

Clearing the killing fields

Are you aware of the scale of suffering, maiming, death and global devastation that is being wreaked on the peoples of not-so-far-away countries by that most malignant form of weaponry—the anti-personnel land-mine?

The pain

What happens when a farmer tilling his field steps on a mine or a child scoops the clay to grasp the brightly coloured plastic that beckons from the soil? The short answer is that the victim is left not only without an arm or leg, or frequently both legs and arms, but also with a wound that would be a challenge even to a skilled surgeon operating with first-class facilities. But for those who survive, the catastrophe is far worse than the mere loss of a limb. Most mine injuries take place in farming communities far from medical expertise in impoverished countries and the suffering induced by pain, infection and mismanagement is unimaginable. The blast of the mine ensures that soil and bacteria contaminate and infect the wound while at the same time burning and coagulating the tissues at the site of injury and driving soil, grass, metal or plastic fragments up into the leg or arm, burrowing between the tissue planes, and causing severe secondary infection. Multiple operations are required to save the victim and to provide a stump capable of sustaining an artificial limb. For every hundred wounded in war 45 units of blood are required, while for every hundred mine injuries over 100 units of blood are needed. Children face particular problems. As a child ages, the bone of the amputation stump will grow more rapidly than the surrounding skin and soft tissues. The child may need multiple reamputations as the bone grows out through the soft tissues, causing pain and infection in an amputation stump that cannot support an artificial limb. A 10-year old child with a life expectancy of another 40 years may need 25 prostheses in his or her lifetime.

The killers

More than 100 million land mines have been scattered across the fields, mountains and roads of over 60 countries. According to UNICEF there is already one land-mine for every 20 children in the world. Afghanistan and Cambodia are the most mine-infested countries in the world. Africa is the most heavily mined continent with some 30 million mines in 18 countries. Even in Europe, World War II mines con-

tinue to take their toll in Poland and Russia, and in Holland 12 people are still injured each year by such mines. Since 1989, three million mines have been sown without markers or maps among the citizenry of former Yugoslavia, and 50,000 mines are being sown there each week at a rate faster than anywhere else in the world. These weapons of destruction have been produced on an alarming scale over the past 25 years. Hundreds of varieties have been produced at a rate of 100 million per year by more than 60 companies and government agencies in 40 countries, netting an annual income to the mine-making industry of \$100–200 million.

The most seriously mine-infested countries do not produce their own mines but rely on imports from other nations. So, we may ask, which countries are contributing to this epidemic of human suffering? China, Italy and the former Soviet Union have been the largest producers and exporters in recent years, but other large exporters have included Belgium, Bulgaria, former Czechoslovakia, France, Hungary, the UK and former Yugoslavia, with Egypt, Israel, Pakistan, and Singapore being newcomers to the field. Some countries, such as the US and South Africa, are large producers but ban exports, except of course when they themselves choose to go to war, such as the Gulf War. In Europe, Belgium has stopped all production and France, Greece and Germany have banned exportation of mines. The EU has passed a resolution for a five year moratorium on the export of mines and training facilities to place them but not on the manufacture or stockpiling of them.

The scale of human suffering caused by this indiscriminate pollution of the earth is unquantifiable, but such statistics as are available are awesome. Over 15,000 people are maimed by land-mines annually, mostly civilians, and every month 1,000 to 2,000 people are killed or maimed. In Cambodia one in every 236 citizens is a land-mine amputee; in Angola, where there are 30,000 amputees, one in 470 of the population is an amputee, and in northern Somalia the figure is one in 1,000. In Vietnam over 7,000 American soldiers were killed by mines.

Mines are as attractive to the military operators of developed democracies as to insurgent commanders engaged in civil war in poor developing nations because destruction can be wreaked on large areas quickly, cheaply (a mine can be purchased for less than \$3.00) and effectively. What the expedient military solution fails to take into account is the legacy of destruction and tragedy bequeathed to generations of civilians. Conventional minefields of past eras were laid by hand and marked to prevent friendly forces entering them. Not so the 'scatterable' mine which can be delivered by air, artillery or ground launch with an electronic fuse activated only after the mine has been dispensed. Any mapping remains in the hands of the dispensing force and may not be accurate. The Gulf War offers a telling example. The allied forces

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rocketed one mine for every Iraqi man, woman and child into the civilian lands far from the battlefield. And now when the war is ended, the mines go on killing and maiming in Iraq and Kuwait.

The cost

The cost of reaping a mine field is at least one hundred times that of sowing it, with many reapers destined to die or lose a limb. In Kuwait the number of deminers killed since the Gulf War exceeds that of US combatants killed during the conflict. The cost of clearing mines would most likely equal the full development budgets of some of the poorest mine-infested countries. It costs between \$300 and \$1,000 to clear one mine. The estimated cost of clearing the world's mines is \$30–85 billion. The United Nations funds most mine clearing programmes. In 1993, it funded clearance of about 80,000 mines, a minute fraction of the 2–3 million mines laid every year. In Afghanistan, the UN estimates that it would take 15 years for 27 mine clearing teams to demine designated priority zones. A 50-fold increase is needed just to stabilise the situation and this would involve training and deploying about 200,000 mine clearers world-wide, of whom about 2,000 would be injured or killed annually. Mines used to contain metal, making detection easy but now many are virtually undetectable. More sophisticated fuses can, after a given period, self-destruct or self-neutralise, but the majority do not have this facility and of those that do 10% fail to function, thereby offering no advantage as the mine fields remain active and have to be cleared.

