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# The Humanitarian Impact of Cluster Munitions



UNITED NATIONS

UNIDIR/2008/1

## **The Humanitarian Impact of Cluster Munitions**

UNIDIR  
United Nations Institute for Disarmament Research  
Geneva, Switzerland



UNITED NATIONS

New York and Geneva, 2008

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## FOREWORD

The current international debate surrounding cluster munitions and the discussion of a ban or tightened restrictions on their use has focused attention on the humanitarian impact of these weapons. In addition to killing and injuring civilians and damaging infrastructure at the time of use, they invariably leave behind unexploded submunitions which continue to pose a threat to human life, restrict access to natural resources and impede post-war recovery and development processes for many years after their use. Over three decades after cluster munitions were used in Lao and Viet Nam they continue to cause death and injury, disrupt the economic activities of ordinary people and hamper the implementation of development projects there. Even rapid large-scale clearance efforts, such as those that have been implemented in Kosovo and Lebanon, cannot prevent cluster munition contamination from having an impact. In Kosovo civilian casualties from cluster munitions are still being reported and in Lebanon, despite clearance beginning immediately after the 2006 conflict, it could not prevent casualties among the population as they returned to their homes and livelihoods.

This report has been produced in response to requests from states to provide evidence of the impact of cluster munition use and contamination. It draws on a wide range of sources to highlight the ways in which such contamination disrupts daily life and development throughout the world. The impact of cluster munition use and contamination is discussed thematically to show the effects on different sectors of the civilian population; the economic impact at community, regional and national level; and how relief, post-war recovery and development processes are affected. Case studies of Cambodia and Lebanon show in more detail how contamination affects the lives and livelihoods of ordinary people.

We are grateful to the Governments of Canada, New Zealand and Norway for their support of this project, and to all those who have assisted UNIDIR in compiling this overview of the humanitarian impact of these weapons. In particular, we are grateful to all those organizations and individuals, listed in the acknowledgements, that made this project possible.



Cluster munitions have an impact on civilian populations at time of use and long after. Efforts to reduce the impact of the contamination are dangerous, expensive and can take years. The impact of cluster munitions affect all aspects of life, with repercussions that can be felt for generations. We hope that this report will contribute to the dialogue on these weapons that can cause so much suffering over so great a span of time.

Patricia Lewis  
Director  
UNIDIR

## ACKNOWLEDGEMENTS

This report would not have been possible without the help and support of many individuals and organizations. UNIDIR would like to thank all those who participated by providing information, giving feedback and advice, circulating questionnaires to colleagues, completing questionnaires and answering numerous technical questions. Particular thanks go to those who participated in the research and wish to remain anonymous, and to:

### *Those involved in the development and circulation of the questionnaire*

The Centre for Humanitarian Dialogue, the Cluster Munition Coalition, the Geneva International Centre for Humanitarian Demining, Handicap International (Belgium), Human Rights Watch, the International Campaign to Ban Landmines, Mines Advisory Group, the Norwegian Ministry of Foreign Affairs, Norwegian People's Aid, the Office of the United Nations High Commissioner for Refugees, the Small Arms Survey, the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons, the United Nations Children's Fund, the United Nations Development Programme, the United Nations Mine Action Service, the United Nations Office for the Coordination of Humanitarian Affairs and the United Nations Office of Project Services.

### *Those who participated in the Cambodia case study*

BACTEC, BHP Billiton, the Cambodian Mine Action and Victim Assistance Authority, the Cambodian Mine Action Centre, the Cambodia Mine/UXO Victim Information System, the Cambodian Red Cross, Golden West, Handicap International (Belgium), the Jesuit Refugee Service, Mines Advisory Group, Norwegian People's Aid, RK Consulting Ltd, the United Nations Children's Fund and the United Nations Development Programme. Special thanks go to Luke Atkinson at Norwegian People's Aid, Rosy Cave, Claudio Feo at Norwegian People's Aid, Roger Hess at Golden West, Tep Sakoeun at the Cambodian Mine Action Centre, Leng Sochea at the Cambodia Mine Action and Victim Assistance Authority and Krisna Uk.

### *Those who participated in the Lebanon case study*

Hicham Moubarak el-Ali at the Sour Community Development Project, Christina Bennike at DanChurchAid, Christopher Clark, Dalya Farran and staff at the United Nations Mine Action Coordination Centre South Lebanon,

Chris Fielding at DanChurchAid, Catherine Fleming, Andy Gleeson and staff at Mines Advisory Group, Julia Goehsing, Christine Hamieh, Ahlam el-Hattab at the Philanthropic Association for Disabled Care, Zak Johnson and Aneeza Pasha at Handicap International (France), Rebecca Roberts, and Anders Wedda and staff at Norwegian People's Aid.

Help was also provided by Jeff Crisp at the Office of the United Nations High Commissioner for Refugees and Adrian Wilkinson at the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons, the International Committee of the Red Cross, and staff working for numerous national mine action authorities and mine action centres.

Additional research support was provided by Nikhil Acharya and James Stocker. The report was followed through the production phase by Anita Blétry, Nicolas Gérard, Jason Powers and Kerstin Vignard.

This research would not have been possible without the generous funding of the Governments of Canada, New Zealand and Norway.

## CHAPTER 1

### INTRODUCTION

Cluster munitions have a humanitarian impact on civilian populations at the time of use and post-conflict. There is an immediate danger of injury or death to civilians during cluster munition strikes, especially in built-up areas. After hostilities have ceased, unexploded submunitions pose a threat to the population, with the potential to cause death or physical and psychological trauma, and disrupt economic activities and daily life. The fear of such dangers, and the resulting influence on behaviour, can have real effects on the well-being of individuals and communities. Furthermore, submunitions can prevent or hinder the safe return of refugees and internally displaced persons (IDPs), and hamper humanitarian, peace-building and development efforts. Unexploded cluster munitions also pose a physical threat to humanitarian workers and peacekeepers.

There is currently no universally accepted definition of cluster munitions. However, it is generally considered that a cluster munition is a container from which submunitions are scattered. Submunitions, or bomblets, are the dangerous component of cluster munitions, causing casualties and damage through blast, incendiary effects and fragmentation. They can number in the dozens to thousands in a single attack, and are usually spread over a large area (hundreds of square metres, for example). These munitions can be air-delivered or surface-launched, and can be used against armour, materiel and personnel.

However, for various reasons submunitions often do not detonate as intended. Aside from problems that could affect any weapon, such as during production, transportation and handling, there are issues arising from the use of these munitions that can result in unexploded submunitions:

These include delivery technique ... and type of impact medium. Weather and terrain factors, like landing in muddy or soft ground, can significantly affect failure rates. Parachutes, ribbons and other

deceleration devices can cause submunitions to get caught in trees and vegetation or on structures.<sup>1</sup>

Failure rates are most often stated by percentage, indicating the proportion of the total payload of submunitions that on average do not explode. Cluster munitions are frequently claimed to have failure rates of a few percent, although this is often determined by testing in ideal conditions. But given the reasons for failure cited above, the true test is on the ground after operational use, where much higher failure rates are routinely reported.<sup>2</sup>

But in truth the discussion of failure rates is misleading; "... although a certain percentage of all explosive ordnance used in a conflict will fail, submunitions are a special concern because of the large numbers used in battle."<sup>3</sup> Thus even assuming it would be possible to achieve a failure rate of only 1%, when millions are used—as they have been in South-East Asia and the Middle East—then still hundreds of thousands remain unexploded. And these unexploded submunitions, like other forms of explosive remnants of war (ERW),<sup>4</sup> pose mortal danger long after the time of use.

This report addresses the humanitarian impact of cluster munitions on civilian populations. It highlights how peace-building, post-conflict recovery, and development processes can be impeded by cluster munition contamination and explores how different groups in a population are affected physically and psychologically. The report also discusses the economic impact of cluster munition contamination. The analysis of findings illustrates that the problems caused by the contamination vary in character and severity according to prevailing socio-economic conditions. The interaction of cluster munition contamination with such factors adds to the difficulty of trying to address the threat of the contamination effectively.

As the focus here is on humanitarian impact, the intention is not to provide technical details of cluster munitions or clearance operations, or to analyse the international discussions on control or possible banning of cluster munitions.

## **THE RESEARCH PROJECT**

This project, The Humanitarian Impact of Cluster Munitions, was developed in response to requests from states for more research on the impact of cluster munitions on civilian populations.

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The research methods employed included fieldwork, case studies, interviews with practitioners, a survey of practitioners and organizations working in contaminated countries, analysis of data gathered from mine action centres and national mine action authorities, and a literature and media review.

### THE CASE STUDIES

The case studies of Cambodia and Lebanon provide insight into the impact of cluster munitions on civilian populations. Cambodia is an example of a country that has been contaminated for several decades. Air-delivered cluster bombs were dropped on Cambodia during the Viet Nam War in the 1960s and 1970s contaminating large parts of the country. Internal conflicts also appear to have created cluster munition contamination. The Lebanese case study focuses on southern Lebanon and the results of cluster munition use during the conflict with Israel in mid-2006. Southern Lebanon provides the opportunity to look at the immediate post-war impact of cluster munition contamination as well as that during the conflict, in comparison with the older problem in Cambodia.

Fieldwork in Cambodia took place during March 2007. Interviews were conducted in Kampong Cham, Kampong Chhnang and Phnom Penh with a number of national organizations, international organizations and UN agencies involved in various aspects of mine action and development work.<sup>5</sup> Visits were also made to contaminated areas with the assistance of the Cambodian Mine Action Centre.

For logistical reasons, it was not possible to conduct field research in Lebanon within the time frame of the project. As a consequence, interviews and information collection<sup>6</sup> were conducted by telephone and email in May and June 2007.

### THE QUESTIONNAIRE

The questionnaire was developed by UNIDIR as a means of reaching a broad range of practitioners working in countries affected by cluster munitions. This enabled the research to give a global overview of the problem based on new information provided by people who deal with the impact of cluster munitions and from countries that have not been researched previously. The questionnaire was designed in consultation with UN agencies, international organizations and non-governmental organizations (NGOs)<sup>7</sup> and was

translated into a number of languages spoken in countries contaminated by cluster munitions.<sup>8</sup> It was circulated among practitioners who work or have worked in these areas.

UNIDIR sent the questionnaire directly to national and international organizations working with mine action, refugees and IDPs, and development in 23 countries and territories that have been documented as areas where cluster munitions have been used.<sup>9</sup> The questionnaire was also circulated by international organizations to their field offices. In addition it was made available on the UNIDIR website. Respondents were guaranteed anonymity, so this report refers only to the identity number given to each returned questionnaire.<sup>10</sup>

#### **LITERATURE AND MEDIA REVIEW**

A review of publications, articles and media reports was conducted to develop a comprehensive overview of the impact of cluster munition contamination. Information was also gathered directly from mine action centres and national mine action authorities. The research team followed the debates surrounding cluster munitions by attending international events focused on mine action and cluster munitions, and used the opportunity to collect additional information through informal discussions with practitioners.<sup>11</sup>

#### **REPORT STRUCTURE**

The next chapter presents an overview of the ways in which cluster munitions affect communities at time of use and post-conflict. It draws on the literature and media review as well as information collected from the questionnaire.

The third and fourth chapters are case studies of Lebanon and Cambodia and discuss the problems communities face as a result of cluster munition contamination.

The final chapter summarizes the issues raised in the preceding chapters and presents key findings and conclusions.

