

Landmines: an ongoing environmental health problem for the children of Afghanistan

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Abstract

Our planet is contaminated by a deadly plague. Landmines have killed, injured, orphaned, made homeless and traumatized millions of children in 68 nations over the past decade. The United Nations Secretary General has been quoted as saying 'Landmines may be the most widespread, lethal and long lasting form of pollution we have yet encountered.' Afghanistan's children have been at risk like few others, and represent a generation of tragically unique young people who have known nothing but war. Twenty years of continuing conflict in their country has created an environment with few if any places left to escape harm. The land is contaminated by an estimated 10 million mines. This article investigates the state of land mines in Afghanistan prior to 9th September 2001.

Introduction

Afghanistan is a ruggedly beautiful land inhabited by an intensely proud, ethnically and tribally diverse population with a common overwhelming belief in Islam and its principles. As a consequence of the country's strategic position, straddling the trade routes between the Mediterranean, Europe, the Middle East, the Indian Subcontinent and China, Afghanistan has both a rich cultural heritage and long history of foreign incursions. Pre-war, nearly 80% of Afghans lived in rural areas and relied on farming for income and subsistence. The economy has always been based on farming despite a mere 5% of the country, mainly irrigated valleys, producing 85% of the overall agricultural output (Girardet and Walter 1998). The Karez, a traditional system of extensive underground irrigation channels, date back more than 4500 years in Afghanistan. The high mountains and passes and inhospitable deserts support sparse but extensive grazing. Kuchies, Afghan nomads, have large stocks of sheep and camels, and herd and trade in these regions following ancient migratory paths.



Since the 1979 invasion of Afghanistan by the Soviet Union, a seemingly endless wave of conflict has engulfed the entire country, destroying or severely damaging once thriving urban and rural areas, cultural sites and natural resources. The Afghan war has been fought by ever changing forces of young inexperienced combatants unschooled or perhaps overly schooled in the rules of war. Following the original Mujahideen, who came together to fight jihad (the holy war) to expel the soviets, factional fighting has continued in the name of Islam, the power of faith overwhelming the rules of war (Jeffrey 1996). The Taliban, a fundamentalist Islamic students movement originating from the Pashtun south of Afghanistan in the early 90s, was in control of approximately 90% of the country in 2001 with the Northern Alliance holding the remaining ground. This conflict has killed an estimated 1.7 million, permanently disabled 2 million and caused at least one third of the Afghan population to leave their homes. According to UNHCR estimates, from 1985 – 1990, 6.2 million Afghans –including children born in exile- were living in Pakistan and Iran alone: this is just under ½ of the worlds refugee population (Girardet and Walter 1998). The ongoing civil war is not merely a complex history of social, political and ethnic conflict. Afghanistan can be seen to be the victim of unparalleled foreign interference by superpowers and its regional neighbors motivated by political, economic and religious self-interest.

The history and politics of humanitarian aid to Afghanistan is complex. The Taliban have demonstrated no significant administrative capacity during their years in government. The aid community has inevitably found itself assuming a role as caretaker of health, public works and other social services arguably abdicating the Taliban's responsibility for the welfare of ordinary Afghans. The United Nations attempted to build a common assistance strategy to improve this caretaker role. The Taliban's controversial policies regarding employment and education of women has affected availability of international funding as has the belief that Afghanistan is a known sanctuary and training ground for terrorists. Many international agencies withdrew from the country because they were unwilling to work in accordance with Taliban policies, were frustrated by inconsistencies and shifting authority within the

Taliban movement or were not prepared to work in the unstable political environment for strategic or security reasons.

Prior to 9/11/2001, much of Afghanistan was actually at peace yet it continued to be described as a 'society in crisis and transition'. The 'complex political emergency' that is Afghanistan, is considered to be a crisis provoked by the collapse of a state (Girardet and Walter 1998). As a consequence, facts are scarce. The country holds some of the world's worst records for infant and maternal mortality, access to safe water, literacy, proportion of disabled people and estimated number of landmines. Afghanistan is considered one of the least developed countries in the world and faces an almost total rebuilding of its infrastructure. The Taliban 'government' and more recent ones unfortunately remain focused on military activities at the expense of rehabilitation. It seems that the determination of the Afghan communities themselves toward restoration of their war torn environment is what will ultimately bring a longer lasting improvement to the health and wellbeing of their children.

Analysis of landmines as an environmental health problem for the pediatric population of Afghanistan.

Nature and Source of the problem

Landmines, although never produced within Afghanistan, have been laid in all phases of the 25 year-old Afghan war. Their use was indiscriminate. Minefields were unmarked and few military mine maps exist. Mines were also laid from the air and were impossible to mark by their nature, sheer numbers and mobility. As a result, mines can be found in even the remotest mountain passes of the country. More strategic placement resulted in contamination of water sources, agricultural land and shelter. The weapon clearly violates international humanitarian law, its short-term military benefits being far outweighed by the long-term human and socioeconomic costs (Human Rights Watch 1997).

The bulk of mines found in Afghanistan are Russian made but mines manufactured by Italy, China, US, Pakistan, Egypt, Britain and former Czechoslovakia have been found. Afghanistan has been described as the 'most dangerous museum of unexploded ordinances in the world.' Fifty-two different landmines have been identified, designed either to attack single individuals or threaten anyone within 30 meters or both (Landmine Monitor 2000). Soviet PFM-1 'butterfly' mines were widely used in Afghanistan. They were designed to maim, their small size, lightweight and bright coloring makes them particularly attractive to children. Two other Soviet mines found in Afghanistan are the trip wire activated fragmentation mine, that shoots out 100s of metal fragments when detonated and the large blast mines designed to be virtually impossible to neutralize (Godrej 1997). The most commonly used mines are cheap to produce (\$3-30) yet extraordinarily difficult and expensive to remove.