While millions of dollars have been spent to devise ways of making mines undetectable and more ingenious in their capability to wound more people and to do so with greater devastation, virtually no money has been spent on the technology for clearing mines. The most effective way of clearing mines is still a human probing the ground a few centimetres at a time with a stick! Sniffer dogs are becoming the deminers' best friend, the 'best mobile biosensors available today'. Modern systems can deploy thousands of mines over thousands of square meters in one hour at no risk, but the sapper can clear only 50–70 square meters in a day at the risk of mutilation.

The doctor

In 1992, Dr Kevin Cahill, enunciating a philosophy bred from many years travel in the third world, namely the belief that doctors were in a privileged position to influence international politics for the common good, organised a symposium aimed at concentrating the attention of political, legal, medical and voluntary organisations on the humanitarian crises affecting so many parts of the globe. The proceedings of this gathering, published under the title *A framework for survival: health, human rights and humanitarian assistance in*

conflicts and disasters [1] when reviewed in the *Lancet*, was described as a 'deeply disturbing' book 'of great humanity, edited by one of this century's great physicians' [2]. Now, scarcely two years later, Kevin Cahill has edited the proceedings of another symposium held in New York last year. Entitled *Clearing the fields: solutions to the global land mines crisis* [3], this book, which is reviewed in this issue of the *Journal* by Sylvia Limerick (page 366), is influencing discussions presently taking place in many nations and organisations, such as the UN.

The Center for International Health and Cooperation (CIHC), founded by Cahill and a few colleagues, is based in New York and Geneva. The CIHC has shown that much can be done to alleviate the personal suffering of the unfortunate victims of land mine injuries. A glowing example of such an endeavour is the amputation programme set up by the CIHC in Hargesia, the capital of Somaliland, a country in which over one million land mines have been laid. The programme has operated under the principle incorporated in the local motto: 'Help the Somalis to help themselves'. The rehabilitation centre is run by Somalis and for the construction of the centre skilled and non-skilled labour were recruited from the ranks of the disabled. In this fertile land mothers now tie their toddlers to trees, the fields are littered with camel carcasses and stone cairns mark the graves of their herders. The centre's first patient was a six-year old girl whose parents had been killed during the war. Six months before the centre opened both her legs had been blown off while playing near her aunt's house. She could only move around on her buttocks. Within one month of receiving her new legs she was walking and playing again with her friends. One thousand amputees attended the centre each month during its first four months of operation. In the words of Kevin Cahill, the Somali experience has allowed for the development of 'a public health model that can be replicated in other war-torn areas' [3].

The opening pages of *Landmines: a deadly legacy*, jointly produced by the Arms Project of Human Rights Watch and Physicians for Human Rights, capture with pathos and sincerity the trauma and suffering caused to civilians.

'Land-mines are blind weapons that cannot distinguish between the footfall of a soldier and that of an old woman gathering firewood. They recognise no cease-fire and, long after the fighting has stopped, they can maim or kill the children and grandchildren of the soldiers who laid them' [4].

But there is also an enormous social and economic sequel to the land-mine blitz. Long after the war ends, large amounts of money have to be diverted from the priorities of a developing nation to treating mine injuries and providing rehabilitation. Cyrus Vance, writing in *Clearing the fields*, has observed that the US Department of State has declared land-mines to be

'the most toxic and widespread pollution facing mankind' [3]. Almost half of the land area of Cambodia is unsafe. In Mozambique, where an estimated two million mines have been laid, no major road was usable for some time. Loss of arable land in Angola and other countries has been such that \$32 million had to be donated from the World Food Programme to deal with nutritional deficiencies. The consequences of mines affect not only the individual and the family, but the village, the region and the nation, so that they constitute not only a medical catastrophe but also a moral, political, social and economic challenge.

Given the horror of mines, why are they still produced? The answer lies with the military whose experts claim that anti-personnel mines are the 'most cost-effective system available to the military' and that 'no alternative fulfils the military requirement'.

But the military view cannot withstand indefinitely the growing volume of opinion against the use of land-mines. In *Clearing the fields*, support for a total ban comes from 9 of the 11 authors, including Cyrus Vance and Boutros Boutros-Ghali, individuals of exceptional stature who rarely raise their voice in relation to unresolved controversy. Also, the non-governmental organisations, most notably the International Red Cross and Red Crescent (the role of which has been recently reviewed in the *Journal* by the Countess of Limerick [5]) last year called for a world-wide ban on anti-personnel mines. The precedents are in place: the banning of exploding bullets, 'dum dum' bullets and bacteriological and chemical weapons including asphyxiating gases.

The ultimate achievement of a total ban on mines, while depending on the influence that individual politicians, non-governmental organisations and the medical profession can bring to bear on the military, rests with the public, who, if sufficiently strident can do more to support politicians whose concern is for the future rather than for the short-term expediency dictated by military considerations. Kevin Cahill and the CIHC have done much to give us, the public, the facts. Perhaps they have done more than that. As doctors, surely we have a duty to use our not inconsiderable influence to add forcibly to the clamour towards effecting a world-wide ban on land-mines. Then perhaps we can direct our energies to clearing up the awful mess the warmongers have made of our planet.

References

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- 3 Cahill KM (ed). *Clearing the fields: solutions to the land mines crisis*. New York: Basic Books and the Council on Foreign Relations, 1995.
- 4 *Landmines: a deadly legacy*. New York: Human Rights Watch, Physicians for Human Rights, 1993.
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