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## Notes

- <sup>1</sup> Mark Hiznay, “Operational and Technical Aspects of Cluster Munitions”, *Disarmament Forum*, no. 4, UNIDIR, 2006, p. 22.
- <sup>2</sup> Ibid.
- <sup>3</sup> Louis Maresca, “Cluster Munitions: Moving Toward Specific Regulation”, *Disarmament Forum*, no. 4, UNIDIR, 2006, p. 27.
- <sup>4</sup> According to Article 2 of Protocol V on Explosive Remnants of War of the Convention on Certain Conventional Weapons, “explosive remnants of war” means unexploded ordnance and abandoned explosive ordnance but does not include landmines, booby-traps or similar devices as defined in Protocol II. “Unexploded ordnance” means explosive ordnance that has been primed, fused, armed, or otherwise prepared for use and used in an armed conflict. It may have been fired, dropped, launched or projected and should have exploded but failed to do so. “Abandoned explosive ordnance” means explosive ordnance that has not been used during an armed conflict, that has been left behind or dumped by a party to an armed conflict, and which is no longer under control of the party that left it behind or dumped it. It may or may not have been primed, fused, armed or otherwise prepared for use.  
This definition of ERW used in Article 2 is used for the purposes of this report, although it is acknowledged that this is not always the definition used by practitioners in the field who sometimes include landmines in their definition of ERW or use the term “unexploded ordnance” in place of ERW. These definitions were explained in the questionnaire. ERW is the term used throughout this report, although unexploded ordnance is used when it has appeared in quotes or titles.
- <sup>5</sup> These included BACTEC, BHP Billiton, the Cambodian Mine Action Centre, the Cambodian Mine Action and Victim Assistance Authority, the Cambodia Mine/UXO Victim Information System, the Cambodian Red Cross, Golden West, Handicap International (Belgium), the Jesuit Refugee Service, Mines Advisory Group, Norwegian People’s Aid, RK Consulting Ltd, the United Nations Children’s Fund and the United Nations Development Programme.
- <sup>6</sup> Interviewees included staff involved in clearance operations, mine risk education, victim assistance, rehabilitation and development activities from DanChurchAid, Handicap International (France), Mines Advisory Group, Norwegian People’s Aid, the Philanthropic Association for Disabled Care, the Sour Community Development Project and the



- United Nations Mine Action Coordination Centre Southern Lebanon.
- <sup>7</sup> These were the Centre for Humanitarian Dialogue, the Cluster Munition Coalition, the Geneva International Centre for Humanitarian Demining, Handicap International (Belgium), the International Committee of the Red Cross, Landmine Monitor, Landmine Action UK, the Small Arms Survey, the South Eastern and Eastern Europe Clearing House for the Control of Small Arms and Light Weapons, the United Nations Children's Fund, the United Nations Development Programme and the United Nations Mine Action Service.
- <sup>8</sup> The questionnaire was available in Albanian, Arabic, Croatian, English, French, Khmer, Russian and Serbian.
- <sup>9</sup> These were Afghanistan, Albania, Bosnia and Herzegovina, Cambodia, Chad, Croatia, Eritrea, Ethiopia, Iraq, Kuwait, Lao, Lebanon, Montenegro, Saudi Arabia, Serbia, Sierra Leone, the Sudan, Syria, Tajikistan and Viet Nam, and Chechnya, Kosovo and Western Sahara. They were identified as contaminated according to research by Handicap International, Human Rights Watch and Landmine Action.
- <sup>10</sup> The 106 respondents had a range of skills and experience and represented 22 contaminated countries and territories. Although there were 106 respondents, identity numbers go up to 130. This is because duplicate copies of some questionnaires were received as those respondents returned them directly and through their organization. Duplicates were eliminated as the responses were compiled. The majority of respondents were in their early to mid-career and had an average of just over nine years of experience. Around one third of respondents were national staff and two thirds were international employees. Among the respondents, 42 worked for international NGOs, 7 for local NGOs, 20 for national mine action authorities or mine action centres, 32 for UN agencies, 4 for commercial organizations and 1 for a donor organization. Respondents were involved in a wide range of activities, including all aspects of mine action, development, and long-term recovery and stabilization programmes. Only 11 of the respondents were female, which may not be representative of the percentage of women working in the field but does reflect the fact that the majority of people in these fields are male.
- <sup>11</sup> These events included the Tenth International Meeting of Mine Action Programme Directors and UN Advisors meeting in Geneva, 20–22 March 2007; the Anti-Personnel Mine Ban Treaty Standing Committee Meeting, 23–27 April 2007; and the Meeting of the Group of Governmental Experts of the Convention on Certain Conventional

Weapons in Geneva, 18–22 June 2007. UNIDIR was also represented at the Oslo Conference on Cluster Munitions, 22–23 February 2007; and the Lima Conference on Cluster Munitions, 23–25 May 2007.



## CHAPTER 2

### THE HUMANITARIAN IMPACT OF CLUSTER MUNITIONS

This chapter provides an overview of the humanitarian impact of cluster munition use and contamination.<sup>1</sup> It shows that cluster munitions are highly prone to indiscriminate use and explosive submunitions are indiscriminate in their effects post-use—these weapons have an immediate and long-term impact on the physical and psychological well-being of populations and on economies at the national, regional and local levels. Examples are drawn from countries with differing levels of development, contamination and capacity to address the contamination, and the variation in impact among groups within populations is highlighted. Common effects of contamination are identified, and the magnitude and nature of impact is shown to be related to the social, political and economic environment.

#### PHYSICAL AND PSYCHOLOGICAL IMPACT

##### PHYSICAL IMPACT

The wounding effects of munitions that have failed to function as intended—such as unexploded submunitions—can be more severe than those of anti-personnel mines. While anti-personnel mines are relatively small explosive devices intended to kill or incapacitate an individual through “point detonation” against specific parts of the body, ERW vary greatly in their physical characteristics and explosive force. Moreover, because they are devices that have failed to function as intended, individual items of ERW are unpredictable. Although it is difficult to generalize, incidents involving ERW tend to cause multiple casualties more often than anti-personnel mines, and result in fatalities more often as well.<sup>2</sup> ERW are munitions designed to be lethal and submunitions—not least because of their small size and use (and failure) in large numbers—appear to be especially so.

Accurate data on deaths and injuries caused by cluster munitions at time of use is limited because it can be difficult to distinguish one kind of munition injury from another. Data on cluster munition incidents after conflict can

also be limited. In some contaminated places, such as Sierra Leone and Western Sahara, data collection mechanisms are lacking. In other countries, for example Chad, a lack of resources, continuing conflict and instability means that it is difficult to collect accurate data. Some incidents in remote areas may go unreported altogether. The under-reporting of all types of landmine and ERW incidents is thought to be a wide-spread problem.<sup>3</sup>

It is not always possible to distinguish between incidents caused by cluster munitions and those caused by other ERW or landmines. People do not always know what has caused their injuries and, if they do, the type of landmine or ERW is not always recorded. Disaggregated statistics are often simply not available. For example, in Afghanistan in 2005, “[k]ey actors in mine action estimate that there [were] 70–100 new mine/ERW casualties each month.”<sup>4</sup> In cases such as these, it is impossible to know how many of these casualties are the result of cluster munition incidents.

However, despite the lack of disaggregated data, both documentation and anecdotal evidence indicate that there are civilian casualties from cluster munitions long after they have been used. Cambodia, Lao and Viet Nam are still reporting new casualties from submunition contamination dating from the 1960s and 1970s. Between 1998 and 2006, there were a total of 124 reported cluster munition casualties in Cambodia;<sup>5</sup> however, as national data collection rules did not stipulate until September 2006 that cluster munition incidents should be recorded separately, it is possible that there were more deaths and injuries caused by submunitions than have been recorded.<sup>6</sup>

The type of injury can be an indication of what has caused it. Cluster munitions tend to cause injuries to the upper body including loss of upper limbs and blindness.<sup>7</sup> Explosions of cluster munitions and other ERW also tend to produce multiple casualties. Anti-personnel mine incidents tend to cause injuries to the lower limbs and usually involve a single victim.<sup>8</sup>

In some countries submunitions are considered to be more of a threat to the population than other ERW and landmines. The Lao National Unexploded Ordnance Programme reports that most ERW incidents resulting in injury or death are caused by submunitions.<sup>9</sup> In Viet Nam, from 2003 to 2005, 55% of recorded casualties were caused by cluster munitions and other unexploded ordnance (UXO) in comparison with only 11% caused by landmines.<sup>10</sup> Even in countries where clearance operations

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were implemented quickly after the end of conflict, such as Kosovo and Lebanon, there are post-strike casualties. In Kosovo, from 2002 to 2006, there were 10 casualties from submunitions.<sup>11</sup>

Survivors of cluster munition incidents almost always require medical attention and long-term care. In some cases, family or friends must walk for miles to the nearest medical centre carrying the victim. Most of the respondents to the questionnaire believed that it would generally take victims several hours to reach medical help. In Lao, two thirds of respondents thought that, on average, it would be more than four hours before victims received medical attention. Some incidents occur in such remote parts of a country that it is not possible to transport the injured to a medical facility.

Many contaminated countries have limited healthcare provision or are simply not equipped to treat traumatic injuries effectively. When help is available, the costs can be prohibitive or lead to indebtedness. In Lebanon, it has been reported that many victims and their families become dependent on assistance from NGOs. Furthermore, injuries caused by submunitions add to the load on the healthcare system, which in many cases is already overstretched, with limited staff and resources.<sup>12</sup>

Lastly, it should be recalled that clearance personnel are at risk of injury or death as they undertake their duties. The International Campaign to Ban Landmines (ICBL) states that during 2005 and the first six months of 2006 there were reported casualties during clearance operations in 29 countries and areas, and that the total figure is likely to be higher.<sup>13</sup> As discussed above, it is not common for data to be disaggregated, so it cannot be said with certainty what proportion of these accidents were caused by cluster munitions. Nevertheless, as clearance involves all types of explosive ordnance, and as cluster munitions are usually found in quantity, it is likely that they did cause casualties in the areas where they had to be cleared.

Aid agency staff and peacekeeping personnel are also at risk. For example, of the 20 operations run by the United Nations Department of Peacekeeping Operations, 10 are conducted in states or regions where cluster munition use has been documented.

## PSYCHOLOGICAL IMPACT

Cluster munition contamination creates fear. “Fear of UXO presents a serious obstacle to those overcoming the psychological trauma of war and may be a significant barrier to the establishment of peace.”<sup>14</sup> In Chad it has been reported that a “climate of insecurity” has developed related to the fear of injury or death from submunitions and other ERW.<sup>15</sup> In Viet Nam it has been suggested that the fear of ERW contamination reduces people’s economic productivity.<sup>16</sup>

This fear becomes reality for casualties of contamination. Beyond the physical suffering, survivors face psychological complications as well. While individuals with traumatic injury, for example the loss of a limb, will progress differently for reasons of personality, age, family, economic situation, and social and cultural environment, the initial reactions to the trauma can include “... denial, anger, depression, disconnection, disempowerment, and vulnerability”.<sup>17</sup> In trying to adjust to their new situation, survivors may have different feelings depending on their stage of life: for example children may have difficulty to establish independence or trust, youth may be concerned with physical appearance and prospects for social or romantic relationships, adults may be concerned with the ability to provide for families or contribute to society, and the elderly may be faced with feelings of abandonment.<sup>18</sup> Furthermore, some are unable to psychologically adjust—for them the result can be the inability to reintegrate into society, or perhaps even suicide.