Existing technology is primitive and inadequately designed for 'humanitarian mine clearance' where an entire area is completely demined in order to rehabilitate it. Clearing may miss predominantly plastic mines entirely and mechanical mine clearing equipment destroys valuable topsoil compounding the environmental devastation. The demining process in Afghanistan has been equated to the work of archeologists since collapsed mud walls of compounds can bury the mines meters deep. Predictably the accident rate amongst Afghan deminers is the highest in the world. In 1996, there was one demining accident every week (Medecins Sans Frontieres 1997). Demining is especially dangerous in Afghanistan due to the rugged terrain, hardness of the soil and density and variety of the mines present, especially within urban areas. Of the total land affected by mines, 337 km² is considered 'high priority' (Girardet and Walter 1998). These are areas where civilians face the greatest risks of exposure and include residential and commercial areas, farmland, irrigation canals and roads. Once high priority areas are cleared by the estimated year 2008, it is anticipated that deminers will need to work clearing lower priority areas for at least another 10 years.

Exposure assessment, how kids come into contact with landmines in Afghanistan

The role of children in Afghan society reflects the unique history and culture of the country. Young girls watch over toddlers taking their first steps beyond the safety of compound walls. Young children, usually unsupervised, are responsible for water and wood collection, herding of animals, running errands to market places and washing laundry in rivers. They are often seen on roadsides shoveling stones into potholes and involved in other entrepreneurial activities that inevitably put them at increased exposure to mines. Tragically, it is the economic necessity of most of these activities that results in children, and adults, knowingly entering minefields.

Children's development, natural curiosity and playfulness place them at specific risk of landmine injury. In Afghanistan, children have been known to play games competing to detonate landmines by throwing rocks at mines they have discovered (War Child Landmine Project 2003)! Small, colorful "butterfly" mines are by design especially attractive for children and easily handled and passed around amongst friends. As there are few schools in the country and the majority of families live in remote areas, children may not be aware of the risks of landmine injury. Due to their age it may be difficult for younger children to comprehend the danger a landmine poses and adolescents may feel immune to the risks they face. Also, their mothers are unlikely to have received mine awareness training themselves and so may not appreciate the risks their child faces when asked to perform tasks outside the compound walls. Both fleeing and returning refugees and displaced people and their children, have been shown to be at increased risk of landmine injury. Eager to return home, perhaps unaware of the risks, returning refugees made up 78% of all mine injured people in one International Committee of the Red Cross (ICRC) study (Jeffrey 1996).

The health effects of landmines both direct and indirect

Children by nature of their small size, are more likely to suffer a fatal mine injury. In addition, the most common mines found in Afghanistan are designed to cause immediate fatality. It is felt that many children and adults die before reaching hospital due to the remote location of the accident, a lack of appropriate first aid at the time of injury and inadequate or unavailable transport for definitive treatment. Of the 59% of landmine victims estimated to die from their injuries, most are likely to die before arriving at hospital (Medecins Sans Frontieres 1997). If the child survives the blast, they can be expected to suffer one of the three patterns of injury from antipersonnel mines that have been described (Coupland and Korver 1991; Coupland 2000). Eye injuries and blast injuries to the ear are common in all mine victims.

The pattern 3 injury is most common in children and relates to accidental detonation whilst handling a mine. It involves severe wounds to the hands and face. Wounds from landmines do not correspond to any of the modern surgical specialties and surgery even in experienced hands is difficult and time consuming. Organic matter, dirt and debris are driven up into tissues necessitating extensive excision and delayed primary closure. The wounds are often associated with fractures requiring splinting and skin loss requiring grafts. Surgical amputation of entire limbs that are beyond repair is not unusual. On average mine injuries require 3-4 operations due to infections and the need to revise limb stumps. Children often require re-amputation as their growing bone may penetrate the slower growing soft tissue of their stump (Godrej 1997). The extremely underdeveloped health infrastructure and few remaining skilled health professionals inevitably results in poorer quality amputations, higher amputation complication rates and inadequate post-operative care and often means amputees are not suitable for prosthesis. As children continue to grow following their injury, a new prosthesis needs to be fitted every 6 months. If they are not reviewed, problems with the spine and hips develop (Godrej 1997). Although these services are often free, the logistics and economics of arranging transport and time to attend clinics are prohibitive.



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Amputees may find it difficult to mobilize on the uneven paths and roads in Afghanistan resulting in social isolation and limited ability to contribute to daily chores. They may feel ashamed of their disability and older children may see themselves as a burden to their family. Psychologists studying the mental health of landmine victims have divided the psychiatric problems following the trauma into acute, sub-acute and long-term reactions (Kakar 1995). Significant mental health problems may also be suffered though no physical injury has actually been sustained. Emotionally traumatized victims may then somatize their symptoms to seek validation of their suffering placing additional demand on limited medical resources. Specific psychiatric diagnoses seen amongst landmine victims include Post Traumatic Stress Disorder (PTSD), which is thought to be very common, depression, and anxiety states. Psychiatric disabilities amongst Afghan mothers will adversely affect the health and wellbeing of their children, especially considering the large number of children in Afghan families. This compounds the chronic state of trauma Afghan children are already experiencing consequent to the ongoing violence most have witnessed (Gupta 1997). Children aware of the danger they face living with mines, and witnessing their affects on friends and family, are likely to experience fear and sadness. The psychosocial care that is their right is simply unable to be provided by the few health services that exist.

