

HIDDEN ENEMIES

Land Mines in Northern Somalia



A Report by
Physicians for
Human Rights

November 1992

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GLOSSARY OF ACRONYMS

HI	Handicap International
ICRC	International Committee of the Red Cross
IED	Improvised Explosive Device
MSF	Médecins Sans Frontières Doctors without Borders
SNM	Somali National Movement
SOMRA	Somali Relief Agency
SORRA	Somali Relief and Rehabilitation Association
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund

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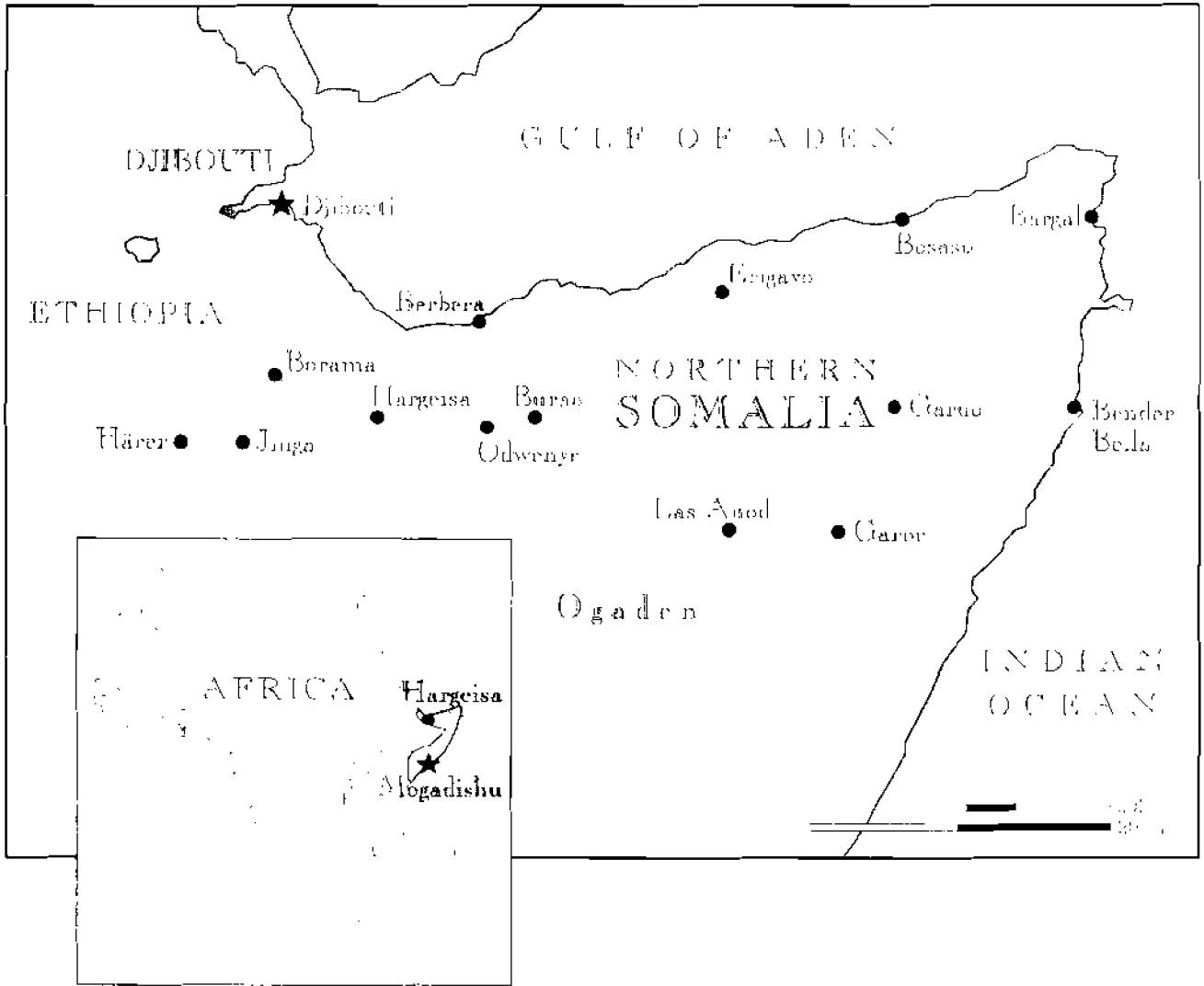
This report was written by Dr. Jonathan Fine, a senior medical consultant and former executive director of Physicians for Human Rights (PHR), based on research undertaken in northern Somalia (Somaliland) between February 16 and March 2, 1992. Dr. Fine was accompanied on the trip by Dr. Chris Giannou, a Canadian surgeon with over a decade of experience with victims of war trauma. Chapter II of this report was first published in a joint Asia Watch and Physicians for Human Rights report entitled, *Land Mines in Cambodia: The Coward's War*. It appears here in edited and revised form.

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I. INTRODUCTION

Somalia is now a divided land engulfed in war and famine. According to the International Committee of the Red Cross, thousands of people are dying every month because of the fighting and famine.¹ Even in areas where there are food supplies, malnutrition is rampant. In Mogadishu, the once graceful seaside capital of Somalia, teenagers armed with Kalashnikovs roar through the streets in stolen vehicles, randomly shooting at pedestrians and buildings. Everywhere there are clusters of hastily dug graves, but nowhere are they in more abundance than around the city's overwhelmed hospitals.

In February 1992, Physicians for Human Rights (PHR) and Africa Watch sent two missions to northern and southern sectors of Mogadishu to investigate civilian casualties and deaths in violation of humanitarian law and to assess the war's effects on the food relief and health care delivery.² That same month, PHR also sent a medical team to northern Somalia, which had seceded to form Somaliland in June 1991, to assess the magnitude of the problem of land mines left over from the 1988-1991 civil war.

While the war in the South has resulted in a catastrophic famine, the devastating legacy of land mines from the civil war in the North cannot be ignored and must be examined for its own tragic consequences. As this report details, beyond the immediate loss of life, the mines have added significantly to the economic devastation in the north and are one of the principal obstacles standing in the way of the repatriation of hundreds of thousands of refugees who fled to Ethiopia from northern Somalia during the civil war.

Hidden Enemies

Today, in the aftermath of the 1988-1991 civil war between the government of Siad Barre and the Somali National Movement, much of northern Somalia³ remains infested with land mines. Most of the mines lie scattered across pastoral lands or hidden near water holes or on secondary roads and former military installations. They are most prevalent in the countryside surrounding two of Somaliland's principal cities, Hargeisa and Burao, and in the pastoral and agricultural lands west of Burao. Now that the war has ended, the victims of mines have been principally civilians, many of whom are women and children.

¹*Emergency Plan of Action: Somalia*, proposed by the International Committee of the Red Cross for April to June 1992, March 5, 1992.

²See Physicians for Human Rights and Africa Watch, *Somalia: No Mercy in Mogadishu*, July 1992.

³The territory under study in this report is referred to as either northern Somalia or Somaliland.

No one knows exactly how many mines have been laid throughout northern Somalia. But de-mining specialists and relief officials estimate that the number could be in the hundreds of thousands. Many of these were placed beneath the roads and countryside surrounding the capital of Hargeisa. Unless the mines are cleared and destroyed, they will kill or maim Somalis well into the next century.

In the past year, Hargeisa and other cities (but not the surrounding countryside) have been substantially cleared of mines,⁴ and the number of injuries has decreased. However, Somaliland officials and international relief workers fear mine-related injuries and deaths will increase significantly if hundreds of thousands of Somali refugees suddenly return from camps across the border in Ethiopia. Refugees could return spontaneously to northern Somalia, as they have in the past, or as a result of a decision by the United Nations High Commissioner for Refugees (UNHCR) and other U.N. agencies to close down the camps.

The menace of land mines in Somaliland transcends the tragedy of the loss of life and limb. Northern Somalia is a largely pastoral society, dependent on the grazing of sheep, goats, camels, and, to a limited extent, cattle. While some nomads have returned to Somaliland, many are afraid to reoccupy their traditional grazing lands because of mines and now congregate in cities and towns where many have become alienated from their traditional way of life.

The future is bleak for Somaliland's mine amputees. Like other war-wounded, they have limited access to hospital care and rehabilitative services. With the exception of an 80-bed hospital in Berbera, all of Somaliland's hospitals are poorly equipped and staffed. Essential medicines are scarce or unavailable except to wealthy few. There are no psychiatrists or clinical psychologists to attend to the psychological consequences of mine injuries. And while volunteer medical staff struggle to provide basic services, they are unable to give adequate care to the seriously injured.

Beyond the threat of land mines, additional problems impede the safe return of refugees to northern Somalia. Today, Somaliland has no basic infrastructure. Most government employees, including militia members and ministers at the cabinet level, receive no pay. Gainful employment is available only to a small minority. Banditry has caused instability and impedes the delivery of food and other essential goods to the region and the refugee camps. Moreover, during the civil war, most of the houses in the western provinces and the country's main electrical generators were destroyed. Siad Barre's troops confiscated telephone and electric cables and looted water pumps.

Unless a large scale mine clearance program is initiated soon, Somali refugees will encounter mines as they trek across large tracts of territory on their return home and when they resume farming and grazing their animals. Many of them will succumb to their wounds

⁴As of December 1991, some 21,000 mines had been cleared in northern Somalia, according to Abdullahi Behi Obeid, the director of mine clearing operations for the Somaliland government.

because little transport is available to get them to medical help. Those who survive will find a health care system so overwhelmed it will be unable to deal properly with their injuries.

Physicians for Human Rights believes that the widespread presence of land mines in northern Somalia must be considered a humanitarian emergency, separate from, and regardless of, the other crises facing the Somali people. Several measures should be taken immediately. Donor countries, through their financial support of programs run by the United Nations and private voluntary organizations, should move quickly to assess the effectiveness of existing de-mining operations and then decide if new approaches and programs should be undertaken to accelerate mines clearance throughout the entire country. The United Nations should launch mines awareness programs in northern Somalia and in the border camps. Donor countries should provide funds to upgrade acute care facilities, especially in the Hargeisa hospital which receives the majority of land mine victims. They should also fund training programs for Somali surgeons and nurses so that they can deal with trauma cases in an efficient and timely manner. Finally, under no circumstances should Somali refugees in the camps be encouraged or forcibly moved into areas where they are endangered by mines.

This report is based on a visit to northern Somalia in February and March 1991 by a delegation of Physicians for Human Rights. The purpose was (1) to estimate the magnitude of the problem of mines and their medical consequences in Somaliland; (2) to assess the need for better acute and long-term care and rehabilitation of victims of mine blast injuries and (3) to determine what measures should be taken to avoid further land mine casualties.

Before arriving in northern Somalia, PHR travelled to Geneva and Djibouti to meet with non-governmental organizations working in northern Somalia. In Somaliland, we met with the President of Somaliland, Abdirahman Ahmed Ali, Vice-President Hassan Essa Jama, several ministry officials, including the Director General and the Minister of Health, and the Minister of Resettlement. We interviewed representatives of the International Committee of the Red Cross, the United Nations High Commissioner for Refugees, the Somali Relief and Rehabilitation Association, the Mujahideen Veterans Association, the Somalia Red Crescent Society, Oxfam/UK, Save the Children/UK, Doctors Without Borders/Holland, the German Emergency Doctors, and Handicap International. We also met with representatives of Rimfire, a British commercial organization training the government's de-mining units.

During our visits to hospitals in Somaliland, we interviewed Somalis who had been injured by land mines, as well as Somali and foreign doctors, to document the prevalence and types of mine injuries. Most importantly, we wanted to know what happened to civilian mine victims from the moment of injury until their discharge from the hospital. Using questionnaires, we asked them to describe their ordeal to us (see Appendices B & C). Among the questions we posed to them were the following: What were they doing at the time they encountered mines? Had others in their family or village been killed or injured by mines? What sort of first aid, if any, did they receive immediately after the blast? How much time passed from the point of injury to their arrival at the hospital? Did they receive

anaesthetic during surgery? We also asked mine victims still in the hospital about their prospects for receiving prostheses and physical therapy.

Our observations are based on their responses and interviews with medical and relief personnel. We also gathered data from hospitals on war injuries, including mine-related wounds and amputations. We believe this information, coupled with our interviews, provides an accurate picture of the scope and nature of mine deaths and injuries in northern Somalia.

Because of the widespread and indiscriminate use of land mines by government and guerrilla armies worldwide, Physicians for Human Rights and Human Rights Watch have called for an international ban on mines that detonate on contact.⁵ This report is the second study PHR has conducted on the medical consequences of land mines on noncombatants. The first report, published jointly with Asia Watch, a division of Human Rights Watch, and with the participation of the U.K.-based Mines Advisory Group, examined the effects of mine warfare on noncombatants in Cambodia.⁶

Largely in response to the work of the Mines Advisory Group, several organizations including Physicians for Human Rights, Human Rights Watch, the Vietnam Veterans of America Foundation, Handicap International, and Medico International have begun seeking ways of bringing greater public and governmental attention to the medical, social, and economic effects of land mines in developing countries.

