MAG was founded to address the impact that mines and unexploded ordnance have on people and their lives. MAG’s work is not just about landmines, nor is it about numbers and statistics. Nine years on, this report shows how we continue to strive to make a difference. The struggle continues: we want to do more, we have to do more, and MAG is determined to face the major challenges that remain as we move into the new millennium.

I believe that this report will help readers to understand what we mean by Humanitarian Mine Action. There is a popular myth that this is a simple “mechanical” task, measurable by numbers of mines cleared. Readers will discover that our work goes a lot further. MAG seeks to understand the real needs involved and to provide necessary and tangible help for people whose lives are devastated by conflict.

This report illustrates much of what we have achieved. At the same time, we are moving forward to further improve and expand our ability to respond to the needs in post-conflict societies. From our experience in the field, we have developed a new strategic direction and continue to develop and implement flexible, cost-effective and targeted programmes.

Many people still walk into minefields despite knowing of the danger, and despite having heard mine-awareness messages. They enter minefields out of economic necessity. Mine clearance must be carried out within the wider context of peace-building, development and social construction. To this end, MAG is working through new partnerships with development agencies and donors.

We are proud of MAG’s achievements since it began in Afghanistan nine years ago. We have — I am sure — gained many friends around the world. Their lives have become less traumatic — less terrifying. When you have no choice but to run the risk of death and injury just to live and work to feed yourself and your family, when you have to try to control your naturally inquisitive and playful children knowing that their lives could be destroyed in one footstep or in one game of hide-and-seek, it is truly terrifying. It is the people that count, not the mines and bombs.

We are grateful for the continued support of our donors, who are listed at the end of this report. We should add to this list the many members of the general public who continue to help fund this valuable work.

We would like to dedicate this report to two people whose memory is very special to us: Christopher Howes and Diana, Princess of Wales.
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“Even if the world decided tomorrow to ban these weapons, this terrible legacy of mines already in the earth would continue to plague the poor nations of the globe. ‘The evil that men do, lives after them...’

... I would like to see more done for those living in this 'no-mans-land' which lies between the wrongs of yesterday and the urgent needs of today.”

Diana, Princess of Wales
London, June 1997
“Responding to Landmines”
MAG Conference.

Clearing soil from around a Romanian Mai-75 anti-personel mine, Moçico Province, Angola.
MAG views weapons by their effect on individuals and communities rather than in terms of their status as legally defined devices. Humanitarian mine action, MAG's response to the problems caused by weapons after conflict, tackles items such as unexploded ordnance (UXO) and anti-tank mines as well as anti-personnel landmines.

**Anti-personnel mines** have been stigmatised internationally because they claim civilian lives and create impoverishment to an extent vastly disproportionate to their military utility. They have been used in massive numbers in most of the conflicts of the last 40 years and few records have been kept of where they were laid. They can be divided into two main categories: blast and fragmentation.

Blast mines are typically exploded by the pressure of a footstep. They can be put in place by hand but many are also 'scatterable.' Scatterable mines can be launched from ground-based systems or dropped from fixed wing aircraft or helicopters.

When detonated, the blast effect of the mine pushes upwards deep into the tissue of the leg, driving with it 'secondary fragmentation'. Fragments of the mine casing and mechanism, earth, grass, parts of the casualty's footwear, bone and flesh from the foot and ankle are all driven high into the wound. Traumatic amputation of the lower leg is common. Subse-

Carrying a 160mm mortar bomb from a waterlogged ammunition dump. Qaladiza, northern Iraq.
Quent surgical amputation is normally required from a higher site in the limb to ensure that blast and fragmentation-affected tissue and bone is excised. Secondary injuries can be very severe. Blindness and serious facial, chest or abdominal injuries are common, as is the loss of fingers.

Fragmentation mines are typically exploded when a trip-wire is pulled or when the mine is disturbed directly. The mine contains a packing of fragments, usually metal, or a segmented outer casing that breaks into fragments on detonation. When dispersed by the explosive force of the mine, these fragments are the prime cause of injuries sustained by the victim.

The fragmentation effect drives metal fragments into the mine victim or victims. These fragments rip through tissue, organs and bone and, where velocity is sufficiently maintained, they can cause large lacerated exit wounds. Survivors may suffer multiple amputations, blindness, and secondary effects caused by damage to internal organs. Fragmentation mines can kill and injure multiple victims in a single incident.

Anti-personnel mines are victim activated. Because of this they are inherently indiscriminate and cannot distinguish between soldiers and civilians, adults and children. Even the suspected presence of landmines is enough to make land unusable to the community. In addition to their effects on individuals, landmines can have a crippling impact on communities and their local economies (see page 6).

Unexploded ordnance (UXO) creates humanitarian problems in its own right and can also complicate landmine clearance efforts. In conflict, many types of weapons are used and many of these fail to function as expected. A failure rate of 10% is generally accepted for all munitions. Areas where there has been conflict may contain unexploded ordnance of various types. Mortars, grenades, and bombs of all sizes have far superior destructive capabilities to landmines. Having been fired or dropped, but not having exploded, they are often in a very sensitive state.

Even small items of ordnance, through fragmentation and a powerful explosive charge, are capable of claiming many victims in a single explosion. In January 1998, Xieng Khouang Province, Lao PDR, seven children were killed and another was seriously injured when a 'bomblet' that they had found exploded. Bomblets are the live munitions that are packed together in cluster-bombs; they are no bigger than a clenched fist.

As well as blast and fragmentation effects, ordnance can include a range of other mechanisms to enhance the damage that is caused. White phosphorous will create a pyrotechnic effect, burning through or igniting materials that it comes into contact with.