The indirect effects of landmines involve a far larger number of victims than those physically or mentally 'injured' by mines and have been described as the greatest public health hazard of the 20th century (Table 1). Children are especially at risk and the prenatal care of the unborn child is also significantly affected due to worsened maternal health. The following table created by World Health Organization provides a summary of the indirect consequences of landmines in any affected country (Kakar 1995). Modifications to the table are in italics and identify additional indirect effects of landmines important in Afghanistan.

Table 1. Summary of the most important (probable) indirect public health consequences of landmines in Afghanistan.

Landmine primary influence point	Condition/s or behavior altered	Diseases especially increased
Agricultural land, water canals mined	<ul style="list-style-type: none"> Farming activities decrease causing food scarcity Focus on more easily grown and transported cash crops i.e. poppies for opium 	<ul style="list-style-type: none"> Malnutrition related diseases Accidental overdose especially in children, problems with drug dependence/addiction
Grazing land mined	<ul style="list-style-type: none"> Stock loss leads to poverty and protein scarcity 	<ul style="list-style-type: none"> Malnutrition related diseases
Dams and power lines mined	<ul style="list-style-type: none"> Water scarcity and alternative fuels used for heating, lighting etc 	<ul style="list-style-type: none"> Waterborne disease, dehydration, burns, inhalation injuries
Residential areas mined	<ul style="list-style-type: none"> Siege mentality and surrounding deforestation 	<ul style="list-style-type: none"> Heat stress, hypothermia
Access to drinking water and firewood mined	<ul style="list-style-type: none"> People drink contaminated water 	<ul style="list-style-type: none"> Waterborne diseases such as bacterial diarrhea, amoebiasis, giardiasis etc
Defecation fields, or access to, mined	<ul style="list-style-type: none"> Defecation occurs close to or within compounds 	<ul style="list-style-type: none"> Diseases spread by fecal-oral route e.g. polio, hepatitis A
Roads and access to public places mined	<ul style="list-style-type: none"> Mobile vaccination teams avoid the area, resulting in no or low vaccination coverage and may disrupt all PHC activities Mobile traditional birth attendant programs immobilized Slower refugee and IDP return 	<ul style="list-style-type: none"> All six childhood killer (but preventable) diseases Further restriction of access for women to health care and basic health education Delayed rehabilitation and reinstitution of health services
Increased amputation and injury requiring blood transfusion	<ul style="list-style-type: none"> Increased demand and frequency of blood transfusion 	<ul style="list-style-type: none"> Contaminated blood transfusion diseases (HIV, trypanosomiasis, malaria)
Mined roads prevent (a) food transport between villages (b) transport of supplies for emergency aid and (c) transport of agricultural and rehabilitation equipment and supplies	<ul style="list-style-type: none"> People may have to subsist on local food products that may be iodine deficient Untrained 'doctors' consulted and prescribing inappropriate or dangerous treatment Housing inadequate and overcrowded 	<ul style="list-style-type: none"> Iodine deficiency disorder, including high perinatal morbidity Increased deaths from epidemic diseases e.g. cholera. Increased rate of drug reactions and side effects Increased spread of disease by the respiratory route e.g. TB, measles

In addition to the physical burden on the population, Afghanistan as a country faces the significant socioeconomic repercussions of landmine pollution. Transportation infrastructure has been disrupted reducing exports and imports and environmental damage further delays the rehabilitation of the agricultural based economy. Much of the present economy is linked to international aid programs. Illegal drug trafficking and financial support for select political factions is also important. Funding for NGOs engaged in mine action accounts for 63% of all NGO activity in Afghanistan (Landmine Monitor 2000). Unfortunately, diversion of scarce international funds to land mine action has meant funding for essential infrastructure reconstruction, preventative primary health care programs and economic rehabilitation is insufficient. Delays in the return of refugees, and hence the delayed resolution of the 'brain drain', also impedes the implementation and sustainability of these programs.

Many Afghans are experiencing extreme hardship. Following successful demining, urban areas may become overcrowded. Unemployment and poverty are exacerbated, and water, sanitation and waste disposal systems are overwhelmed. Cleared land suffers accelerated degradation due to desperate attempts to increase yields from smaller areas of available land. Many family members, including

children, sell anything from cigarettes to medicine to keep the family going. Public and community programs are hindered due to the threat of landmine injury. Reestablishment of schools and universities is delayed pending mine clearance as well as return of trained professionals. Educational opportunities are limited and the education of the male population is given priority under Taliban 'law'. Educational opportunities for females are further limited due to disruption of traditional birth attendant training programs offered by NGOs. Transport of trainers to the women's home is restricted due to landmines. Restrictions on the freedom of movement of women have also been justified on the basis of the ongoing threat of landmines.

Measure of the problem

There is a general lack of credible health surveillance data available from within Afghanistan. Data concerning those killed by mines remote from health services and the impact on their family is almost impossible to obtain as is information regarding the mental health and long-term outcome of landmine victims. The indirect economic, political and social costs of environmental pollution by landmines in Afghanistan are immense and protracted yet difficult to quantify. Data collection remains logistically difficult and dangerous in Afghanistan due to destruction of transport and communication systems and ongoing instability. In addition, funding for epidemiological studies is scarce.