⁵Since its inception in 1986, Physicians for Human Rights has sent 18 missions to 12 countries to estimate the mortality and morbidity rates of civilian populations as a result of international and civil conflicts or civil unrest and to assess the medical and logistic needs of refugees and displaced persons.

⁶See Asia Watch and Physicians for Human Rights, *Land Mines in Cambodia: The Coward's War*, September 1991.

II. BACKGROUND AND HISTORY OF MINE WARFARE

Unlike bombs or artillery shells, which are designed to explode when they approach or hit their target, land mines lie dormant until a person, a vehicle, or an animal triggers their firing mechanism. They are blind weapons that cannot distinguish between the footfall of a soldier or that of an old woman gathering firewood. They recognize 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.

Land mines were developed soon after World War I as a response to the tank.⁷ Just as the refinement of the internal combustion engine fostered the development of the tank as a counter to the stalemate of trench warfare, the invention in the 1920s of the easy-to-handle, powerful, and lightweight explosive trinitrotoluene (TNT) led to the development of the first reliable anti-tank pressure mines. During World War II, these flat steel cylinders, measuring about 30 cm in diameter and containing about 10 kg of TNT, were used extensively by all sides. Anti-tank mines had one major weakness: they could be easily removed by the enemy, who would plant them in their own minefields.

To keep mine-clearing soldiers at bay, both German and Allied troops began "seeding" their anti-tank minefields with small metallic or glass containers containing a pound or less of explosive. These early anti-personnel mines were activated by the direct pressure of 15 to 40 pounds on pins projecting from the mine, or by a few pounds of pull on a trip wire.

Soldiers also booby-trapped anti-tank mines to prevent their removal. In the early stages of the war, most of these devices were improvised with hand grenades or simple electric fuses. Later, more complex machine-made fuses were rigged to an explosive charge that would easily detonate when pressure was applied or when an electrical circuit was closed.

It was not long before improvised explosive devices (IEDs) and anti-personnel mines were being used as weapons in their own right, rather than merely to protect anti-tank mines. Both weapons were used to demoralize troops or terrorize civilians. Japanese soldiers, for instance, often booby-trapped harmless, everyday objects, such as pipes, flashlights, radios, and fruit cans. The practice of booby-trapping the bodies of dead or wounded soldiers, although officially denied, was also common.

Advances in mine warfare, as in all areas of weaponry, accelerated in the decades following World War II, primarily in response to changing battlefield requirements and the development of new military technologies. In the early 1960s, the United States first introduced the use of a new and sophisticated class of contact anti-personnel mines, known as

⁷See J.C. Beyer, *Wound Ballistics* (Washington, D.C.: Office of the Surgeon General, Department of the Army, 1962), p. 32.

remotely delivered mines or "scatterables,"⁸ to stop the flow of men and material from North to South Vietnam through Laos and Cambodia. The most commonly deployed were the BLU 43 and 44, nicknamed "dragontooth" because of their needlelike shape. American pilots dropped so many of these mines they referred to them as "garbage" because they could be scattered from the air and land on the ground without detonating. When stepped on, the device, which weighed only 20 grams, could tear off a foot. (The BLU 43 and 44 were the forerunners of the Soviet PFM-1 "Butterfly" mine used extensively in Afghanistan.) Another remotely-delivered mine widely deployed by the United States in Vietnam was the BLU 42, or "spider" mine, which sent out eight trip wires, like spider legs, after landing on the ground.

Since the increase in civilian conflicts beginning in the 1970s, land mines, like the automatic rifle, have become weapons of choice for many armies and resistance groups around the world. Not only are they durable and effective, but they are readily available from both governments and the vast global network of private arms suppliers. The 1989 edition of *Jane's Military Vehicles and Logistics*⁹ lists 76 pages of different types of land mines in use by the major armed forces of the world, and the list is by no means comprehensive. As scientists invent new high-technology devices, the old, equally lethal models are unloaded onto the surplus arms market¹⁰ or supplied directly to armies or guerrilla groups, usually in developing countries.

Advances in land mine design mean that anti-personnel mines now contain powerful composite explosives and have extremely low metallic signatures which make them extremely difficult to detect and deactivate or destroy. As a result, they can remain a threat to civilians long after the cessation of hostilities.

Mines commonly kill or inflict ravaging wounds, usually resulting in traumatic or surgical amputation, because the victim is usually very close to the detonation, often standing directly over the mine. If other people are in the area, they, too, can be killed or injured. Mines are often so sensitive they can be detonated by nearby detonations. Thus, the activation of a single mine may fire more mines in the vicinity.

⁸Scatterables are land mines that can be deployed from aircraft or launched by mortar or artillery and should not be confused with the more recent innovation, the "cluster bomb." Cluster bombs are deployed from aircraft or artillery and are designed to explode before reaching the ground. However, because of faulty fuse design or incorrect deployment, large numbers of these bombs do not explode and become, in effect, anti-personnel mines by default. Scatterables are land mines by design that can be deployed from aircraft or launched by mortar or artillery.

⁹Published by Jane's Information Group, Coulsdon, Surrey, U.K.

¹⁰For instance, in 1989, mine eradication teams in Paktia Province in Afghanistan found British MK.7 anti-tank mines with the sale lot numbers painted in red on their bases.

Medical studies of combatants injured by land mines and other munitions indicate that early evacuation from the battlefield and prompt surgical care is crucial to saving lives and reducing disabilities. In Vietnam (1965-1973) and Lebanon (1982), medical facilities run by the U.S. and Israeli military, respectively, achieved treatment results previously unsurpassed in war surgery.¹¹ This was due to the short transportation distances, the availability of helicopters, and well-equipped medical facilities. In most conflicts, however, battlefield first aid, evacuation, and treatment facilities are far from ideal, with resultant high morbidity and mortality.

Military personnel injured by land mines stand a better chance of receiving prompt medical care than do civilians. To begin with, foot soldiers usually travel in groups and carry first-aid equipment. They can usually radio to military bases or camps for transport and further medical assistance. In contrast, few, if any, civilians caught in or near war zones have access to rapid evacuation facilities.

Those civilians most likely to encounter mines are the rural poor who live far from towns or cities with proper medical facilities. Peasants foraging for wood and food or tilling their fields are particularly at risk.¹² Children herding livestock are likewise extremely vulnerable--the children regularly take their charges to fresh pastures and thus traverse wide tracks of untrodden land. The solitary nature of shepherding means the wounded child will often die slowly and painfully from the combined effects of blood loss and exposure. Sometimes children, attracted by the unfamiliar and unaware of the hazard, play with mines, with devastating results.

Even when civilians injured by mines reach medical facilities, they often fail to receive proper care because supplies of X-ray film, anesthetics, surgical equipment, and antibiotics are unavailable or in short supply. Land mine victims are also more likely to require amputations than victims wounded by other munitions. For instance, a study of Afghan war casualties admitted to a Pakistani border hospital from 1985 to 1987 revealed that 73 percent of land mine injuries resulted in amputation. Of injuries from other fragmentation weapons, 18 percent required amputation, while only two percent of firearm injuries resulted in amputation.¹³ In many cases, amputation is required because those aiding the mine victim fail to loosen tourniquets on the wounded limbs at regular intervals.

¹¹See L.D. Danon, et al., "Primary Treatment of Battle Casualties in the Lebanon War," *Israeli Journal of Medical Science*, 20 (1982):300-302, and R.M. Hardaway, "Viet Nam Wound Analysis," *Journal of Trauma*, 18 (1978):635-643.

¹²See Mines Advisory Group, *Report of the Afghanistan Mines Survey*, March 1991.

¹³See J. Rautio and P. Paavolainen, "Afghan War Wounded: Experience with 200 Cases," *Journal of Trauma* 28;4 (1988):523-525. Also see, for example, D.E. Johnson et al, "Epidemiology of Combat Casualties in Thailand," *Journal of Trauma* 21:6 (1981):486-488 and D.B. Adams and C. W. Schwab, "Twenty-one-year Experience with Land Mine Injuries," *Journal of Trauma* 28;1 (Supplement) (1988):S159-167.

Land Mines in International Law

Land mines¹⁴, unlike chemical and biological weapons, have never been banned. On the contrary, international law specifically permits the use of land mines to achieve military objectives. However, the 1981 Protocol on Prohibitions or Restrictions on the Use of Mines, Booby Traps, and Other Devices, otherwise known as the Land Mines Protocol, does contain restrictions on mine warfare which are designed to protect civilians.¹⁵ The Land Mines Protocol is not directly applicable in internal armed conflicts, but many of its provisions are already a part of customary international humanitarian law and thus binding on the parties which took part in the conflict in northern Somalia. The key provisions in this regard are (1) the prohibition on indiscriminate use of mines and (2) the obligation to minimize or avoid civilian casualties.

The Basic Rule: Protecting Civilians and Civilian Objects

Under customary law, civilians and civilians objects may not be attacked. U.N. General Assembly Resolution 2444, *Respect for Human Rights in Armed Conflicts*,¹⁶ adopted by unanimous vote on December 18, 1969, recognizes several principles of customary law protecting civilians. It states in part:

- a) that the right of parties to a conflict to adopt means of injuring the enemy is not unlimited;
- b) that it is prohibited to launch attacks against the civilian population as such;
- c) that a distinction must be made at all times between persons taking part in the hostilities and members of the civilian population to the effect that the latter be spared as much as possible....

The Land Mines Protocol was adopted largely in response to the large number of civilian casualties caused by mines and unexploded munitions in Vietnam. It derives its provisions from customary law principles and, among other things, requires that combatants take "feasible precautions" (defined as "practicable or practically possible") under the

¹⁴Mines are defined as "any munition placed under, on or near the ground or other surface area and designed to be detonated or exploded by the presence, proximity or contact of a person or vehicle..." Land Mines Protocol, Article 2(1).

¹⁵This protocol, known as Protocol II, is one of three protocols annexed to the 1981 United Nations Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed To Be Excessively Injurious or To Have Indiscriminate Effects, United Nations Doc.A/Conf.95/15 (1980) ("UN Convention"). It applies only to international armed conflicts and to some self-determination wars. By 1989, only 32 countries had ratified, accepted, or approved or acceded to the U.N. Convention.

¹⁶See second and third paragraphs in the preamble of G.A.Res. 2444, 23 U.N. GAOR Supp. (Wo. 18), p. 164, U.N. Doc. A/7433 (1968).

circumstances to protect civilians from the effects of mines and booby traps. The parties are required to keep records of minefields so that they can be cleared once hostilities have ended. It prohibits in all circumstances the use of mines "either in offence, defence or by way of reprisals, against the civilian population as such or against individual civilians." It also prohibits the use of land mines "in any city, town, village or other area" where civilians are concentrated, unless combat between ground forces is taking place or imminent in the area and the mines are placed around a military objective,¹⁷ or measures such as putting up warnings are taken to protect civilians from the effects. Scatterable mines or remotely delivered mines, defined as any mine "delivered by artillery, rocket, mortar or similar means or dropped from an aircraft," are specifically banned unless their location can be accurately recorded or they contain mechanisms to render them harmless "when it is anticipated" that the mines no longer serve a military purpose. The Protocol also requires that "effective advance warning" be given to civilians before scatterable mines are delivered or dropped "unless circumstances do not permit."

Article 3(3) of the Protocol prohibits the indiscriminate use of land mines. It defines indiscriminate use as any placement of mines:

- (a) which is not on, or directed at, a military objective; or
- (b) which employs a method or means of delivery which cannot be directed at a specific military objective; or
- (c) which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.

If a weapon cannot with any reasonable assurance be directed at a military objective, it is considered "blind" and, under Article 3(3), indiscriminate. Contact land mines are blind when left in an area through which civilians pass, since they can be detonated by civilians as well as fighters. Experts on the laws of war also state that "land mines, laid without customary precautions, and which are unrecorded, unmarked, or which are not designated to destroy themselves within a reasonable time, may also be blind weapons in relation to time."¹⁸

Therefore a mine not programmed to self-destruct and not removed from an area after fighting there has ceased becomes blind or indiscriminate as well.

¹⁷A military objective is defined as "any object which by its nature, location, purpose or use makes an effective contribution to military action and whose total or partial destruction, capture or neutralization in the circumstances ruling at the time, offers a definite military advantage." See Land Mines Protocol, Article 4(2).