A 2004 study of child survivors of ERW incidents in Lao states:

An emotionally painful, distressing or shocking experience often has lasting psychological and physical consequences. Trauma and stress is essentially a normal response to an extreme event with symptoms that can include nightmares, insomnia, emotional detachment, anxiety, depression, headaches, stomach aches and other pain not related to physical injury. Most child survivors reported more than one symptom, meaning the overall psychological impact of a UXO accident is likely to be much more than the sum of each problem reported.<sup>19</sup>

It is unlikely that these consequences are specific to Lao or specific to children, although their young age may very well worsen their suffering. As that study concludes, “[t]he sad truth is that for most child survivors the

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external conditions [faced after injury] are such that they have little chance of overcoming the challenges they face and leading a normal life."<sup>20</sup>

People with disabilities, whatever the cause, face discrimination, and this has a potential socio-economic and psychological impact. This can take forms such as verbal abuse from other individuals, deliberate exclusion from activities or the inability to participate in socio-economic activities because of physical difficulties. In Eritrea such discrimination is reported to be extreme;<sup>21</sup> the Community Based Rehabilitation Programme in Eritrea finds that people with disabilities are "discriminated against with regards to education, health services, employment etc."<sup>22</sup> and that disabled women face an even more difficult situation, in that they must also deal with sexual discrimination.<sup>23</sup>

Thus, individuals already burdened with physical and psychological trauma often, as a result, confront social and economic exclusion. And these effects are not confined to the survivors, in that their families will feel their share of psychological pain in the aftermath, and have to contend with the double economic hardship of the loss of an income earner and the cost of caring for a disabled relative.

## **POST-CONFLICT RELIEF AND RECOVERY**

The presence of unexploded submunitions impedes all aspects of post-conflict recovery. Unexploded submunitions must be cleared before rebuilding, as well as normal daily activities, can be conducted safely. Respondents to the questionnaire working in 23 cluster munition contaminated countries and territories reported seeing unexploded submunitions in civilian areas including housing, schools, and health centres; resources for income generation including agricultural land and businesses; major transport routes; and centres for distributing aid and providing shelter for refugees and IDPs.

Organizations trying to provide relief and development assistance can be prevented from accessing contaminated areas. Even if personnel and equipment often can arrive to such areas, work cannot be conducted safely or effectively. Relief operations to help Kurdish refugees in the north of Iraq after the 1991 Gulf War were endangered by unexploded cluster munitions.<sup>24</sup> In Lebanon a team from the United Nations Environment Programme could not complete their assessment in some areas because



of the cluster munition contamination.<sup>25</sup> It has been reported that aid organizations working in Nagorno-Karabakh had to restrict their operations because of the ERW contamination around many villages.<sup>26</sup> In situations such as these, those in search of assistance might face the stark choice between the threat of remaining in a conflict zone, and a potentially dangerous journey through contaminated areas to a safer area and assistance.

In the immediate post-conflict period, subsistence activities cannot be conducted safely and access to important natural resources, such as water and land, is hazardous. For those whose livelihoods are dependant on access to land or resources, the resultant loss of income has a catastrophic effect on individual households, with repercussions throughout the economy. The Government of Lao, for example, states that “[t]here appears to be a significant correlation between the presence of UXO and the prevalence of poverty.”<sup>27</sup>

Submunitions on their own have little direct environmental impact, but cluster munition contamination can lead to practices that in turn can have a negative long-term impact on sustainable development—for example, over-grazing and over-use of uncontaminated agricultural land leads to environmental degradation and reduced productivity.<sup>28</sup>

In Lao the contamination from US bombing raids in the 1960s and 1970s is still preventing schools and health centres from being built because land has to be cleared first. Major infrastructure projects such as hydroelectric schemes are also held up because of the need to clear land.<sup>29</sup> Funding which could be used for humanitarian relief and development activities has to be used for clearance operations, which are expensive and time consuming.

Cluster munition contamination is addressed by organizations conducting mine action activities. Mine action is an umbrella term for activities designed to reduce the impact of landmines and ERW. Such activities include advocacy, stockpile destruction, victim assistance, mine risk education, survey and marking of suspected hazard areas, and clearance. These components of mine action are undertaken by UN agencies, the International Committee of the Red Cross, international and national NGOs, commercial organizations, national authorities and militaries.

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Rapid and effective clearance requires massive resources—many contaminated countries do not have such resources or the ability to attract them. Even the speed with which post-conflict clearance operations have been mounted in Kosovo and Lebanon cannot mitigate fully against the impact of contamination. The rate of clearance in Lebanon is not quick enough to meet the needs of the population to return to full economic production (see chapter 3 for more details), and in Kosovo, seven years after the end of the conflict, there are still contaminated areas of the country to be cleared.<sup>30</sup> In these situations, some people are motivated to deliberately handle submunitions out of their concern for the community.<sup>31</sup> Parents and other adults may try to clear the areas where children might go. An elderly man living near the Korokon IDP camp in Eritrea has moved many submunitions to protect the local children, conscious of the dangers posed by the munitions.<sup>32</sup>

Including provisions for clearance in recovery and development projects adds significantly to the costs of projects and it is an expense that donors often fail to consider. Development projects that do not include resources for surveying and clearance activities at the beginning are often delayed and exceed their budget.<sup>33</sup> Even in the case of the recent conflict in Lebanon—although a great deal of international funding has been provided for clearance—funding for clearance activities was not included in the budget during the initial planning stages for post-conflict recovery.<sup>34</sup>

Contamination retards all aspects of recovery efforts, prolongs the reliance of countries and communities on outside help, and impedes households, communities and countries in rebuilding economies. And in areas where the peace is fragile, any source of tension could potentially reignite conflict. Unexploded submunitions can also be “re-used” in conflict. There are reports that salvaged submunitions have been used to make improvised explosive devices, mines and booby traps.<sup>35</sup>

Countries emerging from conflict in which cluster munitions were used often face a variety of other problems such as instability, chronic poverty, poor governance, displaced populations, poor health and healthcare, and low literacy rates. Not only does cluster munition contamination exacerbate these problems, but clearance operations divert valuable and limited resources away from other areas.

## ECONOMIC ISSUES

Cluster munition use and contamination have an impact on the economy in a variety of ways. Aside from the damage to infrastructure and property, livelihood activities are interrupted or limited because of this damage or the lack of safe access to resources. It is significant that nearly all questionnaire respondents identified the lack of economic development as the major problem facing the countries or areas in which they work.<sup>36</sup>

### INFRASTRUCTURE

Damage to infrastructure prevents a return to normality and contamination delays rebuilding, thus prolonging the impact of conflict. Following the 1991 Gulf War the Iraqi authorities claim to have cleared thousands of unexploded submunitions, for example from electrical power stations, communications equipment and bridges; and in Kuwait, the restoration of electrical power was delayed because of unexploded submunitions being found in critical parts of the grid.<sup>37</sup> Not only is it necessary to rebuild infrastructure damaged in the conflict: in some areas new infrastructure is required to enable development, yet a new project might necessitate prior clearance activities. In Kosovo, for example, a project to provide water to a village was delayed because of cluster munition contamination.<sup>38</sup>

Damage to infrastructure has a wide-ranging impact on the economy. For example, airports in several countries, including Chad, the Democratic Republic of the Congo, Eritrea and Serbia, have been targeted with cluster munitions. In addition to the cost of reconstruction, the loss of air transport for trade and tourism has a serious economic impact. In Serbia, the clearance and reopening of the Niš airport in 2004, years after the end of the conflict, is credited with boosting economic development.<sup>39</sup>

### LIVELIHOODS

The deaths and injuries caused by cluster munitions at time of use and post-conflict have an economic cost. As a greater proportion of these occur among males, who are often the primary income earners, affected households often face serious financial hardship. Victims who sustained serious injury, such as the loss of a limb, who are able to return to work cannot realistically do so sooner than six months after the incident.<sup>40</sup> Furthermore, care for injured household members has either economic

or opportunity costs for the caregiver. When a number of households are unable to make a contribution to the local economy, the whole community might be affected.

While the impact of cluster munitions on livelihoods is broad, it tends to affect agriculture more than any other economic sector. Over 90% of the questionnaire respondents believe that cluster munition contamination poses a significant or moderate threat to agriculture. People are unable to safely access land for cultivation, grazing livestock or the collection of resources. For example, in Nagorno-Karabakh, there are "... significant quantities of UXO [in] areas needed for agriculture".<sup>41</sup> Orchards and vineyards in Afghanistan have been contaminated by cluster munitions.<sup>42</sup> In Guinea-Bissau, rice paddies and mangroves have been contaminated with ERW, including submunitions.<sup>43</sup> In Chad, contamination has disrupted access to water which in turn has hindered agricultural productivity.<sup>44</sup> In addition, in many contaminated countries, livestock are lost to cluster munitions incidents, which can be a devastating economic blow to the owner or the community.<sup>45</sup>

Unfortunately, economic conditions often force people to take risks. A respondent from Kosovo states that high unemployment has pushed many men to try to earn a living by cutting timber; the forested areas are often contaminated with cluster munitions, and they have caused deaths and injuries.<sup>46</sup> In some contaminated countries, Afghanistan, Croatia, Eritrea, Iraq and Kuwait for example, shepherds and pastoralists—as well as their livestock—are considered to be at particular physical risk.

Negative effects on livelihoods can be seen even in situations with relatively minor contamination. For example:

[United Nations Mission in Kosovo] personnel report that, although Kosovo does not have a significant mine/ERW problem, the real or perceived threat of residual contamination continues to deny people use of agricultural land and access to resources such as firewood. It has also led the population to abandon traditional grazing of herds on high pastures and to transfer arable land to pasture in order to maintain herds, resulting in reduced crop production.<sup>47</sup>

The economic impact of contamination is felt at the individual and community levels. This impact is difficult to measure in solely financial

terms and its effect on the economy at the national level is difficult to assess. However, an illustration from contamination in Europe offers an interesting case where, although the total costs may not be known, approximate figures exist.

During the 1999 North Atlantic Treaty Organization (NATO) bombing campaign of the Federal Republic of Yugoslavia (Operation Allied Force), many NATO aircraft operated from bases in Italy. Some unused cluster munitions were jettisoned for technical or safety reasons over international waters in the Adriatic Sea.<sup>48</sup> In May 1999, three Italian fishermen were injured after a cluster munition became tangled in their net<sup>49</sup> and another fishing boat found 46 submunitions among their catch.<sup>50</sup> The presence of these unexploded submunitions, as well as other ERW, resulted in a ban on trawling during that fishing season. In Chioggia, Italy's second largest fishing port, the costs of keeping 210 boats and around 1,000 men in port was estimated at approximately US\$ 500,000 a day;<sup>51</sup> damages and compensation relating to the fishing embargo were approximately US\$ 40 million.<sup>52</sup> There was also an impact on tourism, as tourists were afraid of encountering unexploded bombs on beaches.<sup>53</sup> By August 1999, NATO minesweepers had recovered at least 97 submunitions.<sup>54</sup> By 2001, NATO claimed to have recovered 203 of 235 total munitions jettisoned,<sup>55</sup> although it is unclear how many of these were cluster munitions. It has been reported that some of the canisters had opened, spilling submunitions over the sea floor, so it would be unlikely that the area would ever be entirely cleared.<sup>56</sup>

### INCOME GENERATION

In many contaminated countries, national authorities, UN agencies and NGOs provide mine risk education (MRE) to raise awareness about the dangers posed by cluster munitions, other ERW and landmines. MRE is often seen as a way to discourage the deliberate handling of ERW, but as discussed below, many factors motivate this behaviour.<sup>57</sup>

One of the perverse consequences of conflict is that in contaminated areas submunitions can become part of the local economy as individuals collect the metal and explosives for use or sale, or clear land in return for payment.