Different techniques are used in the detection and destruction of landmines (see page 14) and for the destruction of UXO (see page 12). MAG deploys multi-skilled teams with a range of different skills depending on the problems in the area where they are working.

MAG also encounters improvised explosive devices (IEDs) and booby traps. For example, in northern Iraq, MAG found an improvised pressure switch made from training shoes (see diagram). Buried in the ground, the device would detonate when the two shoe soles were pushed together, for example by a footstep.

Anti-tank mines contain enough explosives to stop or destroy an armoured vehicle. An anti-tank mine usually requires a substantial amount of pressure to be applied in order for it to explode. This means that anti-tank mines are not normally capable of being detonated by a person standing on them. However, civilian vehicles or people ploughing fields can activate an anti-tank mine.

Despite objections from MAG, the Ottawa Convention allows anti-tank mines to be fitted with anti-handling devices. These devices detonate the mine if it is disturbed or if attempts are made to clear it. Although the Convention contains an obligation to clear landmines, it also has a loop-hole allowing devices that are explicitly intended to kill deminers.
The effects of landmines on the community:

- Mines cause deaths and injuries to people carrying out their everyday activities.

- Landmines deny communities access to their economic resources. Pasture and arable land, water sources, woodland, roads and bridges can be rendered unusable.

- Landmines can cause food insecurity and poverty.

- Landmines deny movement, leaving communities socially and economically isolated.

- Landmines ensure that refugees and internally displaced people remain alienated from their homelands.

- Landmines prevent or hamper rehabilitation and post-conflict reconstruction.

- Landmines leave populations living in fear.

Right: In parts of Cambodia, people are building their villages in areas known to be mined. Living without land or any other means of subsistence since being pushed away from their homes by fighting in the late 1980s, these people have been dependent on food-aid. In addition, the instability of land rights in many areas is pushing people to stake claims to land that is still dangerous out of fear that it will be taken by others. Personal, economic circumstances, and broader social, political and economic forces, can push people to take risks with landmines.
The humanitarian problems caused by landmines are a result of the interactions between people and their landmine contaminated environment. Most commonly, the people worst affected by landmines and UXO are living in rural communities. They are reliant on their local environment to fulfill their subsistence needs and provide them with additional resources. The fear of death and injury from landmines and UXO can have powerful and wide ranging effects on many aspects of community life.

The rebuilding of rural communities after conflict can be made impossible by the presence of mines and ordnance. New buildings cannot be constructed and land use cannot be extended to support more people. Refugees and people displaced by the fighting, desperate to restart their lives, must either remain separated from their homelands or return despite the mines.

An inability to grow crops or safely collect fruit, wood or other natural resources is a common product of landmine contamination. In some cases the local economy and the pattern of landmine contamination mean that land is not only denied altogether, but the land that can be farmed cannot be used to best effect [MAG northern Iraq Report, p.6]. By denying land for agriculture, and making land use less efficient, landmines and UXO can create food insecurity. This in turn can promote dangerous activities, such as salvaging scrap-metal from unexploded ordnance, as people look for ways of supporting themselves or supplementing their income.

Spurred on by the need to feed their families, people are forced to farm land known to be mined—often trying to clear the mines themselves. This desperation causes accidents and a spiral further into poverty. In order for landmine clearance to address the needs of mine-affected populations it is important to understand that these economic pressures lie behind the risks that people take.

Below: 14 year old Yoeurng Cheurng lives with his grandfather in Bang Ampil camp, to the west of Battambang town, Cambodia. “My parents were killed in a landmine accident in the 1980s. Since then my sister and I have been living with my grandfather here in Bang Ampil. We cannot return home because there are so many mines in the village where I lived with my parents. But there are landmines here as well.”

“My grandfather has lost his leg because he was trying to rescue me. I stood on a mine when I was herding cows that belong to a neighbour. I don’t remember very much of what happened. I was just walking with the cows. I was bleeding and crying and my grandfather saw me and came to help me but he stood on a mine as well.”

The pair were eventually rescued by local soldiers and taken to hospital in Battambang. They had both trodden on Type 72a anti-personnel blast mines. They each had one leg torn apart below the knee.

The instinct to help a loved-one, friend or even a stranger has caused many mine accidents. In the areas where it works, MAG will always respond to requests for people to be rescued or bodies to be removed from minefields (see page 6).
Minefield rescue

Landmines are particularly threatening to the poorest rural communities. People living in mine contaminated rural areas are forced to strike a balance between meeting their own economic needs and minimising the physical risk of entering potentially mined land.

Rising poverty often creates increased pressure to enter mined areas in search of cultivable land or secondary economic resources. This, of course, often results in death or injury - the latter leading to further social and economic hardship. Mine injuries, therefore, are often both a result and a cause of poverty at a family or village level. The following story from Angola provides a strong illustration of this.

In addition to the planned work of landmine clearance and ordnance disposal, MAG is also called upon to try to rescue people who have suffered mine accidents but cannot be safely retrieved from the minefield...

At 17.30, one day in April, Steve and Dave, two of MAG's Technical Advisors in Luena, were contacted by staff from the Lutheran World Federation who had met people who had heard screaming in the bush near to Luena airport.

Investigating this, the MAG staff found a group of people on the road at the edge of a well known, though badly marked, minefield; it was a minefield that MAG had not been given permission to clear. People were calling into the bush - one was very distressed shouting "Mai? Mai?" ... calling for her mother.

They could hear a woman calling back and pleading for help. However, the minefield is vast and the thick bush is well over a metre high. She couldn't be seen and it was impossible to determine the most direct route to her. It was also getting dark.

Dave, assisted by Angolan government soldiers, began clearing towards her with a metal-detector - estimating her position from her calls for help. Steve tried to secure the services of the United Nations helicopter located at the nearby airport. Initially, the hope was that the helicopter might be equipped with winching gear to help extract the casualty. This was not the case but it was still hoped that the helicopter's searchlight might be able to pin-point the casualty and allow a direct lane to be cleared to her. However, the helicopter was not given permission to fly.