¹⁸M. Bothe, K. Partsch, and W. Solf, *New Rules for Victims of Armed Conflicts: Commentary on the Two 1977 Protocols Additional to the Geneva Conventions of 1949* (Geneva: 1982) ("New Rules"), p. 305.

Recording Requirement

The Land Mines Protocol contains a recording requirement in Article 7(1)(a). The provision states that "[t]he parties to a conflict shall record the location of...all pre-planned minefields laid by them." Although the Land Mines Protocol does not define the term "pre-planned," an authority does:

Since 'pre-planned' means more than 'planned,' a 'pre-planned' minefield is, by its nature, one for which a detailed military plan exists considerably in advance of the proposed date of execution. Naturally, such a detailed military plan could not exist for the vast majority of minefields placed during wartime. In the heat of combat many minefields will be created to meet immediate battlefield contingencies with little 'planning' or 'pre-planning.'¹⁹

The provision for recording is designed to facilitate removal at the end of the conflict, primarily for the benefit of civilians. Thus, at the cessation of hostilities, the parties are to "take all necessary and appropriate measures, including the use of such records, to protect civilians from the effects of minefields, mines, and booby traps."²⁰

Use of Plastic Mines

Another protocol accompanying the 1981 U.N. Convention is the Protocol on Non-Detectable Fragments (Protocol I). It prohibits the use "of any weapon the primary effect of which is to injure by fragments which in the human body escape detection by X-rays." The use of plastic casing in mines, designed to make the mines nondetectable by metal detectors, is prohibited, because plastic shrapnel lodged in the human body when the mine detonates often cannot be located in radiographs; nevertheless, the rise of plastic is a common practice.

¹⁹See Burrus Camahan, "The Law of Mine Warfare: Protocol II to the United Nations Convention on Certain Conventional Weapons," 105 *Military Law Review* 73,82 (1984). The recording requirement applies only to the location of pre-planned minefields, not to the location of individual mines therein, or to the composition or configuration of the mines within the field.

²⁰Land Mines Protocol, Article 7(3)(a).

III. THE AFTERMATH OF WAR

Since the fall of the regime of Mohamed Siad Barre in early 1991, Somalia has descended even further into chaos. In the north, the victorious Somali National Movement (SNM) has established an independent nation, Somaliland, with a central government struggling to survive and establish its authority. To the south, Somalia is engaged in a new, catastrophic civil war fought by multiple clan factions. The war alone has claimed the lives of tens of thousands.²¹

Somaliland, an arid and poor country, remains devastated by the civil war which ended with the defeat of the armed forces of Siad Barre. Somaliland's government, established in June 1991, has few revenues or resources, no paid employees, and tenuous control over the SNM militias. While some United Nations agencies maintain offices in the capital of Hargeisa, no other government has yet recognized the new government of Somaliland. Against this background, it is important to understand the events in Somalia that led to the civil war and Barre's eventual defeat and that have prevented the development of a stable government in the north.

Historical Background

In 1960, after decades of British rule in northern Somalia, and Italian governance in the south, Somalia gained its independence and the northern and southern territories then merged into one country.²² Democratic rule abruptly ended on October 21, 1969, when a group of military and police officers staged a coup d'etat and chose Major General Mohamed Siad Barre, Commander-in-Chief of the Armed Forces, as their leader. The military government suspended the 1960 Constitution, dissolved the National Assembly, and banned all political parties and professional associations. In 1974, Somalia signed a formal treaty of friendship and cooperation with the Soviet Union which then sent 6,000 military and other personnel to Somalia.²³

In 1977, Somalia declared war against Ethiopia in an ill-fated bid to gain control over the eastern region of Ethiopia known as the Ogaden. (The Ogaden is populated by ethnic Somalis who, years prior to the outbreak of the war, had taken up arms against the Ethiopian government.) Following the Somali attack, the Soviet Union promptly shifted its support to

²¹See Africa Watch and Physicians for Human Rights, *Somalia, No Mercy in Mogadishu: The Human Cost of the Conflict and the Struggle for Relief*, March 26, 1992.

²²Following World War II, southern Somalia became a U.N. Trust territory which Italy administered for ten years; the United Kingdom maintained the British Somaliland Protectorate from 1886 until independence.

²³See Africa Watch, *Somalia: A Country at War with Its Own People: Testimonies about the Killings and the Conflict in the North*, January 1990.

the government of Ethiopia. Within a year, the United States, which had supported Ethiopia for decades, had become Somalia's principal source of economic and military aid.

Siad Barre's defeat in the Ogaden war unleashed great political instability, economic hardship, and intensified government repression. By 1981, the Somali National Movement (SNM) had formed in the north, comprised largely of guerrillas of the Isaak clan. The government responded by targeting student leaders and nomads "who the government regarded as the manpower and economic base behind the SNM."²⁴ While the SNM gained broad popular support in the north, much of its training and resupply operations, and most of its forces, were based on the Ethiopian side of the border.

In the final peace settlement following the Ogaden War in 1988, the SNM lost its Ethiopian base of operations. Desperate with its change of fortunes, the SMN launched attacks on government forces in Burao and Hargeisa. Siad Barre's forces immediately counter-attacked. Government forces shelled and bombed Hargeisa, destroying homes and killing thousands. Hundreds of thousands of refugees fled to Ethiopia. Estimates of the total loss of life range up to 50-60,000.²⁵

By 1989, rebel movements of the Ogaden and Hawiye clans had taken root in southern and central Somalia and, within the year, were engaged in open warfare with Siad Barre's forces. In January 1991, Siad Barre fled Mogadishu and, a month later, his troops suffered their final defeat in the north. In the months which followed, SNM militias brought back relatives from camps in Ethiopia, Djibouti, and elsewhere. On May 17, 1991, Somaliland declared itself an independent republic. In the same month, the Mengistu regime collapsed in Ethiopia.

Since the collapse of the Barre and Mengistu governments, ethnic Somalis, who are the predominant population on both sides of the border, have maintained free access across the Somaliland-Ethiopian borders. They are united not only by ethnicity but also by traditional commerce based on the export of livestock from both countries through Berbera and trade in fruit, vegetables, coffee and gat²⁶ from Ethiopia into Somaliland.

²⁴Ibid. p. 9.

²⁵Ibid. p. 218.

²⁶Gat is the popular name for a plant grown in Ethiopia and chewed widely by Somalis.

Northern Somalia Today

Somalia's civil war devastated northern Somalia. At the time of our visit in February and March 1992, there was no electricity, except for what a few portable electric generators could produce. Safe drinking water was scarce, as was water for grazing animals. There was no telephone service. Health services were severely limited. Tuberculosis and other respiratory diseases, malaria, and gastroenteritis were rampant. Little medicine was available for the general population. And in Hargeisa, eighty percent or more of the homes and commercial buildings had been destroyed.

Today, most northern Somalis are without productive employment, although there are some inspiring examples of voluntarism in the public sector. For instance, over 900 teachers are working without pay. Refugees and many returnees²⁷ survive on international food aid and have consequently developed a high degree of dependency on international assistance. Many Somali families receive assistance from their families living abroad.²⁸ Thus if international agency assistance were to end suddenly, the economic crisis would worsen dramatically and cause greater instability.

Northern Somalia's economy has traditionally depended on the grazing and sale of camels, sheep, and goats. However, several factors linked to the civil war, have conspired to sabotage the vitality of this economic base. Hundreds of thousands of nomads remain in the Ethiopian camps where they receive food aid. Others have gravitated to the cities and towns. Animal stocks have been seriously depleted; many animals have also been killed by land mines. Moreover, the export market for the sale of the existing stock of animals has been undermined by the collapse of veterinary services, the lack of vaccines, and the difficulties of transport.

At the time of our visit, private commerce in Hargeisa appeared brisk. The city markets²⁹ contained a wide assortment of imported goods, construction materials, and food.³⁰ But most Somaliland residents could not afford to pay the inflated prices for these commodities.

²⁷By March 1992, more than 200,000 refugees had returned to northern Somalia, mostly from the camps in eastern Ethiopia, according to international aid agencies and Somaliland officials.

²⁸According to two sources, more than 300,000 Somalis live in Kenya, Saudi Arabia, the Arab Emirates, Yemen, Djibouti, the United Kingdom and other European countries, as well as other countries.

²⁹Since March 1992, rival factions have closed off the road from Hargeisa to Berbera. As a result, there may be fewer goods available in the market.

³⁰In the past year, several companies have been waiting for more stable conditions to invest or reinvest in enterprises such as oil and construction companies.

The relative tranquility that existed in northern Somalia shortly after the new government was formed in June 1991 quickly eroded. In January 1992, clashes between rival SNM factions in Burao left more than 50 dead and 250 wounded. Since then, there has been new fighting among the various SNM factions.

In this setting, militia members have become a major problem. Some 20,000 fighters still remain armed, many of whom are twenty years of age or younger. According to one knowledgeable Somali observer involved in the reconstruction effort, many of these young fighters have become psychologically disturbed by the war. "Some who have lost a leg have turned to crime," he said. "They have no work or schools. When they are hungry, they steal guns and loot whatever they want or worse--they kill people. These young soldiers grew up with the war and now feel neglected by society and their country. They see themselves without a future or hope."

In this atmosphere of insecurity, international aid agencies are considered fair game for armed robbery. In early 1992, several relief organizations reported attacks on their personnel and forced entry of their compounds. For instance, in February 1992, militia forces attacked a CARE warehouse in Berbera and stole approximately 1,800 tons of food grain. Given this situation, field personnel with the United Nations High Commissioner for Refugees and other international aid agencies expressed to us their fears that if mechanical de-mining vehicles were brought into Somaliland, they would be stolen by militia forces with the aim of using them for military purposes.

IV. THE MINES AND THEIR CONSEQUENCES

Today, there are hundreds of thousands of land mines in northern Somalia. Most of these mines are anti-personnel devices left by Siad Barre's forces and, to a lesser extent, by the Somali National Movement (SNM). Although the SNM forces placed mines on roads and grazing lands, they laid most of their mines along the Ethiopian-Somalian border to protect their own bases. During the Ogaden War, Barre's troops heavily mined the border to discourage incursions by the Ethiopian Army. From 1984 on, Barre's troops mined large tracts of land to prevent attacks by Somali National Movement (SNM) guerrillas from Ethiopia.³¹ Until the cessation of hostilities in February 1991, mines had been placed around wells, the perimeters of military camps and installations, and across the network of many of the primary and secondary roads between cities and villages. The city of Hargeisa was also heavily mined and booby-trapped.

SNM officers claim that the mines were mostly planted by troops under the command of "Morgan", Siad Barre's son-in-law, who is known locally as "the butcher of Hargeisa." According to a former SNM officer, "When Siad Barre's troops controlled the capital and its surroundings from 1988 to 1990, they put mines in farm after farm, without keeping any record of where the mines were placed."³²

One large mine field east of Hargeisa's airport covers an area about 1 and 1/2 kilometers deep and 9 kilometers long and forms a giant arc from the south end of the runway to the Berbera road.³³ The mine field has two breaks in it, but people who stray beyond these safe areas run the risk of stepping on a mine.

During our stay in Somaliland, we visited the mine field at Hargeisa's airport. Like other mined areas in the countryside, the landscape appeared desolate with only scrub brush or the occasional footpath in sight. As we walked along the perimeter of the field, we found the remnants of sandals of several people who had stepped on mines. Near the airport, we found pathways lined with stones which had been painted white, indicating that they had been cleared of mines and were safe to walk along.

Siad Barre's forces deliberately mined wells and grazing lands in an effort to kill and terrorize nomadic herders who the army viewed as protectors of the SNM.³⁴ In July 1991, a European nurse traveling with a Somali co-worker ran over a mine on a dirt road leading

³¹See Africa Watch, *op cit*, p. 94.

³²Interview with Dr. Ismael Ali, Hargeisa, February 1992.

³³Interview with Abdullahi Behi Obey, the director of demining operations for the Somaliland government, and other de-mining specialists, Hargeisa, February 1992.

³⁴See, Africa Watch, *op cit*, p. 9.

to a prime vegetable producing area north of Hargeisa. The Somali woman lost a leg, and the Dutch nurse is now a bilateral amputee. While direct evidence is not available, all those we spoke with agree that Siad Barre's forces undertook this extensive mining to prevent resettlement by the predominantly Isaak nomads and agriculturalists.

Many of Somaliland's principal and secondary roads are now temporarily closed because of mines.³⁵ The direct route between Djibouti and Hargeisa is closed, as is the road between Hargeisa and Burao; and travel on the Burao to Erigavo road is limited--all due to mines. On some roads, detours have been set up, especially for motorized transport, resulting in lengthy delays to get to market or other destinations. For instance, because of the detours to avoid mines, commerce between Djibouti and Hargeisa took two additional days at the time of our visit.