Usually it is the poorest of the poor who are forced to make a living through deliberate interaction with ERW. In Iraq, ERW has been described as a “vital economic resource”,<sup>58</sup> and in countries under sanctions “nothing is left; everything is recycled”.<sup>59</sup> In some countries with severe contamination, such as Lao, it is reported that cluster munitions have become a common feature of daily life: activities involving ERW have generated their own economy and the components of cluster munitions are seen as resources.<sup>60</sup>

The valuable metal components of cluster munitions and submunitions are a major incentive to collect them. In Lao, the metal from cluster munition casings is used to make tools and implements.<sup>61</sup> The explosives recovered from submunitions are used for a variety of activities; for example, fishing with explosives is common in many post-conflict countries.<sup>62</sup> In Albania, it has been reported that the explosives from cluster munitions have been used in attempts “to blast through rock to clear channels for water”<sup>63</sup> and in Lao explosives have been used to clear vegetation.<sup>64</sup>

Needless to say, trying to extract either explosives or metal from unexploded submunitions, or any ERW, is highly dangerous. Deliberate handling to extract scrap metal or explosives was regarded by over 40% of respondents as an activity responsible for a significant number of casualties. The Cambodian Mine/UXO Victim Information System reports that of the recorded mine/ERW casualties in Cambodia in 2005, roughly 10% were the result of deliberate handling with the intent to sell the item.<sup>65</sup> However, it should be noted that this figure is likely to be low, as data collection on this topic may be incomplete because an incident might go unreported, and those who survive such an incident may be unwilling to admit this was their motivation.

As well, some individuals choose to deliberately interact with unexploded submunitions in an attempt to clear their land or access resources. There are also cases, for example in Cambodia and Lebanon, of individuals who have not received formal training but are willing to clear others’ land in return for payment.<sup>66</sup>

## DEMOGRAPHIC AND SOCIAL DYNAMICS

Socio-economic and demographic factors are important in understanding the humanitarian impact of cluster munitions. There is a higher incidence of

casualties from cluster munitions, other ERW and landmines among poor, vulnerable and marginalized groups.

### THE POOR

Casualties tend to occur among the poorest members of the population because very often they have little choice but to live in contaminated areas and to interact with cluster munitions. In Viet Nam, research has suggested "... a strong, direct correlation between ERW contamination and poverty", as is the previously mentioned case with Lao.<sup>67</sup> Wealthier households have more options and are able to live in less contaminated areas and undertake livelihood activities that expose them to fewer threats from ERW.

### MEN

Men of working age are the group most likely to be involved in a cluster munition, other ERW or landmine incident. These incidents often occur during the conduct of economic activities. Over 50% of questionnaire respondents identified agricultural activities as the most common activity at the time of a submunition incident.

Significantly more males are involved in incidents than females; the ICBL reports that of the ERW and landmine casualties recorded in 2006 of which the gender is known, 89% were male.<sup>68</sup> This has been attributed to, among other things, the division of labour in a given community, with men often performing tasks of a nature that will put them at greater risk; and the tendency of men to be more likely to deliberately interact with ordnance, either for reasons of social display or because of increased confidence due to military experience. Likewise, most child casualties are male. While this might simply be due to the inquisitive nature of children, especially boys, there is also reason to suspect that this is also the result of social display, as well as the emulation of adult behaviours.<sup>69</sup>

In addition to economic activities there are other reasons why there tend to be more male than female victims. After conflict men might return home or investigate the potential of an area as a new settlement site ahead of the other members of the family. Therefore the men are entering areas where local knowledge about the cluster contamination has not been developed. Contamination can also shift because of environmental factors such as melting snow<sup>70</sup> or shifting sands.<sup>71</sup> Again because the men tend to

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travel to new areas first or to travel further away from the home and the areas they know well, they are also more likely to be victims of shifting contamination.

### WOMEN

As incidents occur predominately during income-generating activities, the extent to which women are involved in these activities and the division of labour in a particular society influences the proportion of female victims. For example in Tajikistan, although the majority of victims are male, women account for a larger percentage of the victims than in other affected countries. It has been suggested that perhaps this is because women are carrying out livelihood activities traditionally undertaken by men, as many men went abroad for work after the civil war in the 1990s.<sup>72</sup>

### CHILDREN AND YOUTH

Children and youth account for a high proportion of cluster munition victims. This is partly because they are curious and are less aware of dangers than adults. Submunitions may be attractive to children because many are shaped like balls or are brightly coloured. In Eritrea, children have used parts from submunitions to make bells to hang around the necks of animals.<sup>73</sup> Children, particularly boys, are also involved in incidents because they are searching for scrap metal.

In Lao an increase has been reported in the number of children injured or killed by submunitions and other ERW; incidents involving children have almost doubled from around 30% between 1973 and 1996 to 56% in August 2005.<sup>74</sup> Submunitions are also responsible for a greater percentage of child victims than adult victims in Lao—according to a 2004 report, cluster munitions were responsible for 51% of child ERW casualties compared with 28% of adults.<sup>75</sup> Similar statistics were seen in Kosovo between June 1999 and April 2001: the average age of recorded submunition casualties was reported to be 20, with 67% of casualties being 19 or younger.<sup>76</sup>

### REFUGEES AND IDPs

Aside from the direct threat of injury or death,<sup>77</sup> and perhaps an increased likelihood of displacement,<sup>78</sup> the use of cluster munitions and the resulting contamination exacerbates the difficulties faced by refugees and IDPs.



Among the reasons for this cited by respondents were the blocking of major routes, and the destruction of transportation and infrastructure.<sup>79</sup> Likewise, resettlement can be complicated for similar reasons, as well as the fact that property and land is contaminated.<sup>80</sup> A respondent from Lao noted that unfortunately such contamination did not deter people from returning home,<sup>81</sup> and this seems to be true in many countries.<sup>82</sup> Although the presence of cluster munitions may impede their return, many people will go home regardless.

In Afghanistan, there were efforts by the United Nations and other organizations to coordinate clearance operations so that areas would be cleared before IDPs returned.<sup>83</sup> In 2006, the Ugandan government was pursuing clearance in parts of the north in preparation for the return of IDPs.<sup>84</sup> In Lebanon the speed at which people returned to the south after the 2006 conflict meant it was impossible to clear contaminated areas quickly enough (see chapter 3).

The displaced can also be the direct target of hostilities. There are instances when IDP camps have been struck with cluster munitions. In 1976 Moroccan planes bombed IDP camps in Western Sahara.<sup>85</sup> In 1995 Bosnian Serbs attacked a Bosnian refugee camp south of Tuzla, killing seven people.<sup>86</sup> It has been reported that the Government of Sudan has attacked IDP camps with cluster munitions on numerous occasions.<sup>87</sup> Landmine Action documents in detail the impact of a cluster munition strike on the Korokon IDP camp in Eritrea in 2000.<sup>88</sup> There was only one death attributed to the attack, and this low casualty rate has been attributed to the high number of failed submunitions. However, the impact since has been significant as the area became heavily contaminated.

## CONCLUSION

This overview has illustrated the many ways that cluster munition contamination can have a humanitarian impact on civilian populations. How communities are affected depends on a variety of interlinked factors including the level of contamination, economic conditions and common livelihood activities, the resources available to reduce the threat of the contamination and other elements affecting the security of the population.

The following chapters on Lebanon and Cambodia give in-depth examples of how impact is dependent on context. While the cases of contamination

differ, as well as the responses to them, it will be seen that the negative effect on lives and communities are similar.

## Notes

- <sup>1</sup> This chapter draws on information collected through a literature and media review, discussions with practitioners, and questionnaire responses.
- <sup>2</sup> John Borrie, *Explosive Remnants of War: A Global Survey*, Landmine Action, 2003, pp. 8–9, 67–8.
- <sup>3</sup> See ICBL, *Landmine Monitor Report 2007: Toward a Mine-Free World*, 2007, pp. 48ff.
- <sup>4</sup> ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, p. 110.
- <sup>5</sup> Communication with Chhiv Lim, Project Manager, Cambodian Mine/UXO Victim Information System, 5 March 2007.
- <sup>6</sup> Idem. Between 1999 and 2001 only mines and UXO were used as categories for recording casualties so there is no accurate breakdown for submunition casualties during that period.
- <sup>7</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, p. 7.
- <sup>8</sup> See ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, p. 1123; Eric Prokosch, *The Technology of Killing: A Military and Political History of Anti-Personnel Weapons*, 1995, pp. 25–6; Robin Coupland, *The Red Cross Wound Classification*, International Committee of the Red Cross, 1991.
- <sup>9</sup> “The UXO Problem: Victims”, Lao National Unexploded Ordnance Programme, 2007, <[www.uxolao.org/victims.asp](http://www.uxolao.org/victims.asp)>.
- <sup>10</sup> ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, pp. 1114–27.
- <sup>11</sup> Questionnaire 48.
- <sup>12</sup> “The UXO Problem: Impact”, Lao National Unexploded Ordnance Programme, 2007, <[www.uxolao.org/impact.asp](http://www.uxolao.org/impact.asp)>.
- <sup>13</sup> ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, p. 46. The countries and areas identified were Abkhazia, Afghanistan, Albania, Angola, Bosnia and Herzegovina, Cambodia, Chad, Chile, Croatia, Ethiopia, Georgia, Greece, Hungary, Iran, Kuwait, Lebanon, Liberia, Mozambique, Nicaragua, Peru, Serbia and

Montenegro, Somaliland, Sri Lanka, Sudan, Taiwan, Tajikistan, Turkey, Viet Nam and Yemen.

- <sup>14</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, p. 8.
- <sup>15</sup> Questionnaire 23.
- <sup>16</sup> Richard Moyes (ed.), *Explosive Remnants of War and Mines Other than Anti-Personnel Mines: Global Survey 2003–2004*, Landmine Action, 2005, p. 183.
- <sup>17</sup> See Beth Sperber Richie, Angela Ferguson, Maria Gomez, Dalia El-Khoury and Zahabia Adamaly, “Resilience in Survivors of Traumatic Limb Loss”, *Disability Studies Quarterly*, vol. 23, no. 2, 2003.
- <sup>18</sup> Ibid.
- <sup>19</sup> Handicap International (Belgium), Lao Youth Union and the United Nations Children’s Fund, *Life After the Bomb: A Psychosocial Study of Child Survivors of UXO Accidents in Lao PDR*, Handicap International (Belgium) and Lao Youth Union, p. 12.
- <sup>20</sup> Ibid., p. 36.
- <sup>21</sup> ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, p. 422.
- <sup>22</sup> Lisbet Grut, Peter Hjort and Arne Eide, “More of the Same and Try Something New”, *Evaluation of the Community Based Rehabilitation Programme in Eritrea*, SINTEF, 2004, p. 58.
- <sup>23</sup> Ibid., p. 69.
- <sup>24</sup> Human Rights Watch, *Ticking Time Bombs: NATO’s Use of Cluster Munitions in Yugoslavia*, 1999, § III.
- <sup>25</sup> United Nations Environment Programme, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 39.
- <sup>26</sup> *The Guardian*, “Aftershock: All Clear: Clearing unexploded ordnance from affected areas will help save lives, reduce poverty and bring some degree of normality back to communities. Three mine-clearance organisations describe their projects”, 6 November 2002.
- <sup>27</sup> Lao People’s Democratic Republic, *National Socio-Economic Development Plan (2006–2010)*, 2006, p. 95.
- <sup>28</sup> United Nations Environment Programme, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 155.
- <sup>29</sup> Questionnaire 13.
- <sup>30</sup> Richard Moyes, *Cluster Munitions in Kosovo: Analysis of Use, Contamination and Casualties*, Landmine Action, 2007, p. 3.
- <sup>31</sup> This was seen in responses to the questionnaire.