From 1990 to 2000, 205,842 antipersonnel mines, 9,199 antitank mines and 1,054,738 unexploded ordinances were removed from Afghan soil (Landmine Monitor 2000). Importantly however, the absolute number of landmines is of little consequence. Just one mine, even the fear of a mine's presence can paralyze individuals and communities and prevent resettlement of refugees and Internally Displaced Persons (IDPs) despite the resolution of conflict and the desire to return to normal life. It seems likely Afghanistan will never be completely cleared of mines, a total of 717 km² of land remains contaminated and new minefields continue to be uncovered (Landmine Monitor 2000). A major socioeconomic impact study conducted by the Mine Clearance Planning Agency (MCPA) published in December 1999 revealed that this affected land consisted of 61% grazing, 26% agricultural land, 7% roads, 4% residential and 1% irrigation (Landmine Monitor 2000).

Since 1991, more than 400,000 people in Afghanistan have been killed or maimed by landmines, the majority of victims being civilians, injured well after conflict has resolved. The majority of noncombatant war wounded presenting to the ICRC hospital in Peshawar in 1996 were under 16 years of age, and 48% of all war wounded presenting in the same year were landmine victims (Jeffrey 1996). The number of landmine casualties each year is in fact reported to be declining with 5-10 people being injured or killed per day in 1999. An estimated 96% of casualties are male and 36% are under 18 years of age (Landmine Monitor 2000).

The landmine problem in Afghanistan, measured in terms of personal, social and economic cost will persist long after the last mine is removed. Drawing on the experience of 174,489 people in 206 communities, including 37 in Afghanistan, Andersson et al (1995), attempted to document the social cost of landmines. The main outcome measures included effects on food security, residence, livestock



and land use as well as the physical, psychological, social and economic costs of injuries. 78% of Afghans reported their daily activities were affected by landmines, with herding and walking the highest risk activities. 84% of victims went into debt to pay for medical attention and more than half spent an average of 2 months in hospital. Families commonly complained of reduced productivity and family relationships were affected for 1 in every 4 victims. Without mines, agricultural production in Afghanistan could increase by 200%. Food security was

threatened in 40% of households with a landmine victim and Kuchies reported losses of an average of 24.4 animals per household.

Attempts to control and manage the problem.

Landmines represent a global pandemic with health, social, economic and political ramifications. Consequently, in attempting to control the epidemic in Afghanistan, international as well as the local, preventative and treatment orientated initiatives have been important. The complex nature and relationship of and between the political, cultural and natural environments, landmines themselves, and the acute and ongoing health of the pediatric population, has meant clinical, public health and environmental health intervention models have all been employed. Within these frameworks, the combined efforts of dedicated professionals including doctors, epidemiologists, scientists, engineers, agriculturists, teachers and politicians, has been necessary to attempt to cover all aspects of the enormous environmental health problem. These people are often working with translators, in basic conditions and are potentially at risk of death or injury due to ongoing insecurity and landmines. In addition, by nature of the unique cultural, religious and political context, any moves made toward a resolution to the ongoing tragedy of landmines in Afghanistan have required a transparent, security conscious, as well as a culturally sensitive approach.

The earliest calls for a worldwide ban on landmines were heard from NGOs active in Afghanistan in the 1980s. In 1992, six NGOs combined their commitment to a mine free world and the International Campaign to Ban Landmines (ICBL) came into existence. ICBL was the driving force behind the mine ban movement whose efforts bypassed the failure of consensus politics to convene an historic conference in Ottawa in 1996. Fifty governments signed a declaration recognizing the urgent need to ban landmines and many NGOs were involved. The 'Ottawa Process' culminated in *The Convention on the prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and On Their Destruction* ('Mine Ban Treaty') being opened for signature on 3 December 1997 and entering into force on 1 March 1999. More than half the world's nations and three quarters of the signatories have now ratified the Mine Ban Treaty.

The ICBL, determined to monitor implementation and compliance with the 1997 Mine Ban Treaty. The Landmine Monitor report 2000 is an attempt to promote and facilitate discussion by providing factual information on mine related issues, in order to help reach the goal of a mine free world. It reports the existence of stockpiling of mines by both sides, as well as ongoing use and transfer of landmines by the Northern Alliance in Afghanistan. Although Afghanistan is not a party to the Treaty, the supreme leader of the Taliban proclaimed a comprehensive ban on antipersonnel mines in October 1998 and added that mine use would be punished according to Islamic Shariat. Indeed the principle arguments that support a ban on landmines are readily acceptable to Afghan culture and religion. There is also an active Afghan Campaign to Ban Landmines (ACBL) whose activities reflect the member NGOs support for the Mine Ban Treaty. ACBL hopes to promote international awareness about the mine problem in Afghanistan and attract financial support for mine clearance activities in their country.

Significantly, the United States, as one of the world's major landmine producers and exporters, and with 15 million mines stockpiled (Human Rights Watch 1993), have not yet signed the treaty. The US Antipersonnel Landmine Policy does however commit the Department of Defense (DOD) to expanding demining efforts including improving technology and providing training. Human Rights Watch identified 47 US companies in 1996 to be involved in the ongoing manufacture of landmines. A subsequent report formed the basis of a 'stigmatization campaign' that led to 17 of these companies renouncing any future in mine production (Human Rights Watch 1997).

Demining began in 1989 in Afghanistan and it is the only truly indigenous landmine response in the world (Girardet and Walter 1998). Over \$US100m has been contributed to the program, which is enough to clear a 20% of the known mined areas in the country (Medecins Sans Frontieres 1997). Five major Afghan NGOs involved in the Afghan mine action program (AMAP) are coordinated by the UN Office for the coordination of humanitarian assistance to Afghanistan (UNOCHA). MCPA surveys, marks and maps minefields as well as centralizing data on mined areas. The Mine Dog Centre (MDC), Afghan Technical Consultants (ATC), The Organization for Mine Clearance and Afghan Rehabilitation (OMAR) and the Demining Agency for Afghanistan (DAFA) are responsible for clearing the mine fields.