One of the cruelest--and clearly unlawful--mine warfare tactics used by Siad Barre's troops was the deliberate mining of civilian homes.³⁶ In 1988, government forces shelled and bombed the capital of Hargeisa. Before fleeing, many residents buried their valuables in holes dug in the floors or courtyards of their homes. Upon discovering these stashes, soldiers removed the jewelry and other valuables and placed booby-traps or mines in these hiding places. After the fighting ceased, many of those who had fled returned to their homes in the first months of 1991 only to be injured by these hidden explosives. While most of these booby-traps are thought to have been removed, some are still in place.³⁷ Some families were said to be squatting outside their houses as they don't dare go in. No precise accounting has been made of the number injured in this manner.

The Injured

Somaliland's minister of health, Dr. Suleiman Abdi, formerly a practicing surgeon at the Hargeisa Hospital, estimates that before the war ended in early February 1991, about two-thirds of land mine-injured were military and one-third civilian. But since liberation, more than 90 percent have been civilians.³⁸ PHR found that in the first five months of 1991, after thousands of refugees spontaneously left the camps in Ethiopia, there was a sudden surge in civilians injured by land mines. This situation was reflected in the operating room log of the general hospital in Hargeisa, the largest medical facility in the region (see Graph 1).

³⁵Interview with Oxfam/U.K. field personnel and others, Hargeisa, February 1992.

³⁶Interviews with Abdullahi Behi Obey and Rimfire field personnel, Hargeisa, February 1992.

³⁷Interviews with SORRA representatives, Hargeisa, February 1992.

³⁸Interviews with Dr. Suleiman Abdi, Minister of Health and former surgeon, Hargeisa Hospital and Abdi Yussuf Dualeh, Information Department, Veterans Mujahideen Association, Hargeisa, February 1992.

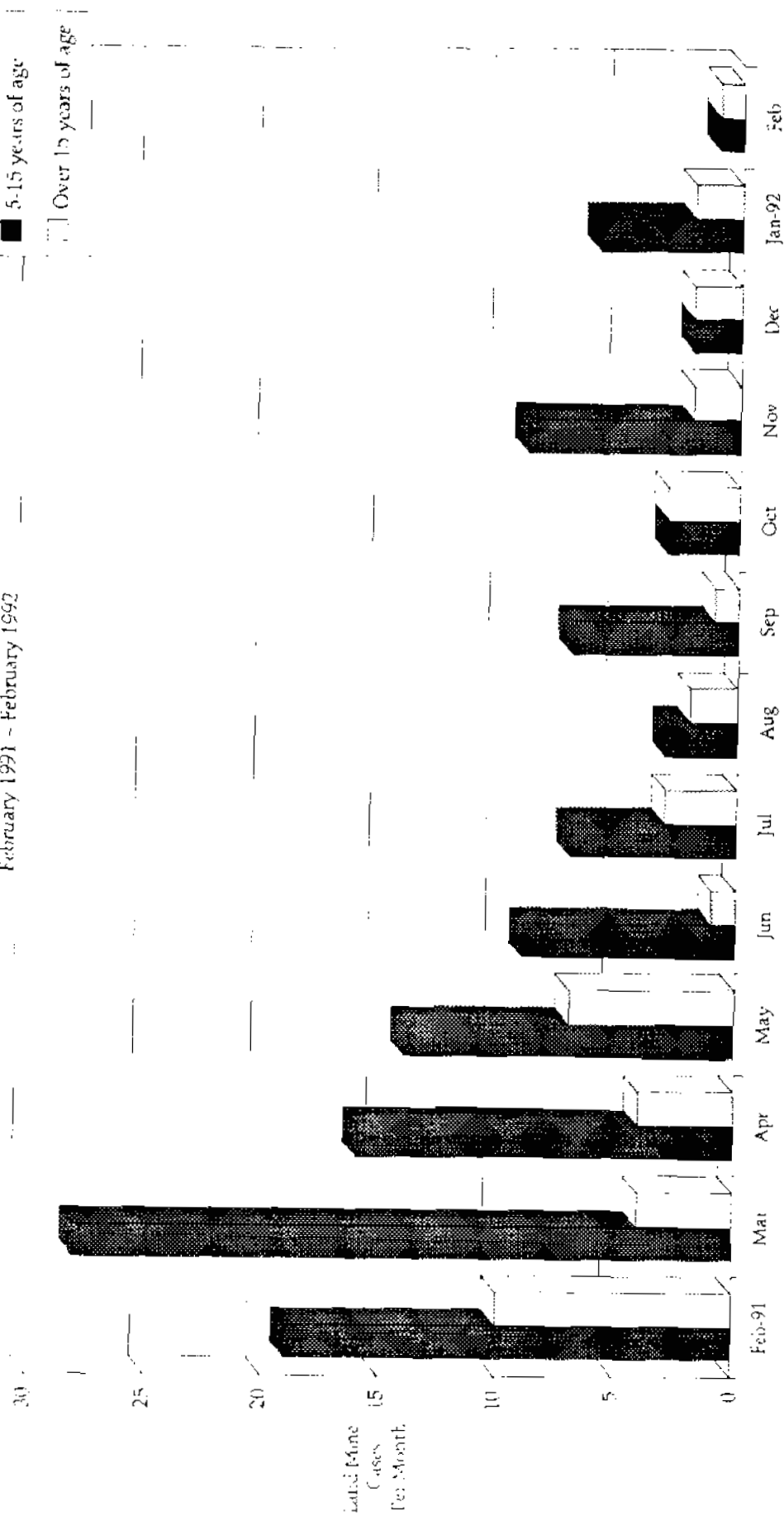
Land mine injuries in northern Somalia peaked between November 1990 and April 1991. According to the medical staff at Hargeisa Hospital, the hospital was admitting from two to three land mine injured daily during this period. They also said that an unknown number died before reaching the hospital. Moreover, because of the heavy case load, hospital doctors were unable to keep track of those patients who left the hospital.

Of the land mine-injured PHR examined in Berbera, Hargeisa and Borama, most were children under the age of sixteen. Data from the Hargeisa Hospital (see Graph 1) show that 74.6 percent of land mine injured treated at that hospital from February 1991 through February 1992 were children between five and fifteen years of age. (It should be noted that the figures presented in the tables in this report understate the total of injuries caused by land mines in Northern Somalia because many blast victims are killed instantly and some survivors do not make it to hospital for treatment.)

Graph 1

Land Mine Injured Patients

Hargeisa Hospital
February 1991 - February 1992



Data collected by PHR at Hargeisa Hospital suggests that land mine injuries, especially of children between 5 and 15 years of age, increased in early 1991, a period when thousands of Somali refugees spontaneously left camps in Ethiopia and returned to northern Somalia.

Physical disabilities are difficult to accept psychologically in any society. But in a pastoral one, where muscle power means survival, the loss of a limb can be particularly cruel. Among nomads, amputees may become a burden to their families. Male amputees may eventually marry, but marriage is less likely for female amputees, according to health officials in Hargeisa.

Children who play with mines, mine detonators, and grenades, suffer from amputations of the hands and injuries to the eyes, often resulting in blindness. One six-year-old boy we examined at the Hargeisa Hospital had picked up an object that looked like "the plastic top of a thermos bottle" on a road near his home. (This description fits that of an anti-personnel mine.) The explosion blinded him in both eyes, scarred his face, destroyed his right hand which was subsequently amputated at the wrist, and left both knees disabled with presumed shrapnel injuries. He is now unable to walk. This young boy's situation is particularly tragic as his father died in the civil war.

The boy's mother and relatives come to the hospital to feed and comfort him. The child lies under a sheet on a hospital cot all day and night to avoid the flies that otherwise swarm over his face and body. (The Hargeisa Hospital has no screens on the windows.) His leg muscles are wasted. He has received no physical therapy and, until our visit, possibly no ophthalmologic examination. The director of ophthalmology of the hospital came to see him at our request. He judged the child's eye balls "too soft" to be encouraging that the child would ever see again. Vision was limited to seeing only a flash of light in one eye. The ophthalmologist thought this residual vision would be lost as well. The child's mother, who brings another infant son with her to the hospital, says that she has two other children at home and that she is indigent. She says she does not know what the future will bring or how she and her three children will manage.

PHR found it difficult to determine how many Somalis were amputees as a result of mine blast injuries. Virtually no such statistics exist in Somaliland, as the government has no capacity to collect them. As a result, we were only able to estimate the total. Without resources for a random household survey, we drew on the limited hospital data available and from the tallies of the total number of physically disabled in the country collected by the various branches of the Somali Red Crescent Society.

These records collected for the International Committee of the Red Cross (ICRC) aid program for the disabled give a rough approximation of the number of mine amputees as they keep a roster of the handicapped who are eligible for food rations. But there is no record of the number who have lost limbs expressly from mines. Throughout Somaliland, the ICRC supplies a total of 12,819 "handicapped" beneficiaries.³⁹ The breakdown is shown in Table I.

³⁹Interviews with ICRC staff in Berbera and representatives of the Somali Red Crescent Society in Hargeisa, February 1992.

Table II shows the etiology of trauma admissions to three major hospitals outside of the Hargeisa region from September 1991 through mid-February 1992. Trauma cases account for 63 percent of surgical admissions. Of these, 72 percent were for weapons-related trauma; land mines accounted for 25 percent of the weapons-related trauma cases.

TABLE II

ETIOLOGY OF SURGICAL ADMISSIONS TO THREE HOSPITALS
(September 1991 through mid-February 1992)

ETIOLOGY	BOROMA	LAS ANOD	BERBERA	TOTAL
Mine	41	34	10	85
GSW	35	38	145	218
Shell	5	12	12	29
Total war trauma	81	84	167	332
Non-war trauma	39	45	45	129
Total trauma	120	129	212	461
Non-trauma	95	51	130	276
TOTAL	215	180	342	737

At the ICRC hospital in Berbera, no new, local land mine injuries had been seen in the first two months of 1992. The closest cases came from Burao, Sheik, and Odwenye.

In Borama, a city within a few kilometers of the Ethiopian border, one surgeon informed our delegation that since July 1990, he had performed 19 amputations as a result of land mine injuries. He estimated that the surgeons at his hospital had seen not less than 250 cases since 1989, many of which were transferred to Berbera by ICRC aircraft. Presently, no more than 10 percent of the amputees in the Borama area are land mine victims, according to local medical personnel. At the time of our visit, there were only two land mine amputees in the hospital. This data suggests that a significant number of land mine casualties occurred in the border region during the civil war. Since the cessation of hostilities relatively few new cases have been seen and the main burden of mines is further east, near Hargeisa and Burao.

Given these earlier observations, we estimate, conservatively, that of the more than 9,000 physically disabled persons in Somaliland about 1,500 to 2,000 are amputees.⁴¹ Of this total, roughly half are land mine injured.⁴² We estimate that by February 1991, about thirty-five percent of these amputees were civilians and that proportion is growing.⁴³

Health Care in Somaliland

Health care in Somaliland is a testimony to years of neglect, the looting of health care facilities during the civil war, persecution of the Isaak population, and the incapacity of the new government to function properly without revenues. Since the onset of the civil war in 1988, until the time of this study, neither the World Health Organization nor any other international agency had conducted surveys to determine the prevalence of communicable diseases. Nor has anyone any idea of what the infant mortality rate may be.

⁴¹The population for Somaliland is roughly 1.3 million. See *The Price of Peace, Report on A Survey of Rural Somaliland (Draft)*, Save the Children Fund, London, 1992. This study estimates the rural/village population of Somaliland to be about 1,000,000 in December 1991. No equivalent estimate is available for the cities of Somaliland but international aid agencies estimated in February 1992 that Hargeisa might have 200,000 residents, Berbera, 30,000. Sheik, Borama, Erigavo and Burao are other population centers which might bring the total in the country roughly to 1,300,000 (order of magnitude) as of February 1992.

⁴² This estimate is based principally on our interviews with surgeons and other physicians at the Hargeisa and Berbera hospitals. By comparison, Angola's 28-year-old war produced perhaps 20,000 mine amputees (out of a population of 9.4 million). See Africa Watch, *Angola: Violations of the Laws of War by Both Sides*, April 1989. Cambodia's 12-year-old war left 36,000 mine amputees (out of a population of roughly 8.5 million). See Asia Watch and Physicians for Human Rights, *Land Mines in Cambodia: The Coward's War*, September 1991.

⁴³The ICRC/Somali Red Crescent handicapped lists suggest that roughly 40-45 percent of the civilian handicapped may be war-wounded.