Gradually the clearance team were getting closer and closer to the casualty - constantly talking to her to try to keep her conscious. In the dark and surrounded by high bush it would have been impossible to locate her without her voice as a guide.

The airport minefield had been laid by Cuban forces using a mine-plough. On route to the casualty the MAG staff found five PPM-2 (former East German) anti-personnel mines.

At about 23.30 Steve and Dave reached Fernanda Cuokine. They then had to clear the ground around her before it was safe to put her on a stretcher, carry her from the minefield and take her to Luena central hospital.

Fernanda's accident had occurred at 15.30 as she was collecting wood, two hours before the MAG staff heard the first reports of a casualty in the bush. She had been lying bleeding for 8 hours and was heavily pregnant. The extra blood produced to support the pregnancy probably saved her life over such a long period without medical assistance. She had lost the lower part of her right leg. Shortly after arriving at the hospital Fernanda suffered a miscarriage.

Six weeks after her accident, Fernanda's husband, a soldier, left her to find another wife. A month later he was remarried but he continued to visit Fernanda in hospital. In November, he went into the same minefield near the airport - collecting wood as Fernanda had been. He stood on a mine and died three days later.

Fernanda knew the area that she ventured into was a minefield. She had gone there out of economic necessity. A year before her accident, Fernanda had been there collecting wood with a friend who also stood on a mine and lost her leg.
There are tens of millions of landmines around the world - no-one knows how many and it simply does not matter. What matters is that we eradicate them.

Rae McGrath [founder of MAG]
Nobel Lecture on behalf of the International Campaign to Ban Landmines, Oslo, December 1997.

Responding to landmines

A stockpile of mines and UXO is destroyed, Angola

An impossible task?
As a result of conflict, there are millions of anti-personnel landmines already deployed worldwide. Without transparency in the international arms trade or accurate records of landmine use, the true scale of the problem is impossible to quantify.

The use of crude statistics in the past to represent the landmine problem has created the impression that we face an insurmountable humanitarian obstacle. This is not the case. Around the world, many communities have already had landmines removed from the most important parts of their local environment. For these people the benefits of landmine clearance programmes are overwhelming.

By building a capacity to tackle landmine contamination within mine-affected countries, the long-term operational needs of mine clearance can be addressed. At a local level, basing prioritisation of clearance work on the needs of mine-affected communities ensures that the current resources are used to best effect. These are the two main principles that have guided MAG’s response to landmine contamination internationally.

Mines Advisory Group is a British registered charity that works to ensure a tangible response to the problems faced by conflict-affected people. Through its own operational teams, and through specialised ‘capacity-building’ projects, MAG clears land of mines and ordnance. Safe land is returned to poor communities so as to reduce the physical and economic suffering that landmines and UXO cause.

MAG...
- works with conflict-affected populations to identify and address their most pressing needs.
- clears land of mines and UXO for use by poor communities.
- helps people to live more safely in a mine-contaminated environment until their land can be cleared.
- advocates for the effective use of funds to provide the greatest benefit to mine-affected communities.

Where does MAG work?
MAG currently has field programmes in Angola, Cambodia, Lao PDR, northern Iraq, southern Sudan and Vietnam. MAG plans to assist Namibia’s EOD capacity to expand and operate more effectively. MAG continues to assess the potential for assistance in other countries [see pages 22-23].

How does MAG work?
MAG’s programmes integrate mine/UXO survey, demarcation and clearance with awareness raising activities to reduce the risks taken by affected populations. Through close liaison with these people, MAG can focus its work on the priorities that conflict-affected populations have identified for themselves. This work is carried out by people from the mine-affected communities. By training and employing people from mine-affected countries, MAG is transferring technical and management skills that can sustain this work in the future [see pages 10-19].

This work is called
HUMANITARIAN MINE ACTION...
Information gathering

It is of vital importance that MAG's resources are applied to best effect at all levels of operation. Therefore, all of MAG's programmes contain a capacity to collect and analyse information on the nature of the problems in different communities. This information provides a starting-point for the other work that MAG does and a baseline against which activities can be evaluated later.

By talking to the local community, areas known and suspected to be mined can be identified. Through these discussions, MAG can also gain an understanding of how the needs of the community can best be addressed. This might involve identifying the types of land that villagers most need cleared in order to resolve economic problems within the community.

MAG also collates information on landmine/UXO incidents in the areas where it works. By knowing where accidents are occurring and what sort of items are causing these accidents, clearance resources can be used most effectively and efficiently.

Detailed information on landmine accidents provides a basis for understanding who the casualties are and what these people were doing at the time. The most dangerous activities can be identified and advice can be given on how to make these activities safer. For example, in Cambodia, children were seen to be at great risk from mines when herding their cattle; they would often follow cattle into mined areas out of fear that the animals would be killed if they abandoned them. In response to this information, MAG staff developed messages and images encouraging children to tether their animals when near mined land.

At a broader level, data gathering work has shown that UXO poses a proportionately greater threat to children than to adults. A realisation of this is very important to MAG's efforts to help people to live more safely.

Information-gathering, at a local level, is the starting point for MAG's work and is essential for the effective use of all other humanitarian mine action components.
Survey and demarcation

Identifying dangerous areas and marking them with warning tape and signs is called survey and demarcation work. This is done before mine clearance starts at a particular site. By carrying out community liaison work in conjunction with demarcation, MAG ensures that the warning tape and signs are understood. Responsibility for looking after the demarcation materials once they are in place can be given to members of the community – this helps to stop signs and fencing being stolen. Marking mined areas around a community can also help people to live more safely by making them aware of the edges of the dangerous land.