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- <sup>32</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, p. 52.
- <sup>33</sup> Richard Moyes (ed.), *Explosive Remnants of War and Mines Other than Anti-Personnel Mines: Global Survey 2003–2004*, Landmine Action, 2005, p. 105.
- <sup>34</sup> Interview with Julia Goehsing, Programme Officer, Mine Action Coordination Centre South Lebanon, 26 June 2007.
- <sup>35</sup> See, for example, Colin King, *Explosive Remnants of War: Submunitions and Other Unexploded Ordnance: A Study*, International Committee of the Red Cross, 2000, p. 30.
- <sup>36</sup> Only Chad and Lebanon were exceptions. The main problem in Chad was identified as armed conflict, and in Lebanon the threat from landmines, cluster munitions and ERW was regarded as equal to the problems posed by lack of development.
- <sup>37</sup> Human Rights Watch, *Ticking Time Bombs: NATO's Use of Cluster Munitions in Yugoslavia*, 1999, § III.
- <sup>38</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, p. 33.
- <sup>39</sup> US Department of State, *To Walk the Earth in Safety: The United States Commitment to Humanitarian Mine Action*, 2004, p. 45.
- <sup>40</sup> Communication with Ahlam al-Hatab, Philanthropic Association for Disabled Care, Lebanon, 9 May 2007.
- <sup>41</sup> "Nagorno Karabakh", The HALO Trust, <[www.halotrust.org/nagornokarabakh.html](http://www.halotrust.org/nagornokarabakh.html)>.
- <sup>42</sup> Bonnie Docherty, *Fatally Flawed: Cluster Bombs and Their Use by the United States in Afghanistan*, Human Rights Watch, 2002, pp. 29, 46.
- <sup>43</sup> Communication with Steve Ballinger, Cleared Ground Demining, 30 April 2007.
- <sup>44</sup> Questionnaire 23.
- <sup>45</sup> See for example "Mines and UXOs", United Nations Mission for the Referendum in Western Sahara, 2007, <[www.minurso.unlb.org/mines.html](http://www.minurso.unlb.org/mines.html)>; The HALO Trust, *Failing the Kosovars: The Hidden Impact and Threat from ERW*, 2006, p. 6; and Andrew Sheriff, "Cluster Munitions in Albania", in Rosy Cave, Anthea Lawson and Andrew Sheriff, *Cluster Munitions in Albania and Lao PDR: The Humanitarian and Socio-Economic Impact*, UNIDIR, 2006, p. 13.
- <sup>46</sup> Questionnaire 42. See also ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, p. 1147.
- <sup>47</sup> ICBL, *Landmine Monitor Report 2007: Toward a Mine-Free World*, 2007, p. 1055.

- <sup>48</sup> Richard Moyes, *Cluster Munitions in Kosovo: Analysis of Use, Contamination and Casualties*, Landmine Action, 2007, pp. 29–30.
- <sup>49</sup> David Willey, “Too close for comfort”, *BBC News*, 27 May 1999, <[http://news.bbc.co.uk/1/hi/programmes/from\\_our\\_own\\_correspondent/353520.stm](http://news.bbc.co.uk/1/hi/programmes/from_our_own_correspondent/353520.stm)>; ICBL, *Landmine Monitor Report 2001: Toward a Mine-Free World*, 2001, pp. 718–29.
- <sup>50</sup> Tom Hundley, “Kosovo war’s jetsam leaves Italy fishermen trawling for trouble”, *Chicago Tribune*, 16 July 1999.
- <sup>51</sup> Ibid.
- <sup>52</sup> ICBL, *Landmine Monitor Report 2001: Toward a Mine-Free World*, 2001, pp. 718–29.
- <sup>53</sup> Impacts on the Italian tourist industry are discussed in Rachel Stohl, “Cluster Bombs Leave Lasting Legacy”, Center for Defense Information, 1999; David Willey, “Too close for comfort”, *BBC News*, 27 May 1999, <[http://news.bbc.co.uk/1/hi/programmes/from\\_our\\_own\\_correspondent/353520.stm](http://news.bbc.co.uk/1/hi/programmes/from_our_own_correspondent/353520.stm)>.
- <sup>54</sup> Christopher Dickey, “Seeds of carnage”, *Newsweek*, 2 August 1999, p. 28; Rachel Stohl, “Cluster Bombs Leave Lasting Legacy”, Center for Defense Information, 1999.
- <sup>55</sup> ICBL, *Landmine Monitor Report 2001: Toward a Mine-Free World*, 2001, pp. 718–29.
- <sup>56</sup> Jon Leyne, “UK sweeping up stray bombs”, *BBC News*, 30 July 1999, <[http://news.bbc.co.uk/2/hi/uk\\_news/408394.stm](http://news.bbc.co.uk/2/hi/uk_news/408394.stm)>.
- <sup>57</sup> International Committee of the Red Cross, *Expert Meeting on Humanitarian, Military, Technical and Legal Challenges of Cluster Munitions*, conference report, Montreux, Switzerland, 18–20 April 2007, p. 44.
- <sup>58</sup> Jennette Townsend, “Socio-Economic Impact of Landmines in Iraq”, *Journal of Mine Action*, vol. 7, no. 2, 2003.
- <sup>59</sup> Ibid.
- <sup>60</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordinance and Post-Conflict Communities*, Landmine Action, 2002, p. 39.
- <sup>61</sup> Ibid., pp. 38–9, 40.
- <sup>62</sup> Ibid., p. 40.
- <sup>63</sup> Questionnaire 82.
- <sup>64</sup> Questionnaire 87.
- <sup>65</sup> The Cambodian Mine/UXO Victim Information System states that 33% of ERW incidents occurred because of deliberate interaction, and 25% of these cases were because the casualty intended to sell the item. Cambodian Mine/UXO Victim Information System, “Annual Report

2005", Cambodian Red Cross and Handicap International (Belgium), 2005, <[www.redcross.org.kh/services/cmvis.htm](http://www.redcross.org.kh/services/cmvis.htm)>, p. 18.

<sup>66</sup> See chapter 3 for more information on Lebanon. The information on Cambodia was gathered during field work there in March 2005.

<sup>67</sup> Richard Moyes (ed.), *Explosive Remnants of War and Mines Other than Anti-Personnel Mines: Global Survey 2003–2004*, Landmine Action, 2005, p. 183, note 2.

<sup>68</sup> ICBL, *Landmine Monitor Report 2007: Toward a Mine-Free World*, 2007, p. 49.

<sup>69</sup> For a discussion of these issues, see Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, chapters 2 and 5.

<sup>70</sup> Handicap International, *Circle of Impact: The Fatal Footprint of Cluster Munitions on People and Communities*, 2007, p. 133, citing an interview with an Austrian government representative.

<sup>71</sup> "Mines and UXOs", United Nations Mission for the Referendum in Western Sahara, 2007, <[www.minurso.unlb.org/mines.html](http://www.minurso.unlb.org/mines.html)>.

<sup>72</sup> Handicap International, *Circle of Impact: The Fatal Footprint of Cluster Munitions on People and Communities*, 2007, p. 91.

<sup>73</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, p. 53.

<sup>74</sup> Anthea Lawson, "Cluster Munitions in Lao PDR", in Rosy Cave, Anthea Lawson and Andrew Sheriff, *Cluster Munitions in Albania and Lao PDR: The Humanitarian and Socio-Economic Impact*, UNIDIR, 2006, p. 29.

<sup>75</sup> Ibid.

<sup>76</sup> Richard Moyes, *Cluster Munitions in Kosovo: Analysis of Use, Contamination and Casualties*, Landmine Action, 2007, p. 48.

<sup>77</sup> Respondents from 11 countries or territories reported the injury or death of IDPs and refugees resulting from cluster munitions. These areas were Afghanistan, Albania, Bosnia and Herzegovina, Cambodia, Ethiopia, Kosovo, Lao, Lebanon, Serbia, Sudan and Tajikistan.

<sup>78</sup> For example, a respondent based in Afghanistan states that the displacement of people was greater in the areas where cluster munitions were used by the United States in 2001; questionnaire 100. See also Bonnie Docherty, *Fatally Flawed: Cluster Bombs and Their Use by the United States in Afghanistan*, Human Rights Watch, 2002, pp. 28–9; and chapter 3 on Lebanon.

<sup>79</sup> A majority of respondents report that the movement of refugees and IDPs was hindered by such contamination in a variety of ways. These respondents were based in Afghanistan, Albania, Bosnia and

Herzegovina, Cambodia, Croatia, Ethiopia, Iraq, Kosovo, Lao, Lebanon, Sudan and Tajikistan, although this does not mean that there were not other places where flows of refugees and IDPs were affected by cluster munitions.

<sup>80</sup> Such was reported by respondents based in Afghanistan, Albania, Bosnia and Herzegovina, Cambodia, Croatia, Eritrea, Ethiopia, Iraq, Kosovo, Lao, Lebanon, Serbia, Sudan, Uganda, Viet Nam and Western Sahara.

<sup>81</sup> Questionnaire 34.

<sup>82</sup> See, for example, chapter 3.

<sup>83</sup> Questionnaire 29.

<sup>84</sup> ICBL, *Landmine Monitor Report 2006: Toward a Mine-Free World*, 2006, p. 749.

<sup>85</sup> International Committee of the Red Cross, *Expert Meeting on Humanitarian, Military, Technical and Legal Challenges of Cluster Munitions*, conference report, Montreux, Switzerland, 18–20 April 2007, pp. 14–5.

<sup>86</sup> Virgil Wiebe and Titus Peachy, *Drop Today, Kill Tomorrow: Cluster Munitions as Inhumane and Indiscriminate Weapons*, Mennonite Central Committee, 1999, rev. ed., p. 5.

<sup>87</sup> Rae McGrath, *Cluster Bombs: The Military Effectiveness and Impact on Civilians of Cluster Munitions*, Landmine Action, 2000, pp. 38–9.

<sup>88</sup> Richard Moyes, *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, 2002, p. 50.

