In the “Costs Data Entry Menu,” users are asked to enter data on the actual or projected costs of the mine clearance project. The costs in the model are grouped into four categories: staff salaries, staff allowances, consumables and running costs, and capital equipment. Within each of these cost categories, there is no restriction on how many cost items are specified. Thus, the model can handle analyses of both past costs, based on detailed budgets, and future costs, for which there might be rather less detail available. For each cost item, the user is asked to specify a name or description for the item, the number of items used, and the unit-cost per item per year.

For each cost item, the user is allowed to allocate the number of units across various cost categories (e.g., management and administration, mine survey, medical support, manual mine clearance teams, dog teams, and individual machines). This allocation of the number of units of each cost item allows the user to report detailed calculations of the cost of mine clearance using actual or projected data. Many factors are likely to influence the cost-effectiveness of particular methods of mine clearance in particular settings. From amongst these there will be labour and machine costs, and the comparative productivity levels of manual-clearance teams, dog teams and mechanical-clearance machines. However, other idiosyncratic factors are also likely to be important and not be captured in the model. For example, they are likely to be relevant to the decisions agencies make about the most effective way to clear a given area.

Table 1

<table>
<thead>
<tr>
<th>Reporting Period: 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
</tr>
<tr>
<td>Manual Only</td>
</tr>
<tr>
<td>Flail &amp; Manual</td>
</tr>
<tr>
<td>Flail, Manual, Dogs</td>
</tr>
<tr>
<td>Veg, Cutter, Manual</td>
</tr>
<tr>
<td>Area Reduction then</td>
</tr>
<tr>
<td>Cutter, Manual, Dogs</td>
</tr>
<tr>
<td>Area Reduction, MP, Manual</td>
</tr>
</tbody>
</table>

Table 2: Example of Key Results Report. Courtesy of Dan Marsh/MAIC.

to identify which costs are associated with which machines. By identifying costs with machines and other budget elements from a single budget, different costs for different machines can be extracted. It is unlikely a standardised model could provide more detail because local factors will dictate what value is placed on timeliness. Second, although cost per square metre may be an accepted metric for recording output, there is some argument for considering the depth of clearance. A hidden advantage of some machines may be that they clear to a greater depth than is possible with other machines. A comparison solely on the basis of cost per square metre will miss this point and may unfairly indicate an advantage for one machine over another.

Conclusions

Many of the key issues of mine action are amenable to economic analysis. In this respect, mine action is no different from any other activity that uses scarce resources. Policy in this field has often been strongly influenced by both military and humanitarian considerations, and approaches. Mine action agencies have often seen mine clearance as being a technical problem requiring technical solutions. Too often, estimates of the costs involved have been paid to cost-effectiveness in determining the best course of action. Humanitarian concerns have brought the impact of mines to the world’s attention, but the signing of the Ottawa Convention. However, the Convention’s requirement that all mines be cleared will not always be the best way of improving the plight of those affected by mines. Likewise, the U.N. standard of 99.6-percent clearance will often be too stringent and will result in unnecessary deaths. Better answers to these questions can only help the millions of people who live and work at risk of death and injury from mines and UXO.

This paper describes work done for the GICHD as part of their Mechanical Mine Action Study that was carried out jointly with John Gibson, University of Canterbury and Geua Boe-Gibson and includes material from Marsh, Barns, and Gibson. Further uptake of CEMOD may be achieved if appropriate follow-up activities are carried out. Some managers will require advice and support before being convinced of the benefits of cost-effectiveness analysis. There may also be areas where managers will require input from a trained economist (e.g., in some complex cost-allocation decisions). There is also scope to further develop the model based on feedback from the first version. This article has demonstrated the importance of economic analysis if scarce funds are to be used efficiently to assist the development of mine-affected areas. The key questions to be addressed are:

- Should mine-affected areas be cleared?
- Which is the appropriate standard of clearance?
- Which areas should be cleared first?
- Which methods should be used?

Better answers to these questions can only help the millions of people who live and work at risk of death and injury from mines and UXO.

H

umanitarian demining projects are often aimed at quickly safeguarding people living with the threat of landmines. Some of the most beneficial operations RONCO Consulting Corporation engages in, however, are carried out with the less visible type of support that can be provided by CEMOD. Given the large sums of money involved, potential cost savings are substantial.