In Afghanistan, mine clearing by dogs, is estimated by the UN to be only 85 –90% effective. Dogs are mainly of use on the plains around cities and where there is not too much explosive in the ground. Manual demining is undertaken by teams of Afghan men who have attended demining school in Jalalabad, Afghanistan. They work in pairs using metal detectors and digging trenches through the hard ground toward suspect signals. Mines are later detonated where they lie. In areas contaminated by domestic waste, men work alone using only their eyes and a hand excavator to identify mines. New

methods of mine clearance invented locally target the many mines used in built up areas of Afghanistan where manual clearance using metal detectors is impossible. These mechanical demining systems consist of armor plated earth movers that operate on flat areas of ground and accelerate demining by as much as 300 – 400% (Medecins Sans Frontieres 1997).

Afghanistan is a country of extreme weather conditions which restricts the demining activities to certain times of the year in various regions. Dogs can not perform in windy conditions, metal detectors do not function properly in the wet and the deminers must have tolerable conditions to perform effectively and safely. Mine clearance rates still fall short of 100% and unfortunately some mines may move with rain and earth, into areas previously declared mine free, killing or injuring unsuspecting civilians.



The international scientific community is currently engaged in a search for more specific, rapid and cost effective mine detectors. With current technology, the United Nations estimates it will take US\$33 billion and 1100 years to clear all existing mines worldwide. The US DOD 'technology development program' is assembling a 'toolbox' of demining technology, transferable to other countries and available free to companies for commercial use (American Chemical Society News 1997). Mine detection requires development of 'discrimination technologies' as improvements on manual probing and use of dogs. Some biologically based ideas include artificial noses, TNT-seeking insects and devices covered with anti TNT antibodies (American Chemical Society News 1997). The role of chemistry in safe detonation and rendering of mines safe for handling is also being explored. Unfortunately, the usefulness of advancements in detection, neutralizing and removal of mines are confounded by the variability of mines and the environments they pollute.

The Food and Agriculture Organization (FAO) is the leading United Nations agency for the rehabilitation of Afghanistan's agricultural sector. Once landmines have been cleared from access roads and farmland rehabilitation can be implemented. Seed and planting material is distributed to returning farming communities and disease and pest control programs are implemented. The simplicity of Afghanistan's basic production pattern, that has remained essentially unchanged in the last 2000 years, has facilitated the rapid reestablishment of agricultural production. Additionally, the Afghan farmers have shown remarkable adaptability to advanced technologies such as inorganic fertilizers and high yielding crop varieties (Girardet and Walter 1998). Other agencies involved in rural development projects are DACAAR, CARE and ADA a local NGO. DACAAR provides technical support in response to requests for assistance from communities and CARE is developing forestry as an income generating initiative. ADA combines the rehabilitation of water supplies, bridges and horticulture with higher education in veterinary and agriculture, soil conservation and micro-hydropower (Girardet and Walter 1998).

Despite a well developed mine awareness programs MCPA reported that only 0.64% of mine victims it surveyed had received mine awareness education prior to their injury (Landmine Monitor 2000). The Mine Awareness Program includes international NGOs such as Save the Children Fund (SCF) and Handicap International. Men and children attend 2-4 hr sessions where through repetition of key messages, use of pictures and models they gain some protection from the threat of mines. A teacher trainer, and a pre-selected local volunteer teacher, provide information to students about the types of mines found in the area, on how to recognize mined areas and surveyed areas, how to mark danger areas themselves and whom to report the danger area to. Involvement of local volunteers is fostered to make mine awareness training more sustainable. Handicap International establishes 'mine committees' of village elders and religious leaders to encourage communities themselves to take responsibility for mine awareness and reporting.

SCF works in the north of the country and addresses boys at schools and mosques about the dangers of mines and has established a children's network to spread awareness amongst young Afghan's. Children are given mine awareness messages, board games and memory cards. Young girls are targeted at hospitals and clinics as Taliban authorities have closed girls' schools throughout the country.

In 2001, the media in Afghanistan mainly consists of BBC and local Taliban radio broadcasts. 'New home, New life' is a popular soap opera listened to by men women and children. Its story lines carry mine awareness messages in addition to other health education messages. Televisions are forbidden in Taliban controlled areas and newspapers are seldom seen in the country.

Mine awareness training is uniquely challenging in Afghanistan. Teaching opportunities are constrained by the logistics of locating and accessing remote communities, populations being nomadic,

refugees and internally displaced populations being on the move, closure of many schools in the country and the cultural limitations on women's access to activities outside her family's compound. Low literacy rates necessitate the use of specific and novel teaching strategies, and the diversity of types of mine in the country make recognition of a mine difficult, further challenging even the finest teacher! In addition, many Afghans think that their destiny is in the hands of Allah and that there is little point in keeping clear of mined areas.

About Thirty organizations and NGOs exist to provide acute care and rehabilitation services to landmine survivors in Afghanistan (Landmine Monitor 2000). These efforts include medical care, surgical operations, orthopedic care, physical rehabilitation, technical training and employment opportunities. A survey by ACBL found that between 1999 and April 2000, 1950 mine survivors received assistance in the provinces surveyed. Unfortunately, communities may be largely unaware of the services available to them or be unable to access the service for logistic, cultural (especially women) or economic reasons.

The specific medical needs of landmine victims begin at the point of injury however they are rarely met considering the lack of basic health knowledge amongst the uneducated community. The ICRC hospitals, in Afghanistan's three largest cities, are served by first aid posts. Employees have been trained in tourniquet application, splinting as well as administration of antibiotics and tetanus toxin (Coupland 2000). These first aid services remain inadequate and transport to hospital is slow.