However, economic pressure can still force people to enter marked minefields in search of wood, food or other resources. Where economic pressure is great upon the community, demarcation must be followed by landmine clearance.

More and more, MAG is fielding small teams that address the urgent needs of the community. Where they encounter large minefields, these teams sometimes survey and mark the areas for clearance by other larger teams.
Humanitarian Mine Action

- Helping people to live with landmines and ordnance until their lands can be made safe.
- Educating people on the avoidance of mines and helping them to recognise warning signs.
- Ensuring that MAG's work is understood and minefield marking is respected.
- Disseminating information on high-risk areas around the community.
- Identifying further needs

Community awareness

As well as gathering information and facilitating discussion about how MAG can address communities' needs, MAG also undertakes 'community awareness' exercises. Community awareness involves a range of activities to help people to live with mines and ordnance until their lands can be made safe.

A good awareness programme does far more than show people what mines look like and tell them that they are dangerous. MAG's community awareness work serves to help people to recognise danger in their environment and gives people a way of analysing that danger. MAG emphasises practical advice on how to live and work more safely and encourages people at risk to change dangerous patterns of behaviour.

Through puppet-shows, videos and talks, MAG presents awareness messages to the community. Other aspects of the work are more participative – encouraging people to discuss concerns, and think about how their problems can be addressed. Depending on local needs, community awareness staff also develop safer ways of undertaking dangerous tasks – such as digging the ground, building fires or cutting scrub.

People in mine-affected communities are not usually ignorant of the dangers in their environment. Very often it is economic pressure that pushes people to take risks with landmines. Because of this, community awareness activities are more effective in conjunction with landmine clearance and explosive ordnance disposal work that can be seen to be tackling the root of the problem.

Below: A Community Liaison Officer, in Angola, explains the mine clearance and demarcation work that the rest of the Mine Action Team is undertaking nearby.

This will reduce the risk of accidents by helping the children to respect mine warning signs. As well as talking to the children, MAG discusses the problems caused by landmines with all members of the community. In this way dangerous activities are identified and safer practices can be developed.

In this village people had been using a track through a minefield as a short-cut to water. MAG urged people not to take this risk until a safe path had been cleared and marked.

Ha Sam Ol 'Ollie'
Community Awareness Programme Manager, Cambodia.

Ollie began work for MAG in 1993 as an interpreter to MAG's Technical Advisors in Battambang. Since then, he has been Mine Awareness Manager in Battambang Province, and Regional Coordinator of MAG's operations in Kompong Thom Province – a role that involved oversight of all of MAG's activities in this location. Ollie is now the Community Awareness Programme Manager for MAG's whole Cambodia Project.

"This job is one of the most challenging I have met. I am still gaining management skills and further knowledge about the problems that mines and ordnance cause."

"Working with MAG I have found that a lot of people, both Cambodian and expatriates, are creating a good working environment that leads people to put their energy into their work."
Children identify an item of unexploded ordnance that they have seen near to their village.

As well as giving people information on how to live more safely with landmines and ordnance, community liaison staff are always gathering further information about the problems that communities face.
Explosive ordnance disposal

Unexploded ordnance and landmines should be considered together as a problem. International legislation against landmines arose from an understanding that this category of weapons consistently produces suffering for civilians after war. When it comes to funding work to address these problems, the distinction between landmines and unexploded ordnance should be immaterial.

The important thing is to destroy the items that are causing problems to any given community. There is no justification for funding landmine clearance rather than explosive ordnance disposal if both are necessary to solving the problems that post-conflict communities face.

The task of destroying items of unexploded ordnance (UXO) is called explosive ordnance disposal (EOD). All of MAG's programmes contain a capacity to deal with unexploded ordnance but the way in which EOD work is integrated into each programme varies.

In Lao PDR, MAG is tackling a problem of massive UXO contamination as a result of ground fighting and prolonged aerial bombardment. In this programme, EOD is the main focus of the work. In northern Iraq, however, MAG has destroyed the bulk of surface-lying ordnance in the region and is now reducing its EOD capacity.

Although MAG does clear areas of land of UXO in Lao PDR (because contamination is so widespread and so dense), in most other programmes, EOD work is done in response to particular reports. A community may have found a small stockpile of mortars that it wants to have destroyed or there may be a large aircraft bomb found whilst ploughing a field. MAG's teams will go out and deal with these items as the reports come in. Sometimes, such as when destroying unexploded cluster bombs or large stockpiles of ordnance, work on a task may take a number of days.

If an item is going to be destroyed where it lies, the technicians will first select a 'firing point' – a place from which the ordnance will be detonated. The firing point must offer hard cover for the staff who will be there during the demolition. Technicians walk from the ordnance back to the firing point reeling out the electrical cable that will later trigger the detonators. Setting up the demolition, a technician must select the right quantity of explosive and position it at the right place next to the munition to ensure a complete detonation. They must also take into account the possibility of damage to surrounding property. Taking precautionary measures, such as using sandbags to direct the blast, can minimise the risk to buildings or trees. Explosive charges may be positioned so as to split items of ordnance apart or to separate the fuse from the main explosive filling. These are called 'low order' techniques and are used to protect nearby property by reducing the chance of a full detonation. Whatever the desired result, safety procedures are carried out on the assumption that a full detonation will take place.

Whilst the charge is being positioned, the rest of the team establish a safety cordon to ensure that people and animals will be at a safe distance from the explosion. These staff then act as sentries, making sure that the safety cordon is not breached during the final preparation stages.