According to Somaliland health officials, for the population at large, beyond major trauma, the leading medical problems are common to much of the tropical third world: tuberculosis and other respiratory diseases, malaria, anemia, hepatitis, malnutrition, and gastroenteritis. Malaria is seasonal, but endemic in all of Somalia. It peaks in April - June, and again in August - October. While there is no continuous supply of drugs, private pharmacies sell some anti-malarials. For tuberculosis, a limited supply of drugs is available from the Somali Relief Agency (SOMRA), a British non-governmental organization. With this, the Health Ministry planned treatment of outpatients in Borama and Hargeisa. But the supply was not assured for more than a few months after which treatment only of inpatients was anticipated. Most of those who have active tuberculosis go without any diagnosis or treatment.

Somaliland's health infrastructure is woefully inadequate. With the exception of the ICRC hospital in Berbera, nearly all hospital staff are volunteers, as the government is incapable of paying salaries. Furthermore, because of the absence of salaries, qualified staff are leaving for Ethiopia, Yemen, and elsewhere. At the Hargeisa Hospital, there are usually no physicians or trained nurses on the premises after noon or on week-ends; at least two of the surgeons have private practices in the afternoon away from the hospital. The surgeons, however, said that they return to handle emergencies.

According to one surgeon at the Hargeisa Hospital, shortly after the war the hospital had an experienced orthopedic nurse, but now there is none. "Most of the skilled staff have left," he said. "These people used to volunteer their services, but they soon left because they didn't receive food or salaries or other incentives to stay. Now we have only 18 or 19 nurses in the hospital. Many of the other staff members are untrained volunteers from the town. My assistant even sells cigarettes in front of the hospital to make money. And when I need him, I often have to call him from his stand."

The doctors in Hargeisa complained of a shortage of surgical instruments, general anesthesia, and other drugs. They operate using ketamine by injection and spinal anesthesia; oral antibiotics are routinely used because there is insufficient staff to supervise the intravenous or intramuscular administration of drugs. Morphine, codeine or other narcotics are not generally available for post-operative analgesia. No tetanus toxoid is available, although tetanus cases have been rare in Hargeisa. Laboratory services are limited to urinalyses, stool examinations, and hemoglobin determinations. No chemistries, bacteriology or white cell counts are available.

There are at present seven hospitals in Somaliland where general surgery is practiced with a minimum of personnel and equipment. Tables III and IV indicate the surgical facilities available and distribution of health personnel. The numbers are largely insufficient to meet the needs. All hospitals can perform amputations, with the exception of Erigavo, but limited X-ray facilities exist only in Borama, Hargeisa, Burao, and Berbera. Only one antiquated X-ray machine is functioning in Hargeisa where most trauma surgery is performed. No one knows the number of rads it delivers, and there is no protection for the

technician or the patient. This machine is capable only of anterior-posterior views and no portable X-ray is available. Crossmatching for transfusions can be performed in Boroma, Hargeisa, and Burao, but the ICRC/Somali Red Crescent Society hospital in Berbera is the only one with a functioning blood bank capable of screening donated blood for transmissible diseases. This latter hospital was described by the Minister of Health as the only fully functioning hospital in the entire country.

TABLE III

SURGICAL FACILITIES IN SEVEN HOSPITALS OF SOMALILAND
(As of February 1992)

HOSPITAL	No. Beds Max.capacity	No. Beds Functioning	No. Surgical Wards
BERBERA ICRC/SRCS	78	78	4
HARGEISA	250	200	3
BORAMA	140	60	1
BURAO	150	100	3
LAS ANOD	55	50	NA
ERIGAVO	120	46	0
SHEIKH	50	50	1
TOTAL	772	584	12

There are only three orthopedic and eight general surgeons in Somaliland. There is no ambulance service; the transportation of the sick and wounded is by any private vehicle available or by camels or donkeys. Except for the ICRC/SRCS hospital in Berbera, there is not a regular supply of anesthesia or antibiotics as the Ministry of Health, organized in June 1991, does not have a budget.

TABLE IV

PHYSICIAN STAFFING, ALL SPECIALTIES
HOSPITALS OF SOMALILAND

As of February 1992

HOSPITAL	GENERAL PRACTI- TIONER	SURGEON	GYNEC- OLOGIST	PEDIA- TRICIAN	OPHTHAL- MOLOGIST	ORTHO- PEDIST
BERBERA	2	1	0	0	0	1
HARGEISA	16	3	3	1	2	1
BORAMA	6	2	0	0	1	0
BURAO	6	1	0	0	1	0
LAS ANOD	3	0	1	0	0	1
ERIGAVO	3	0	0	0	0	0
SHEIKH	1	1	0	0	0	0
TOTAL	37	8	4	2	4	3

A number of non-governmental organizations are attempting to help. The ICRC and Red Crescent Society run the Berbera hospital and distributes food for inpatients and drugs to the hospitals in Las Anod and Borama. The ICRC plans to turn these activities over to the Norwegian Red Cross. Until April 1992, the German Emergency Doctors aided the Hargeisa Hospital with drugs, in-patient food, renovation and maintenance of the buildings, and water and fuel for an electric generator. The UK-based Somali Relief Agency (SOMRA) has supplied medicines to the Sheikh Hospital. Doctors without Borders/Holland operates a maternal and child health service in Hargeisa but had to close down its surgical activities in Burao due to an outbreak of fighting in the city in January 1992. Save the Children/UK provides laboratory and administrative consultants to the Ministry of Health. Cooperazioni Internazionale, an Italian non-governmental organization, is helping to renovate and prepare for opening the Berbera District Hospital. Cooperazioni Internazionale also provides an orthopedic surgeon for the Berbera Hospital.

Acute Care

Transportation has always been difficult in northern Somalia. According to doctors of the Somali National Movement who staffed field hospitals in guerrilla-controlled rural areas, during the war, two to three wounded died before or during evacuation for every individual who was successfully transported to a medical facility. No one knows how many injured do not receive proper surgical care. Such people include herders alone in the hills, the wounded who are treated by traditional healers in countryside districts, or those taken home to the family to die rather than to the hospital.

PHR determined through interviews that the average delay in transportation to the hospital in Hargeisa was six to eight hours. Some cases, however, take days to arrive at a hospital. The Minister of Health told us of one instance of a fifteen-year-old girl who arrived at the Hargeisa hospital fifteen days after stepping on a mine. Other occasional cases have arrived after two- or three-day delays due to lack of transportation.

Another problem is the lack of trained personnel to provide first aid prior to hospital care. Tourniquets are sometimes put on so tightly that they cut off all blood supply to the affected extremity, causing gangrene, extensive loss of viable tissue, and often unnecessary amputations.

Land mine victims in Somaliland suffer from a high rate of post-operative infections. Because of poor surgical procedures at the Hargeisa Hospital, surgeons there estimated an infection rate of eighty percent for amputees. In contrast, the rate of infection at the Berbera Hospital managed by the ICRC is 4 to 5 percent. Some surgical wounds are still infected after three to five months.

The ICRC protocol for land mine injuries calls for pre-operative hydration and administration of antibiotics and leaving the wound open following surgery for five days. However, at the Hargeisa hospital, while as a rule pre-operative hydration is provided, if the wound appears "clean," in most cases the surgical practice has been to immediately close the amputation stump post-operatively, though the wound is not closely sutured and a drain is left in place. In the case of infection, the wound is partially opened again, or, if necessary, entirely opened. No injectable form of gentamicin is available, and while Procaine Penicillin, Ampicillin, and Bactrim have been supplied by the German Emergency Doctors, patients are usually given drugs for oral self-administration because of the lack of trained nursing personnel.

Another serious problem is a cultural bias against amputations which, more often than not, results in poor stumps because families insist on the surgeon cutting only a few centimeters above the wound. Often this means that an artificial limb cannot be properly fitted, when and if it becomes available. We saw several amputees who may have to undergo reamputation before they can be fitted with prostheses. One example was a fifteen-year-old boy at the Hargeisa Hospital whose foot had been amputated just above the ankle.

With the exception of the surgeons operating at the hospital in Berbera, it did not appear as if the surgical staff elsewhere had received training in trauma surgery from the ICRC or others outside of the country. Nor are there medical texts or journals available to them. Finally, there is no follow-up at the Hargeisa Hospital after a patient is discharged from the hospital.

Rehabilitation

Throughout northern Somalia, especially on the streets of Hargeisa, it is commonplace to see amputees shuffling along the road on one leg with the aid of crutches and canes. Somaliland had been without a formal rehabilitation program until the arrival of Handicap International (HI), a French organization headquartered in Lyons, in late 1991. Even now, there are no prostheses available in the country other than what local carpenters make from wood and metal.⁴⁴ These locally made prostheses are too heavy and cumbersome and thus are rarely used. PHR saw only one artificial limb--and it was being repaired--during our two week stay in the country.

Handicap International intends to open Somaliland's first prosthetic center and has begun training Somalis in the production of both crutches and prosthetics. In addition, HI provides physiotherapy to amputees. HI established itself in the Hartisheikh refugee camp in Ethiopia in 1991 where it trained Somali refugees, but security and logistical problems hampered its operations. By January 1992, HI had moved its personnel and portable material to Hargeisa. This included three European specialists (a prosthetist, a physiotherapist, and an administrator) and ten former Somali refugees who had received rudimentary training in the production of artificial limbs. In February 1992, the new HI center across the road from the Hargeisa Hospital, established a short-term, small scale, emergency program for the production of crutches.

HI functions on the basis of appropriate technology which results in lower production costs and the possibility that local artisans can make and then repair prostheses as necessary. Lower limb prostheses for land mine victims have a priority as an emergency response, but HI hopes to eventually extend their services to polio victims and other patients with neuro-motor problems. They are careful, however, not to create impossible expectations of an immediate remedy to a far ranging social problem.

This caution, plus the very low-level technology favored, has created some friction with Somaliland officials. We noted considerable impatience and skepticism about the HI program. Government officials, some patients, and physicians said that the techniques were too primitive, the scale of operations too small, and the program's development too slow to meet the needs of the handicapped population. At the time of our visit, HI had poor access to the hospital.

⁴⁴Interview with Dr. Ishmael Ali, orthopedic surgeon, Hargeisa Hospital, February 1992.

PHR concluded that, while the HI program is commendable in the use of local materials and local training, it is unable to meet the needs of thousands of amputees and that additional international assistance will be required.

Besides physical rehabilitation and prosthetics, the severe psychological problems of amputees have gone unattended. Adaptation by the nomads to hospital life is not easy. They need at least two relatives at the hospital if the patient is very young. The inability of amputees to tend livestock and to maintain a nomadic way of life is equivalent to a total disability and represents a severe economic and psychological loss to a Somali family.

Mine amputees usually do not go back to a nomadic area but to a village nearby. A child may be sent to a Koranic school if possible; regardless, the child may be separated from its parents. Many of these children are under the age of twelve and this loss is profound and with unknown consequences.

There have been a number of cases of bilateral amputations of children. Five such cases had been seen at the Hargeisa Hospital since January 1992. Others have suffered from both blindness and the loss of either upper or both upper and lower extremities. For all of these patients, psychiatric help or psychological counseling are greatly needed. However, there are no psychiatrists or clinical psychologists in northern Somalia. Nor has a study been conducted of the psychological problems of amputees.

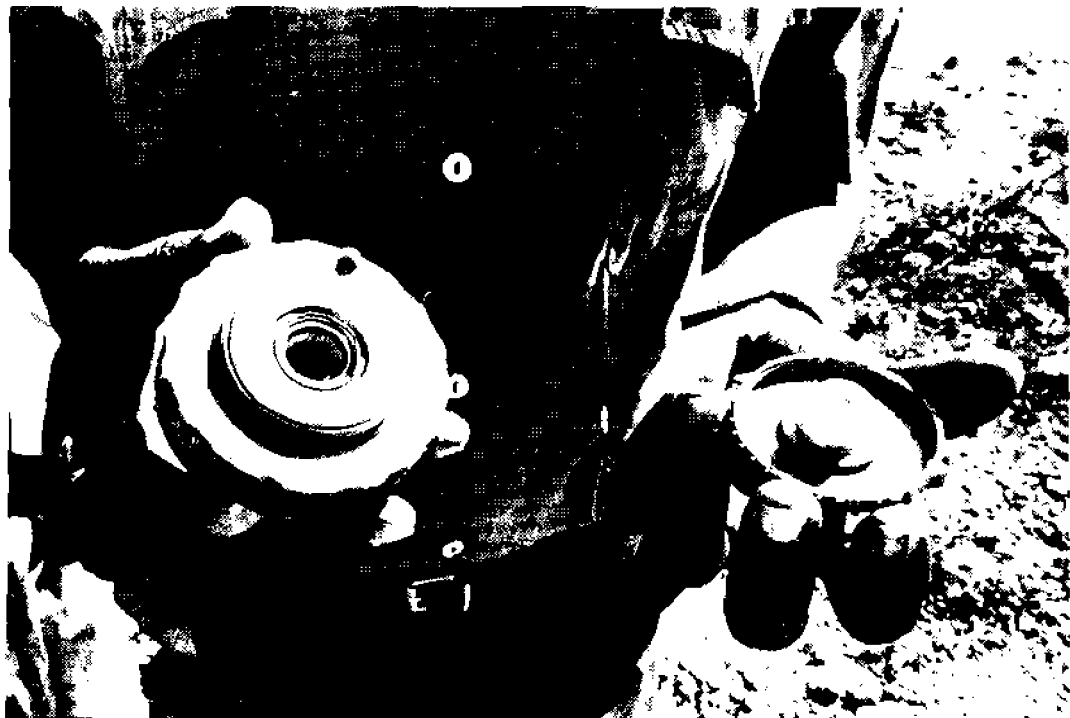


Abdullahi Behi Obe, the director of mine clearing operations for the Somaliland government, displays a variety of mines and munitions.