In Afghanistan, the five biggest hospitals, each located in regional capitals, are all poorly maintained, under resourced, understaffed and may lack necessary surgical and anesthetic facilities altogether (Medecins Sans Frontieres 1997). ICRC supports surgical operations in Kandahar. Patients presenting to this hospital are likely to receive high quality free medical and surgical treatment, nursing care and physiotherapy. In contrast, treatment at government hospitals, where medical care is dependant on payment, involves services that are likely to be of poor quality (Medecins Sans Frontieres 1997).

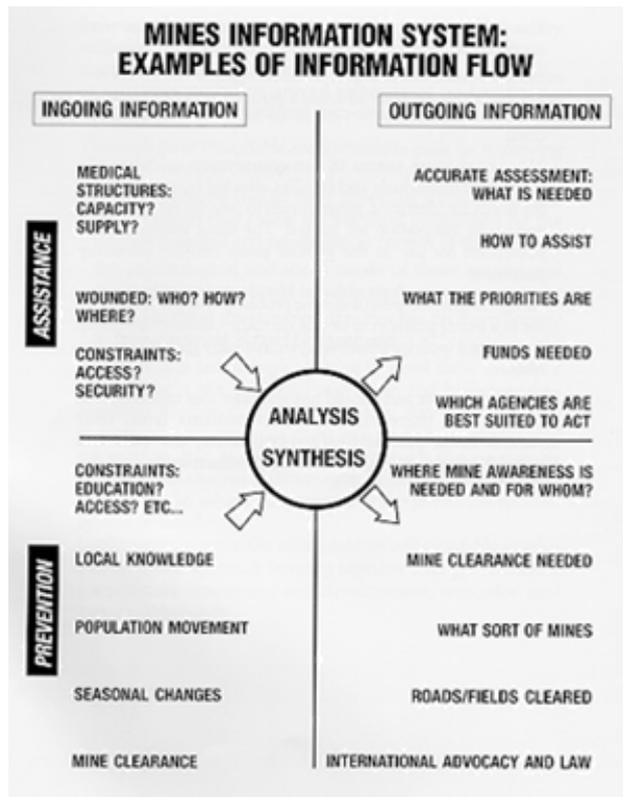
The Afghan Ministry of Public Health has recently agreed on a 2 year training course that will provide the beginnings of a career structure for Afghans in the field of physiotherapy (Girardet and Walter 1998). Numerous orthopedic centers operate throughout the country providing free physiotherapy and appropriate devices for the disabled including landmine victims. An Afghan NGO, Gaurdian, makes some 85 prostheses every month (Medecins Sans Frontieres 1997). Transport to and from these centers and accommodation in dormitories during the 10 day fitting, manufacture and physiotherapy process is also often provided free. Unfortunately many patients inevitably revert to the use of crutches as they outgrow their prostheses or they become damaged. Returning to orthopedic centers for refitting every 18 months as advised (6 monthly for children), but this is simply not practical or possible. Interestingly, wheel chairs, specifically designed for rough terrain, are being manufactured by some agencies in Afghanistan (Girardet and Walter 1998). They are made from locally available materials and may provide some amputees with significantly more and longer term mobility.

The Comprehensive Disabled Afghan Program (CDAP) involves some 12 United Nations and NGO agencies throughout Afghanistan. It aims to facilitate the integration of disabled Afghans within their own communities. 113 physiotherapists and 400 staff members serve a community of 30,000 disabled, one third of whom are female and served by female staff. In 1998, CDAP started a Vulnerable Women and Children Program (VWC). This provides vocational skills training and income generation support for women who are the only bread-winners of their family (Girardet and Walter 1998).

The focus of rehabilitation of landmine victims continues to be largely on the physical aspects of their disability. Additional psychological assistance and help finding a place in society is limited in Afghanistan, especially for children. UNICEF was training health workers in ways to help kids cope with trauma and grief in the early 90s and in 1996 there was a community based psychosocial assistance and child orientated landmine education program launched by Save the Children US (Girardet and Walter 1998).

Strategy to manage the problem

At an international level, both the ICRC and WHO have published comprehensive strategies that attempt to meet the needs of children and other victims of landmines worldwide (Coupland 2000; Kakar 1995). The task of managing landmine related health problems was identified as immense, requiring both assistance for victims as well as preventative measures. Any successful management strategy would require contributions from and the co-operation of four identified sources (Local authorities/governments, the relevant United Nations agencies, the NGO community and the ICRC). The constraints identified, such as security and poverty, seem insurmountable and inherent to the majority of countries affected by mines unfortunately. In addition, the absence of a structured flow and analysis of information about the entire mine problem in any given situation further challenged the development of an effective management strategy. Without statistics and facts it is difficult to establish priorities and articulate policy.



The ICRC proposed a Mines Information System (MIS) to the international community at a governmental conference in Tokyo in March 1997. It attempts to link information gathered to every aspect of assistance and prevention. Incoming information would be collected on standardized forms by all agencies involved and would facilitate an assessment of needs as well as identifying constraints applying to assistance strategies. Following synthesis and analysis of information, estimates of resources necessary and identification of the priority interventions would be possible. Outgoing information would guide the planning of a coordinated assistance operation involving emergency, development and educational agencies as well as governments. Information would also facilitate applications for program funding and fuel stronger advocacy campaigns. Implementation of this useful system in Afghanistan may be constrained by the challenge of gathering data from a largely illiterate population and the lack of reliable communication and transport

systems in the country. With governmental and inter agency co-operation the MIS could be extremely useful in the development and implementation of a landmine management strategy however.