Once the detonators are in place, the
technician retreats to the firing point. The sentries then radio to confirm that their positions are clear of people. The final '3, 2, 1, fire' countdown is given over the loud-hailer and radio and the explosives are detonated. Electrical detonation is the safest way of carrying out demolitions because the explosion will occur almost instantaneously. This means that there is no time for people or animals to wander into the danger area after the decision to fire has been made.

**Big Bombs**

In Lao PDR there are many large aircraft bombs ranging from 500 to 3000lbs. Destroying these items safely demands that a large area be cleared of people and livestock. The 'danger area' may have a radius of well over 1 kilometre and ensuring that this is free of people requires good communications, coordination and the cooperation of local populations. This is made even more difficult because the teams are working in a dense jungle environment where visibility is very poor. These demolitions need to be planned well in advance to give local people time to prepare for the upheaval of moving out of the area.

Above Left: MAG has destroyed over 430 bomblets from around Boun Pheng's house and garden. Bomblets are the lethal contents of the cluster bombs that were dropped on Lao PDR in massive numbers.

"I knew that there were bomblets here because I found some when I was building my house. But I didn't know that there were so many - they even found one buried under my bed!"

MAG has searched the area with detectors to ensure that all of the ordnance has been removed. 'Low order' techniques were used to destroy some of the bomblets nearest to the house without them fully detonating. In this way, the likelihood of damage to the property is kept to a minimum.

Above Right: A stockpile of mortar-bombs and artillery shells being moved to a demolition site, Nawlpars sub-district, northern Iraq. MAG had collected the items during a visual search of the valley.

Local people are only now returning to this area. The town was destroyed and the people were relocated during the Iraqi Government's Anfal campaign of the late 1980s. Removing the unexploded ordnance from their land is an important contribution to making this area habitable again.

Below: A 2000lb bomb outside the chemists shop in Phonsavan, Lao PDR.
Landmine clearance

MAG’s landmine clearance work is a structured process for returning safe land to the local community. Mines are found and destroyed within an environment organised to provide safety for the deminers and a clear record of what land is now safe and what is still dangerous.

Landmine clearance is carried out by pairs of deminers working in metre-wide lanes. The No. 1 uses a detector to locate metal in the ground whilst the other (No. 2) observes the actions to ensure safety. Metal that is detected is then carefully exposed. If it is scrap metal it is removed from the area. If it is a mine, its location is marked and it is left in place to be destroyed. Whenever possible, MAG destroys landmines where they are found – this is safer for the deminers and ensures that mines cannot be retrieved and reused. When a mine is found, work in that lane finishes for the day and the pair begin work on the next lane in the minefield. Every thirty minutes the pairs change roles to ensure concentration levels are maintained. All of the mines that have been found are destroyed at the end of the working day.

This method, known as ‘manual mine clearance’, is the only method that provides thoroughly searched land that MAG can return to the local community with confidence. The speed at which land can be made safe depends upon the level of scrap metal contamination in the ground, the terrain, climatic conditions, the numbers of landmines that are present, and the number of mine clearers undertaking the work.

Vegetation provides another factor that can affect the speed with which land can be cleared. Many mined areas are overgrown because they have been avoided by the local population. The process of clearing undergrowth must be done very carefully by the deminers. Specialised equipped tractors are being developed and trialled that will make the process of vegetation clearance both safer and faster [see page 21].

SOPs

MAG’s landmine clearance work is governed by standard operating procedures (SOPs). Adherence to SOPs ensures that the work is done as safely as possible. SOPs are continually updated and improved in the light of new experiences and developments within the organisation – they are a living document. In northern Iraq, recent successful trials of an upgraded detector have allowed MAG to start work on minefields containing ‘minimum metal’ mines. Previously, in this environment, MAG was not satisfied that it could work safely on these minefields and the SOPs reflected these concerns. As technology improves, detection capabilities are enhanced and SOPs need to be altered to reflect these developments. Although the SOPs are rigid in their application, they must be adaptable to different problems encountered and the different tools available to address these problems.

Instructor

I am Omar, instructor and demining supervisor in northern Iraq.

Omar trained as a deminer on MAG’s first demining training course in 1992. Before joining MAG, Omar lost a leg whilst demining with local forces. He is now working as a national training instructor in the Training, Monitoring and Evaluation Unit of MAG northern Iraq. During 1997 he was part of the team that cleared the minefields around his home village.

“I feel that my skills have been developed stage by stage with MAG. As national instructors we now have the experience and ability to run training courses. Demining is important and dangerous job, but I feel my training with MAG has been very good and that as long as we work according to the MAG Standard Operating Procedures it can be done safely.”
Recording the work
Keeping accurate records of areas that are now safe is a vital part of landmine clearance work. In Cambodia, MAG has sunk metal markers below the ground, concrete markers above, to indicate the perimeter of cleared areas. In addition to maps and written records, this system allows MAG to re-establish the perimeter of a minefield easily with a metal detector.

MAG takes responsibility for the land that it declares safe. If there is a landmine accident in an area where MAG has worked in the past, it is very important to be able to determine whether that accident occurred on land that MAG believed it had cleared. So far there have been no accidents on land that MAG has handed back to the local community.

Documentation of work undertaken is also vital to other agencies who may work in these areas in the future. Proper records ensure that people can live and work with confidence on land they know to be safe.

Left: A pair of deminers clearing between abandoned houses in Wilyawa village, northern Iraq. Since MAG has been working in Wilyawa, new land has been made available for farming and more families have been able to return to the village. Land that once contained mines has been safely ploughed and grapes are being grown on the slopes above the village. MAG is now clearing mines from around the path that local children take to school.