(c) 1992 Peter Menzel



Somali de-miners have found a wide array of mines laid by all sides in the conflict. (c) 1992 Peter Menzel

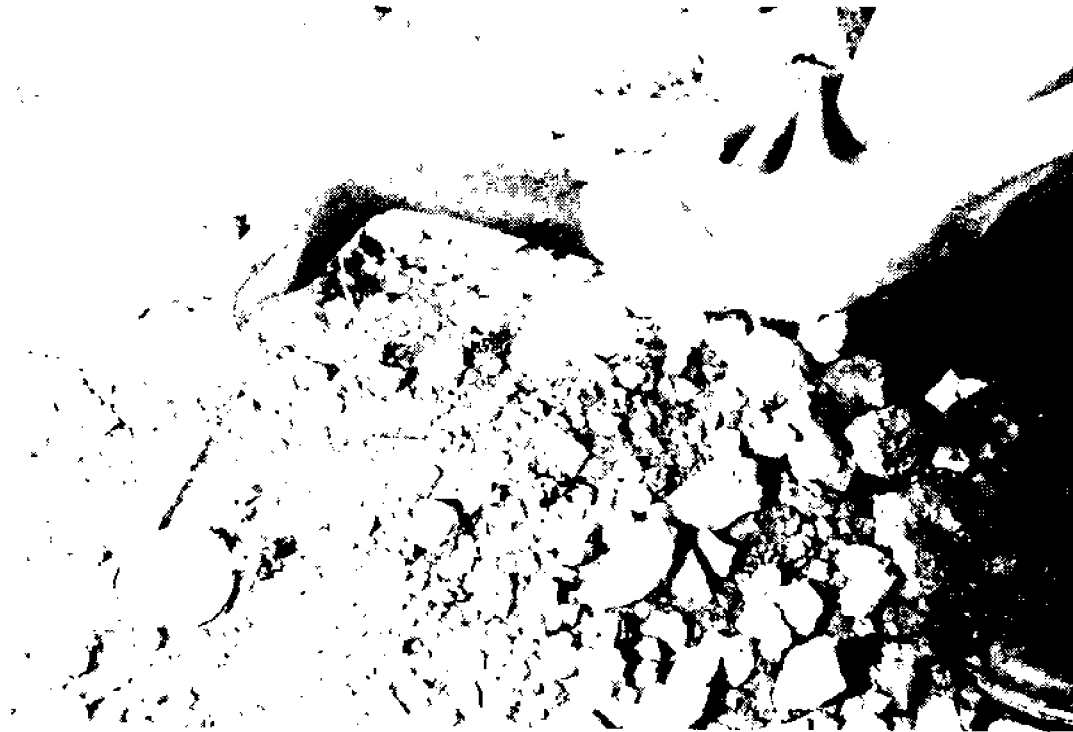


This anti-personnel mines resembles the plastic top of a thermos bottle. (c) 1992 Peter Menzel



Somali de-miners, called Pioneers, in blue flak jackets and helmets crouch near to the ground as they probe for land mines.

(c) 1992 Peter Menzel



Using a meter long metal probe at a 30-degree angle to the soil, a Pioneer uncovers an anti-personnel mine.
(c) 1992 Peter Menzel



De-miners urge a woman to leave a minefield as they attempt to rescue her cow that was injured by mines.
(c) 1992 Jonathan Fine



Ordinance and land mines found by Somali de-miners are blown up with plastic explosives.

(c) 1992 Peter Menzel



Dr. Jonathan Fine interviews patients recovering from land mine injuries in the 245-bed hospital in Hargeisa.

(c) 1992 Peter Menzel



Limited X-ray facilities exist only in Borama, Hargeisa, Burao and Berbera hospitals. Only one antiquated X-ray machine is functioning in Hargeisa where most trauma surgery is performed.

ici 1992 Peter Menzel



A Somali ophthalmologist was called in to examine this six-year-old boy who was blinded by a land mine blast.

ici 1992 Jonathan Fine



*Young children often fall victim to mines as they take livestock out to graze.
Dr. Chris Giannou interviews a young boy injured by a mine. (c) 1992 Peter Menzel*



Approximately 75 percent of those patients who were treated for land mine injuries at Hargeisa Hospital from February 1991 through February 1992 were children between five and fifteen years of age.

(c) 1992 Peter Menzel



Of the more than 9,000 physically disabled persons in northern Somalia, about 1,500 to 2,000 are amputees. In February 1992, Handicap International established an emergency program for the production of crutches at Hargeisa Hospital.

(c) 1992 Peter Menzel

IV. MINE ERADICATION

When the guerrilla forces of the SNM reoccupied northern Somalia in early 1991, they were well aware that though they had defeated one enemy, Siad Barre, they still faced another monumental adversary--hundreds of thousands of land mines, covering much of their national territory. The SNM promptly began de-mining operations under the leadership of Abdullahi Behi Obey. Behi, a professional soldier, first trained in Egypt in demolition and de-mining. Subsequently, he became head of mine clearance for the Soviets, served with Somalia's military forces and finally with the SNM. Behi began mine clearance for the SNM with a force of sixty men, of whom 40 percent were killed or injured by mines in the first six months of 1991.

It took little time for the representatives of international voluntary agencies, who began to arrive in 1990 and early 1991, to realize the gravity of the threat of the land mines. Matt Brydon, the Somaliland representative of Doctors without Borders/Holland (MSF) returned in 1991 with an exploratory team. (MSF eventually left northern Somalia for security reasons.) Brydon recalls that at the time there were some four to five land mine casualties a day.

By April 1991, Brydon had contacted the European Economic Community and the United States Agency for International Development at their regional offices in Nairobi, Kenya, presenting the urgent case for a de-mining operation. By the end of April, there was agreement that de-mining go ahead. The European Community contacted Rimfire, a British corporation first organized in May 1990. With assistance of MSF, the European Community drew up a budget which, in May, allowed Rimfire to undertake a mines survey.

Rimfire began operations in Somaliland in August 1991.⁴⁵ Their principal functions have been training and supervision of de-mining personnel, defusing bombs and some intricate explosive ordinance disposal (EOD) work. Rimfire speaks of its priorities⁴⁶: "Clear land mines where people go, where their animals go; also assist the aid agencies (to de-mine their own premises)."⁴⁷

Using de-mining and demolition experts retired from the British armed forces, Rimfire has trained about 200 Somalis, called "Pioneers," in the basic techniques of mine detection and disposal at an old military camp on the outskirts of Hargeisa. These workers had been recruited by Behi and incorporated into the force of survivors of the earlier, sixty-

⁴⁵Rimfire received funding from the European Economic Community, the U.S. Agency for International Development, the Canadian International Development Association, the Office of Development Assistance/UK, and the Dutch government.

⁴⁶ Interviews with Rimfire senior staff on assignment in Somaliland, February 1992.

⁴⁷ For example, early on, Rimfire cleared five land mines out of the garden at UNICEF.

man crew. Following a seven-week training program, the Pioneers began work in six teams in and around Hargeisa, the site of most of the mines.

Rimfire uses simple metal probes. Six or seven men, evenly spaced apart and all attached to a rope, crouch low to the ground and prod the soil at a 30 degree angle with meter-long metal sticks.⁴⁸

Probing is considered the simplest and least costly, but the most time consuming, method of de-mining. Probes have been used in the Hargeisa area as the ground is full of scrap metal. Moreover, the majority of anti-personnel mines found are plastic with few metal components. They are buried relatively deeply and usually cannot be detected by metal detectors. According to Rimfire, in these conditions, metal detectors are not very useful.

According to Rimfire, as of December 1, 1991, 20,930 land mines had been removed from the city of Hargeisa, the heavily mined airport area on the southern perimeter of the city, and other priority sites including water sources, the Hargeisa prison, and several military installations.

The Pioneers are employees of the Ministry of Defense of Somaliland, although they receive their training from Rimfire. Rimfire gives each section leader money for food; compensation is about at \$4.00 a day for each man.

Funding has gradually increased over the life of the project. With financial support from the UNHCR in February 1992, Rimfire signed a new contract, as a staff member told us, to do the necessary de-mining "to bring back 430,000 refugees...to make the journey itself, their homes and villages safe." The contract is imprecise as to the time scale for the achievement of these objectives. It provides, however, for a staff of twelve foreign nationals and four hundred Somalis. In late February 1992, Rimfire began training a second group of 220 to bring the total de-mining force to a total of approximately 400 Pioneers.⁴⁹

In the Hargeisa region, Rimfire has placed a high priority on de-mining dwellings, the prison and nearby military installations, rural bore holes, deep wells, and water pumping stations. In addition, there are an estimated 1,200 to 2,000 kilometers of roads to de-mine.

⁴⁸Rimfire trainers first attempted to get the Pioneers to lie prone for maximum safety in probing. However, this preferred posture was not acceptable to the Somalis who preferred to work in a crouching position.

⁴⁹Besides de-mining, Rimfire has taken responsibility for defusing the profuse variety of bombs and missiles throughout northern Somalia. For instance, at the Berbera airport, there are 130 SA-2 missiles. The SA-2 is a 35 foot long Soviet surface to air missile. Once Rimfire has identified a significant stockpile of unexploded ordnance, they request funds from the international agencies for their demolition. Finally, authorization must be obtained from the Somaliland government.

To undertake such a task, it will be necessary to bring in mechanical de-mining equipment.⁵⁰ However, by late July 1992, neither the government nor the international community had developed plans nor committed financial resources for this phase.

Additional deficiencies stem from several oversights at the onset of the de-mining program in 1991. To begin with, none of the groups planning this initial phase established mine awareness programs, such as public education on the type, location, and potential danger of mines. These groups failed to include funding for surveys to determine the location and number of mines, as well as the number of killed and injured and their access to hospital care. While the need for an independent monitor was foreseen to gauge progress of the de-mining effort, none of the international agencies involved has provided funding or recruited a qualified individual for this role nor for the other monitoring needs.

In the absence of reliable information on where the mines are, and in what numbers, priorities for de-mining are relatively imprecise and tentative. Furthermore, no formal evaluation of the work of the de-mining operation has been undertaken. The international community has been kept in the dark, and it has, in part for these reasons, proved difficult to mobilize urgently needed international support. As one observer put it: "Our vision of what was required was too narrow at the time. There was no proper system of control set up, no system for setting priorities."

Mine Awareness

Somali and relief officials fear that the sudden return of large numbers of Somalis will be associated with a surge in trauma injuries from the remaining mines.

There are also many Somalis who have chosen to ignore the danger of mines, especially when it comes to protecting their livestock. In the course of this mission we witnessed one such case. On the perimeter of the Hargeisa airport, a Somali woman approached Abdullahi Behi asking for assistance to rescue her cow, which had just had its two front legs blown off by an anti-personnel mine. The woman explained that she had already lost the rest of her animals in the vicinity of the airport. Only two weeks before, her thirteen-year-old daughter had been tending animals close by and stepped on an anti-personnel mine, losing her right leg. (We had visited this child in the hospital.) Despite the danger all around her, the woman brazenly walked out to the latest victim, her only surviving cow, to aid the de-mining team which was cautiously placing a rope around its neck. The team warned her of the danger, but to no avail. Fortunately, she was not injured. Evidently, many Somalis believe these injuries are a matter of fate and thus take unacceptable risks, especially when tending their livestock.⁵¹

⁵⁰ Interviews with Abdullahi Behi Obey and Runtire field personnel.

⁵¹ Interview with Mohammed Barood Ali, a leader of the Somali Relief and Rehabilitation Association, Hargeisa, February 1992.