The following table presents public health and clinical interventions needed to help prevent landmine injuries as well as to treat and rehabilitate the pediatric and adult victims. It was developed by the WHO, following a comprehensive analysis of the direct and indirect consequences of landmines on public health (Kakar 1995). The proposal provides a useful strategic framework on which to apply the available information and data regarding the unique Afghanistan landmine problem. Specific operational constraints and opportunities can then be identified and addressed in order to facilitate implementation of priority assistance and prevention programs throughout the country.

Table 2. Proposed programs to help prevent, treat and rehabilitate victims of landmine injuries

Program/activities	Objectives	Expected outcome
Mine awareness	Improved mine avoidance behavior	Reduce incidence of landmine victims
Train selected villager/s in first aid techniques	Improve skills and timely response to injuries	Improve survival chances
Transport the landmine victim rapidly	Prevent blood loss	Improve survival chances
Improve national capacity and health facilities in treating landmine injury, including PTSD	Improve treatment and rehabilitation	Improve survival, reduce complications of surgery, prevent PTSD, prevent blood transfusion problems, improve quality control, improve rehabilitation
Provide low tech solar cookers and/or fuel and give priority to demining of areas leading to drinking water sources etc.	Reduce deforestation and avoid minefields, provide safe drinking water	Reduce incidence of injury, reduce incidence of waterborne diseases
Provide safe access to grazing land	Reduce food shortages	Prevent malnutrition
Train mobile health workers/teams and send them to villages etc. near mined areas	Improve vaccination coverage, distribute concentrated food packages, etc. Treat women and children with iodized oil and salt	Prevent childhood diseases, prevent childhood malnutrition, prevent IDD
Establish decentralized prosthesis facilities	Provide locally made prosthesis and maintenance	Improve the quality of life (and productivity) of landmine victims

Although constraints can often be circumvented in the short term it is essential for the success of a comprehensive, coordinated, long-term landmine strategy in Afghanistan, that they are addressed.

ICRC has identified the key constraints acting on landmine assistance programs either individually or in combination Coupland (2000).

1. Access
2. Lack of protection and Security
3. Political and administrative constraints
4. Poverty
5. Lack of educated people and social structure
6. Lack of funds
7. 'Donor pressure'
8. Inter-agency rivalry and lack of coordination

Access

Unique constraints relating to access for women to all aspects of assistance programs in Afghanistan is well established. The paucity of services and remoteness of communities compounds the problem for women, and affects the entire populations' access to assistance. Existing treatment and preventative programs need to be continued and developed in addition to the identification of new opportunities such as

- Young boys currently being educated in Madrassas (religious schools) throughout the country should be targeted to receive mine awareness training. Child to child spread of information should be encouraged and women and extended families can learn from their children.
- Existing, culturally specific, communication channels need to be identified utilized and developed. This will improve the communities' awareness regarding landmines as well as of acute care and rehabilitative services available to landmine victims.
- All refugee populations, including children, should receive mine awareness training in refugee camps prior to their return to Afghanistan. Other returnees should also be targeted through awareness campaigns at border towns for example. This training must address the importance of reporting landmine sightings and related injuries to UNOCHA.
- Continued efforts to trace traditional migration patterns of the Kuchi people and establish targeted mine awareness programs on these paths.

Security

Security remains a serious concern. Many agencies were reluctant to work in Afghanistan when America was threatening to bomb the country without warning pending the 'arrest' of the terrorist, Osama Bin Laden. Additional internal threats include ongoing lawlessness as well as targeted anti western aggression. Post 9/11 and the US unilateral intervention, the security situation is even more of a concern.

- Agencies must determine independently what is an acceptable risk and ongoing communication between agencies can improve security for all involved.
- Early and ongoing risk assessments should be undertaken, including development of a hierarchy of threats, the likelihood of exposure and identification of actions required to minimize all potential threats.
- Security plans, developed following the situation analysis, must be known to all agency staff.
- Ongoing analysis of the political situation locally, regionally and internationally is essential Afghanistan.
- Agencies active in the same area need to be aware of and coordinate emergency response plans e.g. evacuation.
- All agencies active in the country should provide staff with land mine awareness training.

Political and administrative constraints

These constraints exist largely due to the government's lack of administrative experience or indeed internal organizational structure. Aid work is certainly hindered by the lack of coordination between authorities within Afghanistan and those responsible for border checks and issuing of visas. Confusion reigns and security is inevitably threatened.



- Agencies may prioritize working in certain areas for strategic reasons to minimize these political constraints.
- All agencies should attempt to use a common approach when applying for visas etc. Perhaps a single representative could be responsible for submitting all the agencies' visa applications to the identified authority.

Lack of educated people

This is a serious constraint and is as a consequence of huge refugee numbers and their delayed return. Repatriation of Afghan professionals can be seen as vital to a successful rehabilitation process. Rehabilitation of communication, education, medical and transport infrastructure and of the environment will maximize the efficiency and effectiveness of all assistance programs. Unfortunately most refugees and their families await this rehabilitation, their return dependent on the consequent availability of employment and improved security.

- The 20 year history of conflict has resulted in the fragility or loss of social structures and often contributes to political and administrative constraints.
- Involve international NGOs in AMAP to increase the rate of demining. Ensure interagency co-ordination and cooperation with existing systems and their improvement.
- Development of a central register of skilled professionals wishing to return to Afghanistan may facilitate recruitment by aid agencies active in the country.
- Recruitment of professionals for employment in rehabilitation programs may make them more sustainable.
- Both repatriation and the return of a strong social structure are dependent on ongoing commitment to and development of current assistance programs.

