. I commented that the effect was likely to be no soil at all, because, with its structure and roots removed, it would all blow away. The answer: "Yes, they are having a bit of trouble with that." Yes, the land is now "mine free."[4] But it is also free of any economic, ecological—or any other—value.

Removing all vegetation, even in countries like Cambodia and Sudan where vegetation is prolific, can severely damage the environment. Some important plants do not reinvade easily.

During the first meeting of the advisory group to *A Study of Mechanical Applications in Demining*[5] initiated at the Geneva International Centre for Humanitarian Demining in 2001, I was delighted to hear a voice arguing that environmental issues should be a significant concern when mechanical systems were being used and should be a part of the study. The advisory group endorsed the principle that environmental issues be addressed, although there was too much else to do at the time (environmental issues do not feature in the study). Nevertheless, there are promising consequences. The follow-up projects to *A Study of Mechanical Applications in Demining* include a study titled *The Environmental Effects of Mechanical Application in Demining*.[6] This publication is a second-order study (literature review and field consultation), but it is an important beginning. The first step in addressing an issue is to acknowledge that it exists.

I doubt that any well-informed community would choose a mine-free moonscape over productive land containing a residual hazard. But of course, local communities tend not to be well-informed about issues, options and consequences. Nor do they control the funding for demining, or have much involvement in the decision process. Due to displacement and social disruption, they might not even be represented by acceptable and knowledgeable leaders. Such alienation of beneficiary from process is entirely incompatible with the development perspective.

There is, therefore, a strong requirement for the demining administration (i.e., not just the demining organization) to ensure that local needs are properly addressed, both in the short term (when demining is primarily an emergency response activity and compromise on environmental impact might be justifiable) and in the longer term (when demining is part of a broader development package and issues of environmental impact should be a central concern).

Currently, there are few practitioners in the industry with any understanding of environmental issues. Nor does training about environmental issues feature in the management courses attended

by national staff.[7] If an assessment is made at all, it is at the most superficial level only. Some examples are listed below.

- **Afghanistan**: It is an empty desert; there is nothing there. **Correction**: Overgrazing and drought, both endemic, ensure that plants have little above-ground growth most of the time, but in reality the subsurface environment is alive, active and healthy (or **was**, until the flail did its job).
- **Cambodia**: Vegetation growth is prolific and everything has to be chopped before the deminer can go to work. **Correction**: "Everything" includes plants with important medicinal properties that require years of growth to reach maturity and/or do not reinvade easily into disturbed environments.

An influential modern writer on environmental issues, David Orr, recently outlined a series of principles based on a lifetime of experience as a teacher and researcher.[8] He noted in the discussion of Law 1 that "it is the height of folly to believe that we can erode soils, destroy biological diversity, and create ugliness—human and ecological—without paying. Sooner or later, the full costs will have to be paid one way or another." Law 2 says, "Problems of ecology are first and foremost political problems having to do with who gets what, when and how." Law 3 is, "Humans are more ignorant than smart and most seem to prefer it that way."

Demining agencies have a job to do and are under strong incentives to do that job in the safest and most cost-effective way. They also have a very difficult objective: to ensure that absolutely all mines are located and removed. It is hardly surprising, then, that any issue perceived as peripheral to those imperatives will be set aside. Environmental issues are currently treated as peripheral. They must therefore be established as an imperative.[9]

Achieving such an outcome requires a political process (Orr's Law 2), and that process must be built on knowledge (Orr's Law 3). Cost-effectiveness still applies, but there must be a new line in the budget that takes environmental consequence into account. The new scenario—mainstreaming demining with development—provides the framework. The immediate challenges are to explore the issues, raise awareness, create incentives and educate the practitioners.

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Biography

Ian McLean is an environmental biologist and dog specialist, employed by the GICHD as a researcher from 2000 to 2005. Originally from New Zealand, he has taught environmental biology and animal behaviour in universities in Canada, New Zealand and Australia. He began training dogs for conservation work in the 1980s and consulted as a dog psychologist for many years.

Endnotes

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2. Blake, S., Hedges, S. 2004. "Sinking the Flagship: The Case of Forest Elephants in Asia and Africa." *Conservation Biology* 18, 1191–1202.
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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.
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