Below: Clearing a lane into the minefield, Cambodia. By organising the minefield into lanes, an accurate record can be kept of the areas that have been cleared and those that are still dangerous. This photograph also shows how dense the vegetation in a minefield can be. MAG is looking at ways of cutting vegetation mechanically so as to speed up landmine clearance work.
Humanitarian Mine Action
Combining all elements

MAG Action Teams

MAG's work in the field has developed since it started in 1992. Improvements have not been the product of new technologies or different demining techniques but of new ways of organising the work. In order to maximise its resources, MAG has brought the different elements of the work it does closer together and is increasingly using small and flexible multi-disciplined teams. A Mine Action Team includes staff with a range of mine-clearance, EOD and community liaison skills supported by a medic and a driver. Combining all these elements into small, highly mobile teams enables MAG to work effectively with communities to find solutions to the post-conflict problems that they face.

This integrated approach is important because of the scale of the landmine/UXO problems in all of the areas where MAG works. To make best use of the limited resources available it is extremely important that the right problems are tackled first. The process of information gathering and prioritisation is at the heart of humanitarian mine action — it is the process that ensures the humanitarian benefit of the work.

The participation of the local community gives MAG an understanding of what the community wants and ensures that the work done will be of value to the people who will benefit. Mine Action Teams concentrate on tackling urgent tasks such as providing safe access to water, safe paths, and safe land for housing, farming and the development of social services. Where applicable, these
teams will also survey and mark wider areas of dangerous ground for clearance by larger teams.

The integrated approach makes full use of the different skills of MAG’s staff. Community Liaison staff, who undertake information-gathering and community awareness work, are professional listeners and communicators. They work in mixed-gender teams which makes them well placed to interact with all groups within the community. Community Liaison staff get people discussing the landmine/UXO problems in their area – drawing maps, thinking about their community’s needs and trying to find solutions. The Mine Action Team also has the skills to tackle problems immediately. This provides a real visible benefit to the community – proof that the discussion process will be followed up with effective action.

In all of its programmes, close liaison with local communities is a central element of MAG’s work. Through Mine Action Teams this liaison work can most efficiently be translated into an appropriate response.

If it is to be done effectively, landmine clearance is a labour intensive process. By providing training and employment within a stable and structured working environment, MAG’s programmes provide social and economic benefits for the staff, their families and their local communities. Money is brought into the local economy through the wages that the staff earn and this goes to support the economic enterprises of the broader community.

Most of the countries where MAG works have suffered long periods of conflict and social upheaval. MAG tries to structure its working and employment practices to support peace-building and social stabilisation. In Angola MAG has employed many former combatants who had few formal skills and no land to return to once the fighting had ceased. Such people need support if they are not to fall back on aggression as a way of making a living. By supporting demobilised troops, MAG sought to bolster the Angolan peace process.

In Cambodia, Laos and n. Iraq MAG has provided employment to support the direct and indirect victims of landmines. Amputees and women widowed by landmines have been trained and employed as deminers. In northern Iraq, MAG has a number of landmine survivors employed in both demining and support roles.

MAG’s programmes conduct demanding work in difficult environments. In addition to clearance, community liaison and information-gathering staff, MAG has a large number of support staff – medics, drivers, mechanics, administrators and finance staff – who are vital to the safe and effective running of the work. These people provide the organisational structure that allows work to be carried out over a large area from each of the operations bases.

Capacity building

In all of its programmes, MAG has developed a national capacity to manage and organise the work that it does. The technical skills to clear landmines and unexploded ordnance would be of little benefit without the managerial and administrative framework needed to employ these skills effectively. MAG has trained managers, administrators and accountants to provide this framework in all of the countries where it works.

Projects in partnership

Most landmine victims know that they are in a mined area before they suffer an accident. This suggests not only that landmines need to be cleared but that these communities need to be given broader economic options to reduce the pressure to enter mined land. Recognising that the landmine/UXO threat is linked to other social and economic needs, mine action is more effective if integrated with broader development plans.

In addition to prioritising tasks in conjunction with the local community (text left), MAG partners with development agencies and local authorities. In Cambodia, MAG has worked together with World Vision International, Church World Service, Lutheran World Service and Care International on rural development projects. In Lao PDR, MAG works with the Provincial Government to facilitate their regional development plans.

Such partnerships provide great benefits for target communities and are vital to projects such as the building of housing, schools and clinics. This also ensures that MAG’s work is integrated with broader or longer-term development plans or initiatives.

MAG is entering into partnership with DanChurchAid, a Danish International development agency, to further implement some of these ideas at a programme design level.
The Ottawa Convention, banning the production, trade, use and stockpiling of most anti-personnel mines, entered into force in March 1999. The UK was one of the first countries to ratify the treaty, thereby helping it to rapidly become international law.

As well as banning anti-personnel mines, the Ottawa Convention contains an affirmative obligation for countries to support landmine clearance and victim assistance. To be fully effective this needs sustained commitment and funding from governments, institutions and the public. Britain’s Department for International Development (DFID) has shown this commitment: from 1992 to date, they have allocated over £20 million to a range of organisations for humanitarian mine action operations benefiting thousands of mine-affected people. MAG looks forward to continued partnerships with such donor institutions in the future.

After the signing of the Ottawa Treaty in December 1997, many other governments committed funds to address the problems that landmines cause. Only a moderate proportion of this money has actually gone to support practical action. Large amounts have been spent on research into new technologies to detect landmines – thereby being spent in the research institutes of the industrialised world rather than mine-affected countries. MAG believes that by focussing on technologies and methods that are already proven to be effective, and that can be applied appropriately within mine-affected countries, money will be used to best effect and the rate of mine clearance can be rapidly increased.
MAG works in partnership with other mine action agencies, and with national institutions in mine-affected countries, to advocate for sustainable funding for the clearance of landmines and UXO. Despite the high public profile that the problems of landmine contamination have achieved world-wide, funding for tangible mine action work remains insufficient.