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Refurbishing the Sena Railway Line in Mozambique

In the spring of 2000, the Mozambican National Institute for Demining (IND) tasked RONCO to clear the Sena railway line. Prior to Mozambique’s civil war, the line had been a vital link between the country and the world. Unfortunately, during the conflict it fell into disrepair and endangered useful, severely curtailing trade with Malawi and the transportation of goods and of Mozambique’s northern provinces. The line was closed for many years, and the railway authority, which is still under the heart of the Mozambican economic development.

RONCO began the difficult task of clearing the Sena in August 2005, using a company of Mozambicans it had trained earlier that year as an emergency demining force. The unit employed an integrated demining approach, including a vegetation clearance machine to prep the terrain, manual deminers, and mine detection equipment to follow up and conduct quality assurance. RONCO deminers had to overcome a number of obstacles during the two-year operation. Thick vegetation on the rail line impeded progress and heavy rains flooded the tracks, making transport impossible for long stretches and often stranding the deminers. The sodden conditions were a breeding ground for disease. At one point, more than half of the deminers suffered from malaria and five of the team’s 12 MDTs died of tick fever. Despite these difficulties, clearance was completed in September 2002, with RONCO having cleared over 450 kilometers (280 miles) of railway, opening the way for subsequent rehabilitation work funded by the United Nations.

One example of how Mozambique stands to gain from the refurbished rail line is in Tete province, which was among those devastated by the railroad, but which had overcome the problems of an 80-kilometer (50-mile) stretch of the line from Inhambutanga to Mambete, which brought new investors to area sugar factories. The QRDF also recently completed clearance of the Rosana Garcia Railroad, which links Maputo to the South African border, and that line is now in service again. Experts agree that Mozambique has only scratched the surface of the rebuilt rail system’s potential economic benefits—the World Bank recently released $110 million in funding for the railroad’s rehabilitation. The new line employs more than 400 Mozambicans. As one consultant working on developing the Zambezia valley put it, “The railroad has the potential to reinvigorate the heart of central Africa.”

Revitalizing Agricultural Production in Eritrea

In 2001, RONCO began training 50 manual deminers and 10 MDDs to conduct landmine clearance in Eritrea. A main goal of the program was to increase agricultural production in the region by clearing rural villages and the surrounding farmland. RONCO’s newly trained deminers first deployed to the village of Sena in August 2000, using a company of Mozambicans it had trained earlier that year as an emergency demining force. The unit employed an integrated demining approach, including a vegetation clearance machine to prep the terrain, manual deminers, and mine detection equipment to follow up and conduct quality assurance. RONCO deminers had to overcome a number of obstacles during the two-year operation. Thick vegetation on the rail line impeded progress and heavy rains flooded the tracks, making transport impossible for long stretches and often stranding the deminers. The sodden conditions were a breeding ground for disease. At one point, more than half of the deminers suffered from malaria and five of the team’s 12 MDTs died of tick fever. Despite these difficulties, clearance was completed in September 2002, with RONCO having cleared over 450 kilometers (280 miles) of railway, opening the way for subsequent rehabilitation work funded by the United Nations.

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Reconstruction Efforts in Post-war Baghdad

In May 2003, following the end of major hostilities in Iraq, RONCO dispersed the U.S. Department of State-funded Quick Reaction Demining Force to Baghdad and to the rehabilitation of the country’s infrastructure. The U.S. government and the Iraq Office of Reconstruction and Humanitarian Assistance, which served as the governing body of Iraq until a transitional government was established, sought to remove electricity and other vital resources to Baghdad’s civilians as quickly as possible; this required demining and unexploding ordnance, and planting landmines.

It was determined that RONCO’s QRDF, a force of four eight-man demining teams and eight MDDs, was right for the job. The force was initially deployed to help secure areas in the southern region and to demine and unexplode ordnance. Over the next three years, the QRDF conducted 120 deployments worldwide and boasted successful deployments to Sudan, Sri Lanka and Nigeria. Within two weeks of notification, the QRDF arrived in Baghdad following a 36-hour deployment from its headquarters in Beira, Mozambique, via charter aircraft. In Baghdad, it was charged with clearing a path for the restoration of the country’s infrastructure. The QRDF cleared 80 landmines—of Baghdad’s inhabitants. The QRDF also carried out providing desperately needed electricity to a large portion of Baghdad’s inhabitants. The QRDF also carried out extensive clearance in agricultural areas around the city, reactivating the rail line and providing for the development of agricultural production in the region. The QRDF cleared 80 landmines—of Baghdad’s inhabitants. The QRDF also carried out providing desperately needed electricity to a large portion of Baghdad’s inhabitants. The QRDF also carried out extensive clearance in agricultural areas around the city, reactivating the rail line and providing for the development of agricultural production in the region.