## CHAPTER 3

### CLUSTER MUNITION CONTAMINATION IN SOUTHERN LEBANON

During the conflict between Hizbollah and Israel from 12 July to 14 August 2006, an estimated 1,000 to 1,200 Lebanese civilians were killed or injured as a “direct result of the intensive bombing”<sup>1</sup> and an estimated one million people were displaced.<sup>2</sup> An estimated 30,000 homes were destroyed or rendered uninhabitable and 900 factories and commercial buildings were destroyed. Travel throughout the country was impeded by the destruction of over 100 bridges and nearly 700km of road. The bombing was concentrated in the southern suburbs of Beirut and the south of the country, which are among the poorest areas of Lebanon.<sup>3</sup> The Food and Agriculture Organization of the United Nations (FAO) reports that, “[l]oss of life, loss of crops and livelihoods, destruction or damage of housing, displacement and support to other family members have aggravated the living conditions of the most vulnerable populations and increased their threshold of deprivation.”<sup>4</sup>

The month-long 2006 Israeli–Hizbollah conflict drew international attention to the use and impact of cluster munitions. The indiscriminate nature of cluster munitions was demonstrated by the widespread damage caused to public infrastructure, domestic property and agricultural land in Lebanon. As of September 2007 the United Nations Mine Action Coordination Centre South Lebanon (MACC SL), which following requests from the government was established in 2000 to coordinate clearance operations in southern Lebanon, had identified 943 cluster munition strikes, contaminating an estimated 38km<sup>2</sup>.<sup>5</sup> The contamination has posed a threat to the safety of the civilian population, impeded socio-economic activities, hindered access to buildings, infrastructure and natural resources, and caused injury and death. The rapid response of the clearance operators and donor community has helped to mitigate what some leading aid agencies believed could have been a humanitarian disaster. However, the scale of the problem, and the human and financial costs of resolving it, should not be underestimated. Nor should it be forgotten that Lebanon faces many other political and socio-



economic difficulties<sup>6</sup> and that cluster munition contamination exacerbates existing problems and diverts attention, energy and resources away from other issues.

Before the 2006 conflict, Lebanon was already contaminated by cluster munitions, other ERW and landmines from civil war (1975–1990) and Israeli occupation in the south (1978–2000). A Landmine Impact Survey completed in 2003 reported an estimated 137km<sup>2</sup> were contaminated, affecting five out of the six provinces.<sup>7</sup> Mount Lebanon and the Bekaa Valley had high levels of contamination but it was the southern provinces of South Lebanon and Nabatiyeh that were the most heavily affected. The Lebanon Mine Action Center (LMAC)<sup>8</sup> estimates that since 1975 about 4,000 people have been killed or injured by landmines and ERW.<sup>9</sup>

The 2006 conflict has added to the existing contamination. The United Nations Environment Programme (UNEP) stated that cluster munition contamination is "... a major factor impeding the return to normal life in affected areas".<sup>10</sup>

Drawing on reports from organizations working in country and information provided by their staff, this chapter explores the humanitarian and socio-economic impact of the contamination in southern Lebanon.

## CLUSTER MUNITION USE

There is disagreement over the total number of explosive submunitions fired into Lebanon, with estimates ranging from 1 to 4 million,<sup>11</sup> and there have been no official statements from Israel regarding a figure. The use of cluster munitions in the 2006 Israeli–Hizbollah conflict has been widely criticized. Israel's heavy use of cluster munitions in areas with civilian populations, specifically during the period between the agreement of a ceasefire and its coming into force, attracted international attention. Jan Egeland, UN Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator, stated that, "... 90% of the cluster bomb strikes occurred in the last 72 hours of the conflict, when we knew there would be a resolution".<sup>12</sup> The Director for International Law of the International Committee of the Red Cross (ICRC), Philip Spoerri, stated that "[the] density of cluster submunition contamination may be unprecedented".<sup>13</sup> Although there has been no official confirmation from Israel, Human Rights Watch reports that Hizbollah also fired cluster munitions into northern Israel; there

were 113 cluster munition rockets identified and 13 casualties from them reported.<sup>14</sup> However, from the time of the ceasefire to the end of 2006, there were no casualties reported from submunition contamination.<sup>15</sup>

The Israel Defence Forces (IDF) has acknowledged targeting populated areas with cluster munitions. The IDF Spokesman's Office stated, "the use of cluster munitions against built-up areas was done only against military targets where rocket launches against Israel were identified and after taking steps to warn the civilian population."<sup>16</sup> A government official acknowledged that cluster munitions were used in part to prevent Hizbollah fighters from returning to those locations.<sup>17</sup>

MACC SL estimates there are some half a million submunitions to clear from southern Lebanon,<sup>18</sup> and states that in the year following the conflict their operations had cleared almost 130,000. Many of the submunitions discovered since the conflict are older models, some more than 30 years old, which have very high failure rates.<sup>19</sup>

## THE HUMANITARIAN AND SOCIO-ECONOMIC IMPACT

The use of cluster munitions and the subsequent contamination has contributed to the humanitarian and socio-economic impact of the war:

These munitions are considered to pose a grave risk to the Lebanese population and are a serious impediment of post-conflict recovery and reconstruction efforts. In addition, agricultural fields are heavily contaminated by cluster bombs, affecting livelihoods of populations in those areas.<sup>20</sup>

Although it is not always possible to separate the impact of cluster munition use and contamination from the other elements of the conflict, the following discussion provides insight into some of the problems caused directly and indirectly by cluster munitions at the time of use and after conflict. The analysis shows how cluster munitions have complicated post-war recovery processes and threaten long-term sustainable development.

## CASUALTIES

MACC SL does not think it is possible to collect accurate figures about the numbers of civilians killed or injured by cluster munitions at the time of

use, as it would be difficult to differentiate between the effects of cluster munitions and other munitions.<sup>21</sup> There are, however, confirmed reports of cluster munition casualties during the conflict itself, such as in a cluster munition attack on the village of Blida on 19 July 2006, which killed one and wounded at least 12 civilians.<sup>22</sup> MACC SL believes that, although there were still civilians in the south of the country during the last 72 hours of the conflict when the majority of the cluster munitions were used, most had left the region, which contributed to the low rates of cluster incidents during the conflict itself.

Between 14 August 2006 and 31 May 2007, 203 civilians were involved in ERW incidents, resulting in 23 fatalities. Of the fatalities, 20 were male, and males aged 19 and over accounted for 102 of the injured and 15 of the fatalities. In addition to these casualties, 33 clearance workers were involved in operational accidents, eight of whom died.<sup>23</sup> MACC SL is in the process of trying to identify what caused the civilian incidents, but believes that 82 were caused by cluster munitions, 4 by incendiary devices, 4 by various ERW, and 17 by unknown devices.<sup>24</sup> As discussed above, the high proportion of cluster munitions should be noted—by the end of 2006, MACC SL reports having cleared nearly 12 times as many submunitions as other types of ERW.<sup>25</sup> The contamination was so severe that, immediately after the ceasefire, MACC SL restructured all of its operations to focus on submunitions.<sup>26</sup>

The highest rate of incidents occurred as people returned to their homes following the ceasefire. People began to return the very morning of the ceasefire,<sup>27</sup> and most of the population of the south returned within four days of the end of the war.<sup>28</sup> The danger from unexploded submunitions and other ERW did not deter people from returning, but it made their return unsafe. During the six-week period from 14 August to the end of September 2007 there were 126 civilian casualties recorded as being caused by submunitions.<sup>29</sup> Mines Advisory Group believes that people were not warned of the threat from cluster munitions soon enough after the end of the conflict, and that some of the incidents might have been avoided had there been greater awareness.<sup>30</sup> Almost a year after the end of the war, there were still civilian casualties from cluster munitions and other ERW, but the number had dropped dramatically. By mid-2007, cluster munition casualties were occurring at a rate of only two or three per month.<sup>31</sup>

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## PSYCHOLOGICAL IMPACT

Violent conflict results in immediate and long-term psychological problems. In Lebanon other concerns, including internal stability, economic hardship and regional tensions, add to the stress and uncertainty of daily life. The end of the civil war in 1990 did not bring an end to social and political tensions, and the situation in the country has remained volatile. Many people worried that the conflict between Israel and Hizbollah could lead to a new civil war. One interpretation for the rapid return of displaced people after the 2006 conflict is that they wanted to return home as quickly as possible in hope that the resumption of normality would lessen tensions and the potential to cause further unrest.<sup>32</sup>

NGO staff have noted that Lebanese and Palestinians living in Lebanon do not regularly discuss their feelings about how they are affected by conflict, traumatic events and the stresses of daily life.<sup>33</sup> Many practitioners in southern Lebanon say that the local population appears to be very resilient and to have coped well with the difficulties following the conflict. However, there have been displays of hysteria and expressions of despair, which are considered to be indications of psychological trauma.<sup>34</sup>

Cluster munition contamination compounds the negative psychological impacts of conflict, and is a constant and unavoidable reminder of the conflict. It forces the community either to adapt their daily activities to avoid the dangers of unexploded munitions, or to accept the potential risk in order to complete essential tasks.

While undertaking cluster munition clearance, one organization has remarked on the number of incidents with angry landowners. Most landowners want to visit their land while it is being cleared. They complain about the clearance operation and the damage that is caused during the operation. Often visits and arguments are repeated on a daily basis. Some interpret this behaviour as an expression of the psychological trauma from the conflict. Perhaps landowners feel that they have lost control of their land and that their property continues to be violated. It has been observed that, as the land has already been damaged and produce lost, and even though clearance operations are intended to help, the process can unfortunately be perceived as a prolongation of the conflict experience.<sup>35</sup>

### THE IMPACT ON VICTIMS' FAMILIES

As a result of previous conflicts and the presence of landmines and ERW, there are already numerous NGOs providing assistance and rehabilitation for those who have been injured or disabled. The range of assistance that NGOs must offer to address the needs of the individual victims and their families reflects the broad impact that cluster munitions, other ERW and landmines have. In addition to providing prosthetic limbs, specialized equipment or rehabilitation for the injured, there are economic and psychological costs that must be acknowledged. The injured may also need retraining if they are unable to resume their previous employment, or financial assistance to start a new business.<sup>36</sup> Families may also have an extra economic burden because often the injured will be unable to work for several months, or perhaps permanently, and often their earning capacity is reduced.

At the time of writing, there have already been more than 200 civilians killed or injured by contamination in southern Lebanon and most of these were men of working age. Consequently, the economic impact on families is significant as adult males tend to be the primary income earners. It is common that more men are injured than women in ERW incidents because they are the ones who tend to be involved in income generating activities that expose them to such risk. Practitioners in Lebanon have noted that victims of cluster munition incidents tend to come from the lowest socio-economic groups because they are forced to take more risks than those who are better off.