**International cooperation**

MAG, Handicap International (HI) and Norwegian People’s Aid (NPA) currently represent about one third of the world’s humanitarian demining capacity. In November 1997, these three agencies came together to establish a working group to provide a stronger voice for the approaches that these agencies hold in common. They agreed a set of working principles and defined Humanitarian Mine Action as “a comprehensive, structured approach to dealing with the tangible consequences of mine and unexploded ordnance contamination, involving mine survey, mine risk education and mine clearance”

These agencies share concerns about the funding for humanitarian mine action. MAG, HI and NPA have identified the following common difficulties:

- Too few resources are directed in support of proven capacities and methods.
- A short-term approach to funding constrains the planning, scope and coordination of activities.
- There is little recognition of the needs for administration, programme support and quality control.
- There is a reluctance to adequately provide for investments in equipment and the development of human resources.

**National authorities and NGOs**

As well as partnerships with non-governmental organisations (NGOs), MAG also works as a partner with national institutions for the coordination of landmine and UXO clearance.

Many landmine and unexploded ordnance-affected countries have established national authorities to coordinate or implement responses to these problems. In Cambodia, MAG works alongside the Cambodian Mine Action Centre (CMAC). In Angola, MAG works with INAROEI, and in Lao PDR, MAG is an implementing partner within UXO LAO. MAG will begin handing over its Lao programme to UXO LAO in 1999. Such bodies provide examples of how the work of eradicating landmines and UXO has been embraced by affected countries.

MAG will continue to assist the development of such institutions and capacities within other landmine/UXO affected countries. These institutions have a vital role in maintaining mine action initiatives over the long-term.
The product of MAG's work is safe land on which people can live and work with confidence. Internationally, thousands of communities have benefited from MAG's work. They have had landmines and unexploded ordnance removed from vital areas of their environment, allowing them to live in safety and also to develop agriculture, social services and community facilities.

Living on safe land

In Sang Kum village, Cambodia, Paora and Hok Lom live with their four children on land cleared of mines by MAG. Although they still have concerns about landmines in other areas, they are very happy with MAG's work. Hok Lom explains her family's story:

"This land is ours by birthright but we came to the village in 1993. Then war came to the area and we had to run away - we went to a refugee camp. When we came back after the fighting the land was full of mines. Amongst the people we returned with, four people were killed in the first two days. I think three other people were then injured. A lot of animals were killed - a pair of oxen are worth nearly $400. That is a terrible loss. My own brother-in-law and his two buffalo were killed when they triggered an anti-tank mine. It was a very sad time for all the people here because we thought that the fighting had stopped."

MAG worked in Sang Kum village for nearly nine months in 1995 and cleared a wide area, in and around the village, that is now used safely by the local people.

"Now we grow salad crops and keep pigs and chickens. We also have some rice land that is shared with other families. We can live safely and I am not afraid for myself or for my children. There are still some areas with landmines near to the village and that is a problem for the animals. The buffalo are attracted to the mined land because the grass is long and too tempting for them. We have asked MAG to come back and clear some more land there."

MAG, of course, wants to do more but with the extent of landmine contamination in Cambodia, and the limited resources that MAG has, only areas of very high priority can be cleared at present. Hok Lom, her husband and her children, are living and farming on safe land that has been reclaimed from the pollution of mines and ordnance. For people who have lived for so long in fear of these weapons, something as simple as safe land means everything.

Above: Hok Lom with her family and one of their favourite pets. Thanks to MAG's work they now have confidence in the ground beneath their feet.

See also: Photos on front and back cover, page 15 and page 24.

Right: Soun Nong, farming on safe land in Sang Kum village, Cambodia. Before MAG worked here, this area was littered with mines and UXO. She remembers watching in fear as her son probed through the minefield to recover the carcass of one of their oxen.
The last few years have seen a great deal of energy put into efforts to develop technologies that can make landmine clearance faster, safer and easier. MAG evaluates new technologies in accordance with ten basic criteria:

1. The project must have realistic funding potential. Money must be available for prototype production and ongoing development and evaluation.
2. All parties involved – the donors, manufacturers and humanitarian mine action agencies – must be prepared to work together through research, development, explosive trials and implementation.
3. All parties must be satisfied that the equipment is safe enough for use.
4. The equipment must be mobile within the sorts of environments where real minefields are found. Very importantly, it must be recoverable from within a minefield if problems are encountered.
5. The equipment should be versatile so as to have applications in a wide range of situations. Prioritisation of work should be based on the needs of the community not on the limitations of the technology.
6. The equipment must be financially sustainable and easy to repair and maintain in the areas where it is used.
7. The equipment must be accepted and trusted by the local community. If the role of new equipment is not fully explained, people may become suspicious that clearance is not being done to the same standards as before.
8. Local people must be trained to use and maintain the equipment so as to minimise their dependence on external assistance.
9. The equipment must be used within a thorough quality assurance system. 100% of suspect land must be searched for mines if it is to be handed back to local people with confidence.
10. Used within a humanitarian mine action framework of data-gathering, prioritisation and implementation – and fulfilling the above criteria – the new technology will help to make land safe for local people.

**Pearson’s tractor UK**
MAG technical staff have been supporting the development of the Pearson’s demining tractor, including visits to Pearson’s trials site to observe the tractor during explosive trials. This tractor represents a practical approach to humanitarian demining and fulfils the criteria MAG has established for evaluating such technologies.

**Detectors**
Schiebel’s MIMID (Austria), Minelab’s FIA4 (Australia) and Foerster’s Minex 2FD4.400 (Germany) have been tested for their ability to detect minimum metal mines in a variety of environments. MAG will soon be trialling Guartel’s MD8 (UK) for use in laterite and high ferrous content soils.