If adequate international assistance is provided, the Somali Relief and Rehabilitation Association (SORRA), a community self-help, voluntary organization, is one group interested and well equipped to take on the task of mine education. Effective mine education could be carried out with modest funding through mosques, schools, which now enroll over 30,000 primary grade students, and through radio. SORRA already has proven its capacity to work effectively in spite of the many infrastructure problems mentioned earlier.⁵²

Resettlement

Several hundred thousand Somali refugees are poised to return to Somaliland from border camps in Ethiopia where they have taken refuge since 1988. The hundreds of thousands who have returned to date did so spontaneously following the defeat of Siad Barre's forces in early 1991. At first, men came alone, then women and older boys, and finally other children. This migration continues without order or direction.

Conditions on both sides of the border influence the flux of refugees. One is the availability of food rations from the United Nations High Commissioner for Refugees in the Ethiopian camps. Security considerations are also an important determinant as there has been increasing lawlessness and even organized fighting on both sides of the border. In Ethiopia, attacks by bandits have increased on individual trucks and convoys resupplying the refugee camps. For example, due to security considerations, several of the camps did not receive supplies in January or February 1992.⁵³ The area from Dire Dawa to Jijiga, primarily in the hills between Harar and Jijiga, has been characterized as a guerrilla's paradise where trucks and supplies are stolen. Due to conditions of the terrain, transport cannot go over 15 kilometers per hour in this area. On one occasion in 1991, of 17 big trucks, only 9 got through due to banditry. Subsequent military escorts were larger and better equipped.

On the Somaliland side of the border, hostility between militia groups has proved to be an intermittent, but growing, menace. While military encounters have occurred periodically between rival militia factions, to date mediators have kept the conflicts short of the devastation of open warfare witnessed in Southern Somalia in 1991-1992 among the Hawiye.

Refugees and relief officials place the problem of land mines in northern Somalia high on their list of concerns. "Mines intrude on everything in Somaliland" says Gary Perkins, the UNHCR representative in Djibouti. All interviewed agreed that land mines constitute a major obstacle to the repatriation of refugees from the camps along the Ethiopian border. The UNHCR considers de-mining a priority for any repatriation plan. The Minister of Resettlement, Mohammed Abdi Ali, agrees:

⁵²One successful SORRA project has been the restoration of garbage and refuse removal throughout Hargeisa.

⁵³These camps are the Aware camps to the southeast of the Haitusheikh camps.

Land mines intimately affect resettlement. Mines are an agent for physical damage to agriculturists and to nomads and their herds, and there is the psychological aspect: They are fearful to come back. Mines are a significant problem in the principal breadbasket, the area west of Hargeisa, to the east in the Hadig and Adadeley regions, to the east of Hargeisa where there are other agriculture and fodder areas and in the Odwenye area, to the west of Burao. The Erigavo region is better...The vast majority of the returnees--some 80 percent--will be in the Hargeisa area.

When Somali refugees return to northern Somalia it is likely they will return to areas settled by fellow clan or subclan members. Consequently, many refugees from the Hartisheikh camps will probably migrate to Hargeisa, while a smaller number will go to Berbera. Refugees from the Aware camps will mostly migrate to Burao and as far as Erigavo. Those who raise crops and graze livestock in the greater Hargeisa, Burao and Odwenye areas may be at greatest risk.

Regardless, an untold number will not return to a nomadic existence, in part, because of land mines. Moreover, it is difficult to predict how four years in a refugee camp has affected these herders. Will they, by the force of these circumstances, crowd the already overburdened cities? To what degree? And if they attempt to resume their pastoral existence, what will the toll be in human lives and suffering?

VI. OBSERVATIONS AND RECOMMENDATIONS

Coordination of Planning and Operations

1. There is an urgent need for planning and coordination of the aid program for de-mining, mine awareness, and the care and rehabilitation of mine victims in Somaliland and other countries. Because the presence of land mines affects the movement of both the internally displaced and refugees, a single individual in one agency of the United Nations should have a clear mandate for coordination of these activities. This office should have overall responsibility in the field with counterparts at the regional level within that agency. The establishment of a global office for de-mining and the care and rehabilitation of mine victims within the U.N. system should be seriously considered. Such an office might be established within the United Nations Development Programme (UNDP) or the United Nations High Commissioner for Refugees (UNHCR).

2. The United Nations should send a multi-agency task force to northern Somalia to determine what future measures should be taken to eliminate the threat of mines and to provide care to the wounded. This effort should be carried in close cooperation with the Somaliland government and with non-governmental organizations such as the International Committee of the Red Cross (ICRC).

Mine Survey and Eradication

3. Donor governments and international agencies should commit greater resources to de-mining operations in northern Somalia. There is no system of surveillance in place to estimate mine injuries or to keep track of where they occur. Nor have detailed maps been made of the location of mine fields. Data collection and analysis should be a part of any mine survey and eradication program. In addition, large scale, mechanical de-mining should be introduced in northern Somalia to supplement de-mining by hand-held probes as soon as the security situation allows.

4. Concurrently, the United Nations should assist the government of Somaliland to improve internal security and the safety of Somaliland and international de-mining crews and their equipment.

Mine Awareness Program

5. A mines awareness program should be established in Somaliland that utilizes the schools, the mosques, and radio. Above all, children must be taught what mines look like and how to avoid them. One approach would be to develop flyers or booklets with illustrations of mines and explain what damage they can do and how to avoid them. The Somaliland Relief and Rehabilitation Association is well positioned to direct this effort.

Acute Care Facilities and Surgical Training

6. Acute care facilities and appropriate training opportunities for surgical personnel in northern Somalia must be made available with the assistance of U.N. agencies and non-governmental organizations. Special attention should be given to Hargeisa Hospital which receives the majority of land mine victims. This hospital, the largest in the region, has no paid staff, an acute shortage of trained nursing personnel, practically no professional staff on duty in the afternoons, evenings or week-ends, no adequately functioning X-ray equipment, no ability to type or crossmatch blood, and surgical personnel who lack adequate training in the care and treatment of amputees. A parallel effort should be made to provide multi-year, technical assistance in hospital administration and management for this and other hospital facilities.

Rehabilitation Services

7. Rehabilitation services, namely physical therapy, psychiatric or psychological counseling, vocational therapy, and crutches and prosthetics, are not generally available in northern Somalia. The only exceptions are the International Red Cross Hospital (ICRC) hospital in Berbera which provides physical therapy and crutches to amputees, and Handicap International which has opened a workshop to begin training Somali technicians to make crutches and prosthetic limbs. However, these services will reach only a small proportion of those in need.

8. Donor governments and U.N. agencies should increase assistance for rehabilitation services in Somaliland. To begin with, a census of amputees by source of injury should be undertaken to understand the scope of the problem. This study could be undertaken by sampling the total population and should be funded by the U.N. and other international agencies.

APPENDIX A

LAND MINE SITUATION IN SOMALILAND

Prepared by
The Somali Relief and Rehabilitation Association, 1992

Hargeisa:

Airport and surroundings: Mined with thousands of anti-tank and anti-personnel mines. At least three ringed fields surround the airport.

Northern half of the city: The following neighborhoods are mined: Hawlwadaag, Daami, main Prison area, Radio Hargeisa, New Hargeisa and Sheikh.⁵⁴

Southern half of the city: Military compounds, DELCO-EA main Operation Base (DELCO-EA MOB), main Army Headquarters, 2nd Division Headquarters.

Outside of Hargeisa:

The following towns are also mined: Burao, Odweine, Gabiley, Erigavor, Adaadlay, Arabsiyo, Bixin, Laasciidle, Bulahar, Zeyla, Loghaya, Garisa and others.

Main Roads:

- The road between Hargeisa and Burao
- Roads connecting Berbera and other coastal towns
- Roads between Burao and Erigavo
- All roads south of the main Borama-Gabiley-Hargeisa-Burao road. There are numerous roads in this area that criss-cross to link villages and towns.
- Roads connecting refugee camps in Eastern Ethiopia and Somali towns on the border are mined. Some of these mines were planted during the 1977-78 war between Somalia and Ethiopia, others by Siad Barre or SNM forces.

Types of mines:

1. M57 9Kg Russian-made anti-tank
2. LOTSAP Italian plastic anti-tank
3. LOTSAP Pakistani anti-tank
4. Egyptian anti-tank

⁵⁴The spelling of names of some towns in this document may vary from the usage adopted in the report.

5. Russian, American, Pakistani anti-personnel mines such as the American M16 highly explosive capsules.

Besides land mines, there are thousands of unexploded artillery and mortar shells including:

1. Russian 85 mm., 100 mm., and 122 mm.
2. American 90 mm., 103 mm., and 109 mm.
3. Chinese 135 mm.

APPENDIX B

**LAND MINES
QUESTIONNAIRE FOR PATIENTS WITH MINE INJURIES**

1. ID # FOR INTERVIEW
2. DATE & TIME OF INTERVIEW
(NOTE TIME: 0:00 TO 24:00)
3. PLACE OF INTERVIEW
Facility (hospital, by name, pvt. home, etc)
Town or city
4. NAME OF PATIENT; Use following format:
GIVEN NAME____, FATHER'S NAME____, GRANDFATHER'S NAME_____
5. PERMISSION TO:
A. QUOTE, USING NAME: YES; NO
B. QUOTE, OMITTING NAME & IDENTIFYING CHARACTERISTICS:
YES; NO
6. SEX 7. AGE (Estimate if not known)
8. OCCUPATION
9. AT THE TIME OF THE INCIDENT, WERE YOU:
A. CIVILIAN ? OR
B. COMBATANT ?
10. IS INTERVIEWEE:
A. A WITNESS? YES; NO
B. THE INJURED PERSON?
C. A SPOKESPERSON FOR THE INJURED PERSON?
11. IF A SPOKESPERSON OR A WITNESS:
A. RELATION TO THE INJURED (EG. MOTHER, FATHER, SIBLING,
FRIEND, ETC.)
B. HEALTH PROFESSIONAL
C. OTHER (SPECIFY)
12. WHAT INDIVIDUAL DOING WHEN INJURY OCCURRED:
A. GATHERING WOOD

- B. TENDING LIVESTOCK
- C. FARMING (SPECIFY ACTIVITY, EG. PLOWING)
- D. WALKING
- E. RIDING
- F. COMBAT

13. IF RIDING, SPECIFY TYPE OF VEHICLE - (SEDAN, TRUCK, BUS, VAN, TRACTOR, JEEP, ETC.)

14. SITE OF INJURY

- A. INSIDE HOUSE, RUINS OF HOUSE, OR YARD OF HOUSE (SPECIFY WHICH)
- B. AT OR NEAR A WATER HOLE (SOURCE OF WATER)
- C. NEAR A FACILITY (SPECIFY: EG. AIRPORT, MILITARY CAMP, PRISON, ETC.)
- D. ON A ROAD, ON SIDE OF A ROAD OR AT A CROSS ROADS
- E. ON A PATH
- F. IN A FIELD
- G. OTHER PLACE (SPECIFY)

15. NAME OF SITE

SPECIFY AS PRECISELY AS POSSIBLE THE SITE, NAMING THE ROAD AND PLACE ON THE ROAD, CROSSROADS, STREET NAME, NEIGHBORHOOD, VILLAGE, TOWN, CITY, PROVINCE

16. IS THIS A SITE FREQUENTLY VISITED BY OTHERS (WHO MAY BE AT RISK)?

- A. YES
- B. NO

17. DATE AND TIME OF DAY OF INJURY

- A. BEFORE DAWN
- B. DAWN OR SHORTLY AFTER
- C. MID-MORNING
- D. AROUND MID DAY
- E. AFTERNOON
- F. CLOSE TO SUNSET
- G. AT NIGHT

18. WHEN INJURED, WERE YOU:

- A. ALONE
- B. WITH OTHERS (SPECIFY NUMBER)

19. IF WITH OTHERS, HOW MANY OTHERS WOUNDED?
DESCRIBE WOUNDS OF OTHERS.
20. HOW LONG BEFORE YOU FIRST RECEIVED MEDICAL CARE (DATE AND TIME) TRANSPORT TIME (from site of injury to first medical care)
- A. BEFORE DAWN
 - B. DAWN OR SHORTLY AFTER
 - C. MID-MORNING
 - D. AROUND MID-DAY
 - E. AFTERNOON
 - F. CLOSE TO SUNSET
 - G. AT NIGHT
21. TYPE OF FACILITY WHERE FIRST RECEIVED MEDICAL CARE
- A. HEALTH CENTER
 - B. HOSPITAL
 - C. OTHER (DESCRIBE)
22. GEOGRAPHIC LOCATION OF THE FACILITY (TOWN, CITY, OTHER LOCATION)
23. HOW MUCH TIME BEFORE RECEIVED FIRST AID? (delay of first aid after arrival). Why?
24. WHO PROVIDED THIS CARE?
- A. DOCTOR
 - B. OTHER MEDICAL PERSONNEL
 - C. OTHER PERSON(S)
25. MODE OF TRANSPORT TO HOSPITAL
- A. FOUR WHEEL VEHICLE
 - B. AMBULANCE
 - C. ANIMAL TRANSPORT
 - D. CARRIED BY OTHER PEOPLE
 - E. WALKED
26. HOW MUCH TIME BEFORE YOU REACHED THE HOSPITAL FROM THE TIME YOU FIRST RECEIVED FIRST AID?
27. LOCATION OF HOSPITAL (TOWN OR CITY)?
28. NATURE OF INJURIES
UE: UPPER EXTREMITY