The Philanthropic Association for Disabled Care, a Lebanese NGO, states that once people have been injured it is a struggle to survive. Many disabled and their families become almost entirely dependent on help from NGOs because they are unable to generate sufficient income to support themselves or pay for medical care.<sup>37</sup>

As the majority of victims are male, conflict and the contamination it leaves results in many female-headed households. Such households are vulnerable for a variety of reasons. Women may not have the same earning capacity as men, and they have to balance employment and domestic duties, which can have a negative impact on the family. A study published in January 2007 noted that female-headed households, along with the disabled and the elderly, were the most vulnerable sectors of the population and had been most affected by the conflict.<sup>38</sup>

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## THE IMPACT ON LIVELIHOODS

Although Lebanon has a predominantly service-orientated economy, with services accounting for 67% of gross domestic product and agriculture accounting for only 6%, in the south of the country agriculture is the main income generating activity.<sup>39</sup> UNEP states that:

The hills of southern Lebanon constitute one of the four core agricultural areas of Lebanon, accounting for an estimated 30 per cent of the country's agricultural output. ... Moreover, agriculture makes up 70 per cent of southern Lebanon's economy and an estimated 90 per cent of the local population depends on agriculture for its livelihood.<sup>40</sup>

In the south, an estimated 62% of the total contaminated area is agricultural land.<sup>41</sup> Nearly one quarter of this land is devoted to olive groves and a further 15% is olive groves mixed with other crops. The head of a local municipality in the Nabatiyeh region stated that:

It was bad enough for us that many olive trees were destroyed in bombing during the war. ... Now, facing existing losses, farmers [must] either choose to stay out of danger but then make no money at all for their families, or [choose] to seriously risk their lives by trying to harvest what remains of the olives.<sup>42</sup>

He also claimed that the 2006 olive harvest was lost because of cluster munition contamination.<sup>43</sup> It is reported that farmers are worried that a second harvest will be lost for the same reason.<sup>44</sup>

Farm animals were also killed during the conflict. Families who lose animals often do not have the working capital to replace them and communities are forced to purchase goods which they can no longer produce themselves.<sup>45</sup>

The rapid return of people to the south following the ceasefire is partly explained by financial need. Time and crops had already been lost as a result of the conflict, and financial resources were drained by efforts to find food and shelter in safer parts of the country. Economic pressure has led people to try to clear cluster munitions themselves or to harvest their crops despite the contamination. Those who do so cannot afford to wait for clearance operations and see neglecting their livelihood as the greater risk.<sup>46</sup>

Some landowners have offered to up to US\$ 6.50 per submunition to civilians willing to clear land. There is concern that the poorest members of the community will be put in danger by what has been called “artisanal” clearance, as they may have little choice but to accept such work.<sup>47</sup>

Initial clearance efforts prioritized inhabited areas, so farmers were left without an income, or an income which could be generated safely, until agricultural land was cleared.<sup>48</sup> There is concern that, “[f]aced with growing livelihood pressures, the local population is more likely to resort to unsustainable practices and intensify exploitation of a diminished land base to meet short-term needs.”<sup>49</sup> It has been reported that farmers are setting light to their land in the hope that the cluster munitions will explode. The resulting loss of vegetation could potentially lead to soil erosion problems.<sup>50</sup> As much grazing land remains contaminated, non-contaminated or cleared areas tend to be overgrazed.<sup>51</sup> UNEP states that, “... the land scarcity resulting from cluster bomb contamination has the potential to ... set in train a cycle of poverty and environmental degradation,”<sup>52</sup> and so alternative livelihood sources that do not damage the resource base must be provided while land is cleared.<sup>53</sup>

Efforts are underway to provide alternatives for the communities in the south. In cooperation with the Lebanese NGO Association for the Protection of the Environment, MACC SL is proposing livelihood projects that would supply machinery and animals “to mitigate the economic downfall of local communities in South Lebanon from cluster munitions and other items of unexploded ordnance.”<sup>54</sup>

One such proposal is to provide tractors for communities so small landowners do not have the ongoing expense of renting a tractor each time one is needed. Free access to a tractor would reduce the economic burden on individual families, and help the community as a whole rebuild as income would be available for other needs.<sup>55</sup>

Another proposal is for cows to be distributed among the most vulnerable families that lost animals during the conflict. The families who received the cows would benefit directly; the community would also benefit from the dairy and beef. Such would help families to become economically independent, which they would be unlikely to achieve without help, having suffered significant economic loss during the conflict.<sup>56</sup>

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As these proposals indicate, the humanitarian and socio-economic impact of cluster munitions cannot be overcome through clearance activities, MRE and victim assistance alone. It is necessary to think holistically and understand how communities are affected by conflict and the contamination it leaves in order to help communities to recover in a sustainable manner.

## **PLANNING AND PRIORITIZING CLEARANCE OPERATIONS**

MACC SL works in cooperation with the United Nations Interim Force in Lebanon (UNIFIL) and is responsible for planning, prioritizing, quality assurance, and managing and securing most of the funding for clearance operations in the south. The National Demining Office was established in 1998 (renamed in 2007 as LMAC) to tackle the longstanding landmine and ERW contamination problem and it works with the United Nations Development Programme to coordinate clearance in the Bekka Valley and central Lebanon. MACC SL works in cooperation with LMAC, which is also responsible for coordinating other aspects of mine action including MRE.

The international community was unprepared for the conflict and there was no threat monitoring in place for landmine and ERW contamination. However, the existence of mine action operations in Lebanon at the time meant that planning for post-conflict clearance began immediately and that some of the necessary resources and technical expertise were already on the ground. Throughout the conflict, the Programme Manager and the Chief of Operations for MACC SL remained in Tyre, the main city in the south of the country. From there they were able to monitor the situation and coordinate with other UN, NGO and government bodies. MACC SL assessed the threat from ERW and landmines, raised funds and secured resources so that clearance could begin immediately once fighting ceased. The UN Framework for Mine Action Planning and Rapid Response, which had been used in Eritrea, Guinea-Bissau, Iraq and Kosovo, was used to help identify clearance priorities, including essential infrastructure, access routes, schools and medical centres, houses and densely inhabited areas.<sup>57</sup>

Following the ceasefire, community liaison and quality assurance teams who had been working on clearance operations in southern Lebanon before the conflict were restructured into reconnaissance teams to conduct an emergency survey due to the severity of contamination. Emergency clearance was initially undertaken by BACTEC and Mines Advisory Group because they had previously been working in Lebanon, and the Swedish



Rescue Services Agency, which has a standby agreement with the United Nations Mine Action Service.

By June 2007, MACC SL and UNIFIL had in southern Lebanon a total of 67 battle area clearance teams, 22 explosive ordinance disposal teams, 16 demining teams, 4 flail teams and 3 dog teams.<sup>58</sup> In addition to UNIFIL troops, MACC SL coordinates teams from six international NGOs, two commercial organizations, one battle area clearance team from the New Zealand Defence Force and Lebanese Armed Forces (LAF) engineers.<sup>59</sup> For such a small geographical area, this is a significant clearance capacity, but some informed observers feel that, given the high level of contamination, greater clearance capacity is needed.<sup>60</sup> Nevertheless, MACC SL argues that a larger clearance programme could become unmanageable and therefore less effective than a smaller number of clearance teams. For safety reasons, individuals and clearance teams must maintain a certain distance from each other while working. In some contaminated area this may not always be possible and would mean that the teams could not work simultaneously.<sup>61</sup>

By the end of June 2007, MACC SL had identified more than 900 cluster strike locations with an estimated contaminated area of more than 37km<sup>2</sup>.<sup>62</sup> New locations are still being identified, but with less frequency than in the immediate post-conflict period.<sup>63</sup> For each strike identified, clearance personnel check an area of 196,000m<sup>2</sup> in order to clear all submunitions.<sup>64</sup>

The IDF has not released details regarding their use of cluster munitions. Radhika Coomaraswamy, the UN Secretary-General's Special Representative for Children and Armed Conflict, said that she had asked Israeli Foreign Minister Tzipi Livni for such information, as records of strike locations would help to expedite clearance operations.<sup>65</sup> At the time of writing, Israel had not released these records.

In 2006, the focus for clearance was contaminated areas considered to pose an immediate humanitarian threat. Details recorded about the victims of cluster munition incidents were used to help identify additional areas of contamination and to prioritize areas for clearance.<sup>66</sup> By the beginning of 2007, clearance operations were able to start concentrating on agricultural land. As stated above, an estimated 62% of the total contaminated area is agricultural land.<sup>67</sup> Thirteen percent of contaminated land is urban or built-up, 13% woodland and 11% grassland.<sup>68</sup> UNEP recommended that

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agricultural land should be prioritized for clearance to facilitate economic recovery of the region and prevent the use of unsustainable income-generating activities that could have a long-term negative impact.<sup>69</sup> Following advice from the FAO, MACC SL prioritizes land for clearance according to the agricultural cycle so land will be cleared as it is needed.<sup>70</sup>

Until April 2007, the majority of cluster munitions were cleared by sight because they were still lying on the surface. Now, many are below the surface and have to be located using detectors which takes longer than visual clearance.

MACC SL reports that of the land suspected to be contaminated, 7% has been returned to the communities as a result of actions other than clearance after determining that it was not contaminated, 17% has been fully cleared to a depth of 20cm and 30% has been cleared of all surface threats. Land that has been surface cleared will be assessed to determine whether it requires further clearance to a depth of 20cm. At the time of writing, the clearance programme had not begun to tackle 46% of the land considered to be contaminated.<sup>71</sup>

Once land has been cleared, MACC SL undertakes a post-clearance assessment to ensure that landowners and communities are confident that land has been cleared and are using it. During the assessment process further rehabilitation needs can be identified and additional help can be sought to fund or implement livelihood projects.<sup>72</sup>

MACC SL estimates that southern Lebanon will be essentially impact free from cluster munition contamination by the end of December 2007 because the areas that will remain to be cleared in 2008 are not densely inhabited and are accessed less frequently by the population than the areas which have already been cleared.<sup>73</sup> However, some experts question whether this is possible, because despite all the clearance activity new strike areas were still being discovered almost a year after the end of the fighting. Following the conflict it was originally planned that MACC SL would leave southern Lebanon by the end of 2007, but LMAC has asked it to remain for a further year. From mid-2007 MACC SL will begin to make plans for 2008 and to calculate the budget needed.<sup>74</sup>

By the end of 2007, MACC SL estimates that the international community, through a variety of sources, will have provided around US\$ 46 million

for clearance of cluster munitions in Lebanon.<sup>75</sup> However, this figure does not include all the resources that are spent on clearance operations in Lebanon. UNIFIL's clearance capacity is coordinated by MACC SL but has separate funding, the New Zealand government is covering the costs of a clearance team from its armed forces, and some of the international NGOs have funding from the European Community Humanitarian Aid Office for clearance operations. The LAF are also involved in clearance activities in the south.<sup>76</sup>

### THE CHALLENGES

There are a number of challenges in the south that impede clearance efforts. Without strike data from the Israeli authorities, identifying cluster munition strike areas is difficult and time consuming. In addition, immediately after the conflict, people began clearing rubble from homes and roads, and in the process submunitions were moved as well. Clearance organizations had to sift through the rubble to find the cluster munitions.<sup>77</sup> Official emergency clearance in the immediate aftermath of the war, clearance organized by Hizbollah and spontaneous clearance by the local population has increased the difficulty of determining strike areas because the centre of the strike may no longer be discernible.<sup>78</sup> There is speculation that Hizbollah and members of the local population may have cleared as many cluster munitions as official clearance operations.<sup>79</sup>

Clearance in civilian areas is slowed down as strict safety procedures are enforced; activities cannot proceed if civilians are in the vicinity, but ensuring that civilians stay out of clearance areas is difficult, particularly in built-up areas.<sup>80</sup>

Geographical factors also impede clearance activities. The mountainous areas of southern Lebanon have steep slopes which reduces the size of the area that can be cleared each day.<sup>81</sup> Submunitions have been found hanging in trees and heavy vegetation, which becomes thicker in the spring and summer months and prevents cluster munitions from being easily spotted. Vegetation often has to be cleared before an area can be accessed safely. The removal of vegetation has an environmental impact and may also result in damage to agricultural land and produce.

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In addition to the dangers posed by the submunitions themselves, those working on clearance operations have also faced environmental hazards such as scorpion stings, dehydration and heat stroke.