Conclusion

RONCO’s operations in Mozambique, Eritrea and Iraq attest to the crucial role humanitarian demining can play in securing natural resources, revitalizing a nation’s economy, and helping countries rebuild after devastating conflict. In Mozambique, Eritrea and Iraq, RONCO continues to train deminers to operate independently. In Iraq, RONCO has trained over 200 Iraqi deminers and organized them into national demining and clearance units.

Moreover, the role of RONCO in these regions exemplifies the need for a multi-agency approach to demining operations. In all three regions, RONCO is working in partnership with other organizations to maximize the impact of demining efforts. In Mozambique, the process started again, and under the auspices of the U.S. Agency for International Development, RONCO continued to train deminers to operate independently. In Iraq, RONCO has trained over 200 Iraqi deminers and organized them into national demining and clearance units. In Mozambique, RONCO has worked closely with the government of Mozambique and other international organizations to train deminers and conduct clearance operations. In Eritrea, RONCO has worked closely with the government of Eritrea and other international organizations to train deminers and conduct clearance operations. In Iraq, RONCO has worked closely with the government of Iraq and other international organizations to train deminers and conduct clearance operations.

Ronald O. Nichols, a retired U.S. Army officer, is a freelance writer living in Washington, D.C. He is a graduate of the University of Kansas and the University of Virginia. He has worked in the oil and gas industry, and has degrees from Florida State University and the University of Virginia. His work has appeared in the Oil and Gas Journal, the New England Review and the Virginia Quarterly Review.

John Lundberg was a research fellow at Harvard University, and is now a freelance writer living in Washington, D.C. He is a graduate of Williams College and holds a graduate degree from the University of Virginia. His work has appeared in the New England Review.
Humanitarian Demining as a Precursor to Economic Development, Lundberg [from page 53]

Endnotes

The Road to Mine Action and Development: The Life-Cycle Perspective of Mine Action, Paterson and Filipino [from page 55]

Endnotes
1. This phrase is from The World Bank, which has been in the forefront of planning, managing and financing post-conflict reintegration since the wars arising from the break-up of Yugoslavia. The central role played by the World Bank is one of the defining features of post-war reintegration efforts, and during such periods the Bank may be an important source of financing for demining.
2. Logistic readers will notice a strong similarity to Figure 1 in the article from Issue 9.1 (Chip Bertens, “The Mining Link in Strategic Planning: ALARA and the End-state Strategy Concept for National Mine Action Planning,” which was developed independently in 1998 by Chip Bertens to illustrate the “End-state Strategy” approach to developing a national mine action strategy for Cambodia. GICHD personnel developed the life-cycle perspective in illustration not only that the size of a programme would eventually diminish, but also that the principal purposes and partnerships for a mine action programme will evolve in a manner that can be understood and planned for.
3. Raw data does not help decision-makers unless it is “analysed” into information. Information is the right data presented in the right format at the right time to the right people.
4. Mine Action and the Millennium Development Goals, Van Der Linden [from page 58]

Endnotes

Environmental Applications in Demining, McLean [from page 60]

Endnotes
4. Editor’s Note: Some countries and mine action organisations are urging the use of the term “mine free”, whilst others are opposing 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.

Learning Takes Many Forms During Mine Action Managers’ Course, Neitry [from page 72]

Endnotes

Suriname Demining Mission, Raun [from page 75]

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Endnotes

That Landmine Thing: Students Take on the Landmine Crisis, Hudson and Fuentes [from page 77]

Endnotes

From Interventions to Integration: Mine Risk Education and Community Liaison, Durham [from page 80]

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Endnotes

Becoming Part of the Hope, Begley [from page 65]

Endnotes
1. HALO Trust is supported through donations by private and public donors. This includes the governments of Australia, Canada, Finland, France, Germany, the United Kingdom, Iceland, Japan, the Netherlands, New Zealand, Norway, Switzerland and the United States. Other donors include Anti-Landmines Stichting, the European Commission, Foundation Pro-Veni, The Association to Aid Refugees, The Prince of Wales Memorial Fund and the United Nations. More information can be found at http://www.halo.org.uk.

Steel Wheels in Mozambique, Van Zyl [from page 69]

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