**Smart probe (Canada)**
Being developed by DEW, a probe capable of discriminating between rocks, plastics and metals should be on trial in 1999.

**Dogs initiative**
MAG is looking to develop a canine capacity for use in landmine clearance. Mine Detection Dog trials were undertaken in Cambodia in February 1999. Dogs could have an important role in finding the edges of minefields, quality assurance and route clearance.

**HOPE project**
MAG is co-operating in the HOPE project with a consortium of European companies to develop a hand held multi-sensor mine detector (EC funded).

**The need for realism**
The last few years have seen numerous newspaper and magazine articles heralding an end to the difficulties of landmine clearance. Such claims have a capacity to capture the public imagination but are too often turn out to be based on little or no real evidence. Further investigation reveals research institutes and companies in search of funds to develop ideas that are embryonic and unproven. It is particularly frustrating that extravagant claims are sometimes made before developers have had any consultation with the people who they expect to use their equipment. New technologies need to be examined with a realistic understanding of the problem they are designed to address, the environment in which this work will be done and the levels of funding available to the agencies who are undertaking this work.
MAG’s action is a tangible response to the impact of mines and UXO on people affected by conflict. Basing its approach on long experience, MAG is creating, within its Mine Action Teams, greater flexibility, more multi-skilling, and more responsiveness to the broad impact of landmines. We are now able to confidently propose other clearance aids, such as dogs and certain machines, in order to become even more effective in the delivery of services to people and their communities. Furthermore, MAG is establishing improved evaluation processes throughout its operations in order to increase its own learning and to encourage transparency.

MAG is also exploring wider development concerns generated by landmines, creating partnerships with other specialised agencies, and seeking to diversify ways in which assistance will truly bring conflict-affected communities back onto their feet. By encouraging capacity and skills within its teams, MAG is accelerating the process by which its operations can be handed over to committed national entities.

MAG works to provide the most effective humanitarian mine action assistance to communities living with landmines and unexploded ordnance. The problem of landmines and UXO contamination is a problem of people’s interaction with these devices in their environment. These interactions occur at a community level—in the villages, fields, forests and scrublands from which so many post-conflict communities draw their livelihoods. MAG believes that it is by maintaining a proper focus on the needs of mine-affected communities that landmine/UXO problems will best be addressed.

Landmine clearance is based on trust. When people walk onto land that MAG has cleared they are placing their trust in the practical work of the organisation. In return for this trust it is important for MAG to be accountable to both the communities with which it works and the
donors who fund this work. MAG will continue to emphasise the need for tangible mine action: work that can be evaluated in terms of the benefits that it is providing for mine affected populations.

Putting the needs of mine-affected populations first inevitably demands that MAG be both flexible and willing to cooperate with other agencies. The organisation of MAG's programmes to emphasise the role of multi-skilled Mine Action Teams will help to facilitate this. These teams can respond to locally identified needs and can also interlink with the needs of other development agencies or landmine clearance projects.

In 1999 MAG plans to deploy dogs and some mechanical equipment to accelerate its clearance work. In addition, MAG will be diversifying its responses to the needs of communities, exploring new areas of activity and ever improved ways to help. Its recent strategic plans include improved monitoring and evaluation of programme activities, plans to build new development partnerships and an increased emphasis on training in the field. MAG will be developing multi-skilled staff and enhancing the management and administrative training it provides. The accelerated transfer of technical and programme management skills is creating a local capacity that can be handed over to national ownership — building important institutions in areas affected by conflict.

MAG's future is exciting. The organisation's head-quarters has relocated to the centre of Manchester where it is able to build on its successful history through greater access to decision-makers and an increased profile for the vital work ahead. We look forward to building close links with the people, companies and institutions of the city.

Ultimately, we must emphasise that the majority of MAG's staff are men and women from the mine-affected communities that the organisation serves. Amongst these people, the will to eradicate landmines is absolute. If the international community can fund this work with a commitment that does justice to the strength and determination of mine-affected populations, many more post-conflict communities will step into the next millennium with confidence in the ground beneath their feet.

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Thanks to MAG's donors

Organisations that have funded MAG's work in 1997/1998 include:

- Anti-Landminnichting (Netherlands)
- AusAID (through World Vision International)
- Bread for the World (Germany)
- CAFOD
- Caritas (Austria)
- Christian Aid
- CIDSE
- Comic Relief - Charity Projects (UK)
- Cooperative Bank (UK)
- Daily Telegraph (UK)
- DanChurchAid (Denmark)
- Danida (Denmark)
- DFID - Department for International Development (UK)
- European Commission - ECHO, DG1B EZE (through Church World Service and Lutheran World Service)
- FinChurch Aid (through Lutheran World Service)
- Government of Austria
- Government of the Netherlands
- Japan Campaign to Ban Landmines
- Mail on Sunday (UK)
- Medico International (Germany)
- Misereor (Germany)
- Novib (Netherlands)
- Oxfam Hong Kong
- Raddo Barnen (Swedish Save the Children)
- Rotary International and local clubs (UK)
- SCI (Scotland)
- Soroptimist International
- Stichting Vluchteling (Netherlands)
- Swedish International Development and Cooperation Agency
- Swedish Peace and Arbitration Service
- UNDP Trust Fund (Lao PDR)
- UNHCR
- UNICEF
- USAID (United States of America)

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Additional Information:

Accounts
If MAG's audited accounts are not included with this report, please contact us and we will be happy to send them to you.

MAG Reports
Over the last year MAG has produced reports on Cambodia, northern Iraq, Lao PDR, Bosnia and Namibia.

Donations
To expand its work into more countries and to support new and existing programmes, MAG needs financial support from many different sources. Please let us know if you can help.

Credit card donations can be made on: 0800 0723 999

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