LE: LOWER EXTREMITY
OI: OTHER INJURIES, SPECIFY:

29. AMPUTATION

- A. YES
- B. NO

30. IF YES,

- BK: BELOW KNEE AMPUTATION
- AK: ABOVE KNEE AMPUTATION
- AM: OTHER AMPUTATION, SPECIFY LOCATION

31. IF OPERATION, DID YOU RECEIVE ANESTHESIA? YES; NO
IF YES, WHAT KIND

32. ADEQUACY OF CARE AT HOSPITAL

- A. DID YOU RECEIVE MEDICINE FOR PAIN? YES; NO
- B. MEDICINE FOR INFECTION? YES; NO
- C. DOCTOR WHEN NEEDED? YES; NO
- D. NURSES WHEN NEEDED? YES; NO

33. ARE YOU RECEIVING MEDICAL AND/OR REHABILITATIVE CARE NOW?

- A. WOUND TREATMENT: YES; NO
- B. FURTHER SURGICAL TREATMENT PLANNED?
- C. MEDICINE YES; NO
- D. CRUTCHES? YES; NO
- E. PHYSICAL THERAPY?
- E. PROSTHETIC HELP? YES; NO
- F. OTHER (DESCRIBE)

34. IF YOU ARE NOT RECEIVING MEDICAL AND/OR REHABILITATIVE CARE,
WHY NOT?

- A. NONE AVAILABLE
- B. NO TRANSPORTATION TO GET THERE
- C. NO ONE TO TAKE ME THERE
- D. CAN'T AFFORD THE CARE
- E. TOO OCCUPIED WITH FAMILY OR OTHER RESPONSIBILITIES
TO GO
- F. TOO ILL TO TRAVEL
- G. OTHER (SPECIFY)

35. DID YOU PAY FOR THE CARE YOU HAVE RECEIVED? YES; NO

36. AGENT OF WOUNDING

A. LAND MINE

DESCRIBE TYPE, IF KNOWN (SHOW SKETCH OR PHOTO OF EACH TYPE)

B. LAND MINE DETONATOR

C. BULLET

D. SHRAPNEL (FROM SHELL, ARTILLERY)

E. UNEXPLODED MUNITION

F. OTHER (DESCRIBE)

37. HOW MANY OTHER PEOPLE DO YOU KNOW PERSONALLY WHO MAY HAVE BEEN INJURED BY A LAND MINE? FOR EACH, GIVE THE PERSON'S NAME AND WHERE EACH LIVES (PLACE TO LOCATE FOR INTERVIEW)

A. LAND MINE: DESCRIBE TYPE, IF KNOWN: (SHOW SKETCH OR PHOTO OF EACH TYPE)

B. LAND MINE DETONATOR

C. BULLET

D. SHRAPNEL (FROM SHELL, ARTILLERY)

E. UNEXPLODED MUNITION

F. OTHER (DESCRIBE)

38. OPEN-ENDED STATEMENT ON HOW THE INJURY/DISABILITY HAS AFFECTED LIFE OF VICTIM; IF AGREEABLE TO RESPONDENT, TAPE RECORD THIS STATEMENT.

39. IF RESPONDENT IS ARTICULATE, EXPAND TO "DESCRIBE FROM THE BEGINNING WHAT HAPPENED". IF AGREEABLE TO RESPONDENT, TAPE RECORD THIS STATEMENT.

APPENDIX C
LAND MINES
QUESTIONNAIRE FOR HEALTH PROFESSIONALS

1. ID# FOR INTERVIEW
2. DATE OF INTERVIEW AND TIME OF DAY
3. NAME OF INTERVIEWEE
4. OCCUPATION OF INTERVIEWEE
 - A. SURGEON
 - B. OTHER MEDICAL DOCTOR (NOTE SPECIALTY)
 - C. REGISTERED NURSE
 - D. NURSES AIDE OR MEDICAL ASSISTANT
 - E. ADMINISTRATIVE JOB
 - F. OTHER (SPECIFY)
5. FACILITIES AT WHICH THE INTERVIEWEE WORKS (NAME EACH FACILITY)
HOSPITAL
HEALTH CENTER
OTHER
6. HOW LONG AT THESE FACILITIES?
7. IF ABSENT (REFUGEE, OTHER REASON), WHEN RETURNED TO SITE?
8. ROLE AT FACILITY (DESCRIBE)
9. ESTIMATE NUMBER OF LAND MINE INJURED PATIENTS SEEN AT PLACE OF WORK
 - SINCE BEGAN
 - BEFORE 1991
 - 1991
 - 1992
10. FOR HOSPITAL WORKERS; HOW MANY LAND MINE PATIENTS NOW ARE NOW IN YOUR FACILITY?
11. WHAT ARE THE MAJOR OBSTACLES TO THE PROVISION OF ADEQUATE MEDICAL, SURGICAL AND REHABILITATIVE CARE?
RATE ON SCALE OF 1 TO 10; 10 BEING WORST SITUATION

- A. LACK OF QUALIFIED STAFF
- B. LACK OF PAY FOR EXISTING STAFF
- C. LACK OF NECESSARY MEDICAL EQUIPMENT AND SUPPLIES
- D. LACK OF PROPER FACILITIES OR NON-MEDICAL EQUIPMENT
- E. SHORTAGES OF MEDICINE
 - ANESTHETICS: SPECIFY BY NAME
 - ANTIBIOTICS: SPECIFY BY NAME
 - ANALGESICS: SPECIFY BY NAME
 - OTHER MEDICINES: SPECIFY BY NAME
- F. LABORATORY SERVICES
- G. BLOOD BANK AND TRANSFUSION SERVICES
- H. SHORTAGE OF BLOOD

12. WHAT ARE THE LEADING CAUSES OF MORBIDITY AND MORTALITY AT YOUR FACILITY?

13. WHAT PROPORTION OF ALL PATIENTS SEEN HAVE "WAR WOUNDS"? (SHRAPNEL, BULLET, LAND MINE, ETC. INJURIES)?

- A. 0-5%; B. 6-15%; C. 15-30%; D. 31-45%; E. 46-60%

14. WHAT PROPORTION OF THESE WAR WOUNDED HAVE PRESENTED WITH LAND MINE INJURIES

- IN 1992?
- IN 1991?
- IN 1990?
- BEFORE 1990?

15. HOW MANY PATIENTS ARE THERE WITH AMPUTATIONS DUE TO LAND MINE INJURIES?

16. HOW OLD ARE THE WOUNDS BEFORE THE LAND MINE INJURED PATIENTS ARE SEEN?

- LESS THAN 8 HOURS
- LESS THAN 24 HOURS
- LESS THAN TWO DAYS
- LESS THAN ONE WEEK
- LONGER

17. WHO HAS RESPONSIBILITY FOR LAND MINE INJURED PATIENTS (SERVICE AND NAME/POSITION OF INDIVIDUALS)?

18. ARE QUALIFIED SURGEONS AVAILABLE FOR THOSE WHO NEED AMPUTATIONS?

19. WHAT TRAINING HAVE THE SURGEONS HAD AT YOUR HOSPITAL WHO ARE RESPONSIBLE FOR LAND MINE INJURED PATIENTS?
20. WHAT IS YOUR ASSESSMENT OF THE ADEQUACY OF FIRST AID MEASURES TAKEN PRIOR TO THE ARRIVAL OF THE LAND MINE INJURED AT YOUR HOSPITAL?
21. ARE ANY AMBULANCE SERVICES AVAILABLE?
IF YES, DESCRIBE?
22. WHAT REHABILITATION SERVICES HAVE BEEN AVAILABLE?
PHYSICAL THERAPY
OCCUPATIONAL THERAPY
CRUTCHES
WHEEL CHAIRS
PROSTHETICS
23. DO YOU TRANSFER LAND MINE PATIENTS TO OTHER FACILITIES?
A. IF SO WHY?
B. TO WHICH FACILITIES?
24. ARE THERE SPECIALISTS AVAILABLE TO YOU FROM OTHER FACILITIES FOR THE CARE OR REHABILITATION OF LAND MINE INJURED PATIENTS?
25. WHAT ASSISTANCE IS THE GOVERNMENT ABLE TO PROVIDE TO YOUR HOSPITAL?
26. HOW SUBSTANTIAL IS THE ASSISTANCE FROM INTERNATIONAL AGENCIES?
A. VERY SUBSTANTIAL
B. IMPORTANT
C. MARGINAL
D. TOKEN
E. NONE
27. WHICH INTERNATIONAL AGENCIES ARE MOST EFFECTIVE IN HELPING WITH LAND MINE INJURED PATIENTS?
28. WHICH INTERNATIONAL AGENCIES ARE MOST EFFECTIVE IN HELPING WITH OTHER PATIENTS?
29. IS THE PROBLEM OF LAND MINES AND LAND MINE INJURIES
A. A MAJOR PROBLEM
B. JUST ONE OF MANY PROBLEMS
C. A MINOR PROBLEM

D. TRIVIAL COMPARED WITH OTHER PROBLEMS

30. IS THERE A DEMINING PROGRAM IN SOMALILAND?
YES NO
31. IS THIS PROGRAM SUCCESSFUL?
A. YES; IF YES, WHY SUCCESSFUL?
B. NO; IF NO, WHY NOT SUCCESSFUL?
32. IS THE GOVERNMENT INVOLVED WITH DEMINING OR MINE EDUCATION?
33. IF YES, PLEASE DESCRIBE.
34. IS THE GOVERNMENT PROGRAM EFFECTIVE?
35. HOW SERIOUSLY DO LAND MINES DETER THE RETURN OF REFUGEES OR DISPLACED PERSONS TO THEIR HOMES, VILLAGES, WORK?
A. VERY SERIOUSLY
B. NOT TOO SERIOUSLY
C. NOT AT ALL
36. ARE LAND MINE INJURED PATIENTS OR THEIR RELATIVES ASKED WHERE THE INJURY OCCURRED AND UNDER WHAT CIRCUMSTANCES?
37. ARE MEDICAL RECORDS AVAILABLE ON THESE PATIENTS?
38. WHO HAS COLLECTED INFORMATION ABOUT MINE INJURED PATIENTS?
39. WHAT PROPORTION OF WAR TRAUMA INJURIES ARE CAUSED BY:
A. BULLET WOUNDS
B. SHRAPNEL (ARTILLERY, GRENADES, MORTARS)
C. LAND MINES
D. BURNS
E. BOMBINGS
F. OTHER (SPECIFY)
40. WHERE ARE MOST OF THE LAND MINES IN SOMALILAND?
PICK FROM AMONG THESE POSSIBILITIES (MORE THAN ONE CATEGORY PERMITTED; INDICATE RELATIVE FREQUENCY).
A. HARGEISA
B. HARGEISA AND OTHER CITIES
C. IN OR AROUND HOMES
D. NEAR MILITARY INSTALLATIONS
E. AT WATER SOURCES

- F. ALONG ROADS
- G. OTHER

41. WHAT ARE THE MAJOR UNMET NEEDS YOU FACE AS A HEALTH PROFESSIONAL WHICH INTERFERE WITH YOUR ABILITY TO DO YOUR JOB EFFECTIVELY?

42. CAN YOU SUGGEST WHO ELSE WE MIGHT SEE TO GET ANSWERS TO SOME OF THESE QUESTIONS.

43. CAN YOU HELP US FIND LAND MINE-INJURED PATIENTS TO INTERVIEW?

44. WHO ELSE MIGHT HELP US FIND LAND MINE-INJURED PATIENTS?

BIBLIOGRAPHY

Asia Watch and Physicians for Human Rights, *Land Mines in Cambodia: The Coward's War*, September 1991.

Save the Children Fund, *The Prize of Peace: Report on A Survey of Rural Somaliland* (draft), London, January 1992.

Penny Allen, *Report on Inter-Agency/MOH Nutrition Surveys of the Main Towns of Somalia*, London, Save the Children Fund, September/October 1991.

Africa Watch, *Somalia, A Government at War With Its Own People: Testimonies about the Killings and the Conflict in the North*, January 1990.

Africa Watch and Physicians for Human Rights, *Somalia, No Mercy in Mogadishu: The Human Cost of the Conflict and the Struggle for Relief*, March 26, 1992.

Where There is No Border, Repatriation of Somali Refugees from Ethiopia, A Report to Save the Children Fund (UK), January 1992