- Continue to encourage local communities to set up their own urban renewal agendas. UNHCS (Habitat) already helps to establish urban rehabilitation programs in cities throughout the country (Girardet and Walter 1998).

Funding and donors

A lack of funding and donor pressure limits the implementation of priority assistance. Funds may be conditional upon their use for a certain category of victim for example. Unfortunately political and strategic influences have largely determined availability of international funds for humanitarian assistance in Afghanistan.

- Ongoing collation and publication of reliable data by Landmine Monitor, and involved agencies, regarding the landmine crisis in Afghanistan will keep the issue 'hot'
- Advocacy plays an important role in educating the international community and hence donor agencies about priority needs, such as pediatric victims of landmines.
- Redirect international funding to Afghanistan by encouraging ongoing negotiations and improved communication between relevant world leaders, Afghan authorities and informed humanitarians.

Rivalry and coordination

Inter-agency rivalry and lack of coordination results from different ideologies and lack of time dedicated to inter-agency discussion. Aid 'vacuums' result when agencies falsely claim to be implementing certain programs. Duplication of efforts results in competition for the limited funds and human resources. Unfortunately lack of coordination and cooperation between agencies can lead to both the population and the authorities losing faith in all assistance programs. Security may be threatened as a result and success of assistance programs will be doubtful. There are many ways to improve inter-agency coordination and the success of landmine assistance programs through inter-agency cooperation in Afghanistan.

- Agency should make strategic and operational plans as well as annual activity reports available to other agencies in or planning to be in the field.
- Agencies should identify aid 'vacuums' and ensure relevant agencies are aware of these.
- Women can receive mine awareness messages delivered by one agency in clinics and hospitals supported by another agency.
- Existing professionals working for agencies can be centrally registered and their skills shared amongst agencies as appropriate.
- Existing health post staff can also be centrally registered and then identified for inclusion in training programs. This multiskilling would include mine awareness and basic first aid for landmine victims.
- Ensure repatriation does not occur to mined areas.
- Improve surveillance and reporting systems for landmines and related injuries by implementing the MIS.

In addition to the clinical and public health interventions, the restoration of a fragile environment and prevention of further environmental pollution and devastation must be considered. Demining and environmental rehabilitation programs are essential components of a landmine management strategy for Afghanistan. There are many areas needing attention and several windows of opportunity for assistance programs despite the above constraints.

- Standardization and strict regulation of practice of mine clearance needs to be developed to ensure 100% clearance rates.
- Local developments in demining technology are appropriate for the context and need ongoing financial support.
- Companies identified to be involved in mine manufacture should be encouraged or legally required to now research and develop demining technology.
- The technology used in the chemical industry, by NASA and the 'intelligence community' that is adaptable to demining, should be made accessible and be utilized.

- Information sharing between landmine affected countries regarding successful demining initiatives should be facilitated.
- Basic health education topics delivered to children and adults at clinics throughout the country should include education about the environment and how to care for it.
- Reforestation projects and wise land use initiatives need to be implemented.

The new generation of young farmers, may be less familiar with traditional agricultural practices due to the disruption of social structures lack of experience. They will need to be provided with information, skills and resources necessary for the habilitation of their environment and for sustainable agricultural practices.

Negotiation is the most essential yet challenging component of any successful assistance program in Afghanistan. Overcoming the seemingly insurmountable constraints of access, security and politics in a unique and complex context requires exceptional communication and personal skills. Negotiators must be well informed, patient and culturally sensitive. The importance of inter-agency cooperation and transparency when presenting program goals to relevant authorities, have been lessons learnt through bitter experience in Afghanistan. Discussion now must address the mutually acceptable return of international agencies to the country. Assistance activities using approaches that are acceptable to both parties, taking into account religious, cultural and humanitarian 'laws' will be essential components of future memorandums of understanding.

The success of the program in Afghanistan, no matter how comprehensive and coordinated, inevitably relies on a continued commitment to a mine free world on a global level. Further production and use of mines must cease and a peace should continue to be actively pursued. The technology too quickly and cost effectively remove and destroy mines already in place must be made readily available to deminers in Afghanistan. Significant resources will be required to meet the ongoing surgical and rehabilitation requirements, psychological and social needs and economic and rehabilitation costs faced by Afghans, both young and old. While these priority goals remain unmet, basic human rights are being violated in Afghanistan every day. For as long as humanitarian assistance from the international community remains inadequate this unacceptable population crisis will endure.



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Glossary

ACBL	Afghan Campaign to Ban Landmines
ADA	Afghan Development Association
AMAP	Afghan Mine Action Programme
ATC	Afghan Technical Consultants
CDAP	Comprehensive Disabled Afghan Programme
DACAAR	Danish Committee for Aid to Afghan Refugees
DAFA	Demining Agency For Afghanistan
DOD	Department of Defense
FAO	Food and Agriculture Organisation
ICBL	International Campaign to Ban Landmines
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Person
Jihad	Islamic Holy War
Kareez	Underground gravity-fed irrigation canal
Kuchi	Nomad
Madrassa	School for secondary or advanced Islamic studies
MCPA	Mine Clearance Planning Agency
MDC	Mine Dog Centre
MIS	Mine Information Centre
Mujahideen	Soldier of Islam
NGO	Non Governmental Organisation
PTSD	Post Traumatic Stress Disorder
SCF	Save the Children Fund
Shari'a	Islamic law; literally 'the way'
Taliban	(singular: talib) Religious students (literally 'seekers') from a madrassa
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNOCHA	United Nations Office for the Coordination of Humanitarian Assistance to Afghanistan
WHO	World Health Organisation