Overall, relations between the local population and the clearance organizations have been good. Through community liaison efforts and MRE programmes, the clearance operations have a high profile and the population appears to be aware of the clearance activities and to understand the process. However, the longer clearance operations take, the greater the risk that the population will become less cooperative. As the annual harvest time of certain crops approaches, landowners are increasingly asking that clearance operations be delayed on their land until September, after the harvest has been gathered.<sup>82</sup>

Land belonging to some of the larger landowners and wealthier members of the population has at times been cleared by some organizations before the land belonging to poorer members of the population.<sup>83</sup> While this can be the source of complaints, the approach has been justified among clearance operators by the argument that large landowners employ a significant number of labourers, so clearing their land has a greater economic impact than clearing the land of subsistence farmers. There is not enough evidence to confirm if this rationale is correct, but it demonstrates the dilemmas in prioritizing clearance to maximize impact.

However, the clearing of land belonging to wealthier members of the community could exacerbate existing social tensions. The functioning of Lebanese society relies heavily on *wasta*, which is about having the right contacts to exert leverage to obtain a certain goal. There have been accusations that the more powerful members of the population have used such influence to ensure that their land is prioritized for clearance. This maybe untrue but the perception that some people are receiving help more quickly than others is enough to heighten tensions within the community.

## ASSESSING THE IMPACT

The use of cluster munitions during the 2006 Israeli–Hizbollah conflict had an immediate humanitarian impact. The resulting contamination has negatively affected physical, economic and social post-war recovery processes.

What is notable about the case of Lebanon is the rapid return of displaced people to their homes and land, despite the dangers presented by contamination. While clearance was prioritized, funding was available and operations began immediately after the ceasefire, people could not wait for their land and property to be cleared before returning.

The humanitarian impact of cluster munitions has been considerable. Despite the rapidity and effectiveness of clearance, there have been cluster munition injuries and fatalities. The destruction to public and private property is widespread; the conflict is estimated to have caused US\$ 3.6 billion in physical damage, with billions more being lost from follow-on effects.<sup>84</sup> The clearance process is costly and slow. Furthermore, clearance operations and related activities are not enough in themselves to help affected communities. Additional programmes are needed to help develop livelihood alternatives for those communities still contaminated.

The rapid humanitarian response of the international community immediately following the conflict and efforts of mine action organizations to clear the contamination has helped to mitigate negative effects. However, it should be noted that the circumstances allowing this rapid response are specific to Lebanon. MACC SL was already operational before the conflict, so there was no need to establish an organization to coordinate the activities of clearance organizations. Consequently, planning for post-conflict operations was able to begin immediately. Funding and resources were secured so that clearance was able to begin as soon as the fighting stopped. By the time of the ceasefire, US\$ 1.5 million had already been pledged by the international community for mine action; by the end of 2006 that amount had increased to US\$ 23 million.<sup>85</sup>

The experience of Lebanon shows that no matter how prompt and effective the response, once contamination exists, there is a humanitarian impact. The international community and aid and clearance organizations reacted immediately and it is generally agreed that clearance operations have been rapid. The contamination was concentrated in a relatively small area, clearance capacity and other expertise were already present and were mobilized quickly. It should be acknowledged that this was a “best case scenario”—if that can be said of a country that endured such a bombardment—in which resources and expertise were readily available for mobilization. These factors have contributed to a lessening, but not

averting, of the humanitarian and socio-economic impact of cluster munition contamination.

## Notes

- <sup>1</sup> ICRC, *Expert Meeting on Humanitarian, Military, Technical and Legal Challenges of Cluster Munitions*, conference report, Montreux, Switzerland, 18–20 April 2007, p. 42.
- <sup>2</sup> FAO, *Lebanon: Damage and Early Recovery Needs Assessment of Agriculture, Fisheries and Forestry*, 2006, p. 7.
- <sup>3</sup> Ibid.
- <sup>4</sup> Ibid., p. 8.
- <sup>5</sup> MACC SL, “September 2007 Report of the Mine Action Co-ordination Centre, South Lebanon”, 5 October 2007. p. 1.
- <sup>6</sup> Before the 2006 conflict, Lebanon was already in political crisis, had an estimated national debt of US\$ 40 billion and a growing economic disparity between rich and poor. Economist Intelligence Unit, *Lebanon Country Profile*, 2006, p. 21.
- <sup>7</sup> Mines Advisory Group, *Lebanon: Landmine Impact Survey*, 2004, pp. 7–8.
- <sup>8</sup> Known as the National Demining Office until June 2007.
- <sup>9</sup> “About Us”, Lebanese National Demining Office, <[www.ndo-lb.org/ndocorp/english/home/about.asp](http://www.ndo-lb.org/ndocorp/english/home/about.asp)>.
- <sup>10</sup> UNEP, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 155.
- <sup>11</sup> ICBL, *Landmine Monitor Report 2007: Toward a Mine-Free World*, 2007, p. 895.
- <sup>12</sup> “UN denounces Israel cluster bombs”, *BBC News*, 30 August 2006, <[http://news.bbc.co.uk/2/hi/middle\\_east/5299938.stm](http://news.bbc.co.uk/2/hi/middle_east/5299938.stm)>.
- <sup>13</sup> “Lebanon: the war is over but cluster bombs keep maiming”, ICRC, 31 January 2007, <[www.icrc.org/web/eng/siteeng0.nsf/html/lebanon-stories-310107](http://www.icrc.org/web/eng/siteeng0.nsf/html/lebanon-stories-310107)>.
- <sup>14</sup> Human Rights Watch, “Lebanon/Israel: Hezbollah hit Israel with cluster munitions during conflict”, 19 October 2006.
- <sup>15</sup> ICBL, *Landmine Monitor Report 2007: Toward a Mine-Free World*, 2007, p. 858.
- <sup>16</sup> Nir Hasson and Meron Rapoport, “IDF admits targeting civilian areas in Lebanon with cluster bombs”, *Haaretz*, 21 November 2006.

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- <sup>17</sup> General Assembly, *Mission to Lebanon and Israel (7–14 September 2006): Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Philip Alston; The Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Paul Hunt; The Representative of the Secretary-General on Human Rights of Internally Displaced Persons, Walter Kalin; and The Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, Miloon Kothari*, UN document A/HRC/2/7, 2 October 2006, p. 14.
- <sup>18</sup> ICBL, *Landmine Monitor Report 2007: Toward a Mine-Free World*, 2007, p. 895.
- <sup>19</sup> ICRC, *Expert Meeting on Humanitarian, Military, Technical and Legal Challenges of Cluster Munitions*, conference report, Montreux, Switzerland, 18–20 April 2007, pp. 41–3.
- <sup>20</sup> UNEP, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 165.
- <sup>21</sup> Communication with Dalya Farran, Media and Post Clearance Officer, MACC SL, 26 June 2007.
- <sup>22</sup> Human Rights Watch, “Israeli cluster munitions hit civilians in Lebanon”, 24 July 2006.
- <sup>23</sup> MACC SL, “May 2007 Report of the Mine Action Co-ordination Centre, South Lebanon”, 5 June 2007.
- <sup>24</sup> Communication with Dalya Farran, Media and Post Clearance Officer, MACC SL, 26 June 2007.
- <sup>25</sup> MACC SL, “Quarterly Report of the Mine Action Co-ordination Centre, South Lebanon for the Period October to December 2006”, 17 January 2007, p. 5.
- <sup>26</sup> MACC SL, “Quarterly Report of the Mine Action Co-ordination Centre, South Lebanon for the Period July to September 2006”, 24 October 2006, pp. 1–2.
- <sup>27</sup> Communication with Catherine Fleming, MACC SL, 22 June 2007.
- <sup>28</sup> Presentation by Steve Priestley, Director for International Projects, Mines Advisory Group, to the Group of Governmental Experts, Convention on Conventional Weapons, Geneva, Switzerland, 20 June 2007.
- <sup>29</sup> MACC SL, “Report of the Mine Action Co-ordination Centre, South Lebanon for the Period of 14 August–September 2006”, 9 October 2006, p. 2.
- <sup>30</sup> Presentation by Steve Priestley, Director for International Projects, Mines Advisory Group, to the Group of Governmental Experts,

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Convention on Conventional Weapons, Geneva, Switzerland, 20 June 2007.

<sup>31</sup> Communication with Dalya Farran, Media and Post Clearance Officer, MACC SL, 26 June 2007.

<sup>32</sup> Communication with Aneeza Pasha, Community Liaison Specialist, Handicap International (France), 7 June 2007.

<sup>33</sup> Observations during field visits to Lebanon over 10 years from 1996–2006.

<sup>34</sup> Communication with Ahlam al-Hatab, Philanthropic Association for Disabled Care, 9 May 2007; communication with Aneeza Pasha, Community Liaison Specialist, Handicap International (France), 7 June 2007; communication with Olfat Mahmoud, Director, Women's Humanitarian Organization, November 2006.

<sup>35</sup> Communication with Aneeza Pasha, Community Liaison Specialist, Handicap International (France), 7 June 2007.

<sup>36</sup> Communication with Ahlam al-Hatab, Philanthropic Association for Disabled Care, 9 May 2007.

<sup>37</sup> Idem.

<sup>38</sup> FAO, *Lebanon: Damage and Early Recovery Needs Assessment of Agriculture, Fisheries and Forestry*, 2006, p. 8.

<sup>39</sup> Economist Intelligence Unit, *Lebanon Country Profile*, 2007, p. 19. Figures based on statistics from 2004.

<sup>40</sup> UNEP, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 155.

<sup>41</sup> Ibid.

<sup>42</sup> "Lebanon: cluster bombs threaten farmers' lives, hamper olive harvest", *Integrated Regional Information Networks*, 15 November 2006.

<sup>43</sup> Ibid.

<sup>44</sup> Interviews conducted during May and June 2007.

<sup>45</sup> MACC SL, "Proposal for Livelihood Projects", 2007, p. 6.

<sup>46</sup> Communication with Christine Hamieh, Lebanese national working in southern Lebanon, PhD student, Post-war Reconstruction and Development Unit, University of York, May 2007.

<sup>47</sup> FAO, *Lebanon: Damage and Early Recovery Needs Assessment of Agriculture, Fisheries and Forestry*, 2006, pp. 10–11.

<sup>48</sup> "Lebanon: the war is over but cluster bombs keep maiming", ICRC, 31 January 2007, <[www.icrc.org/web/eng/siteeng0.nsf/html/lebanon-stories-310107](http://www.icrc.org/web/eng/siteeng0.nsf/html/lebanon-stories-310107)>.

<sup>49</sup> UNEP, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 155.



- <sup>50</sup> Ibid.
- <sup>51</sup> Ibid.
- <sup>52</sup> Ibid.
- <sup>53</sup> Ibid., p. 156.
- <sup>54</sup> MACC SL, "Proposal for Livelihood Projects", 2007, p. 4.
- <sup>55</sup> Ibid.
- <sup>56</sup> Ibid.
- <sup>57</sup> Communication with Julia Goehsing, Programme Officer, MACC SL, 26 June 2007.
- <sup>58</sup> Communication with Dalya Farran, Media and Post Clearance Officer, MACC SL, 26 June 2007.
- <sup>59</sup> MACC SL, "April 2007 Report of the Mine Action Co-ordination Centre, South Lebanon", 7 May 2007, p. 5. The NGO clearance organizations are DanChurchAid, Handicap International (France), the Swiss Foundation for Mine Action, Norwegian People's Aid and the Swedish Rescue Services Agency. The commercial clearance organizations are ArmorGroup and BACTEC.
- <sup>60</sup> Communication with clearance experts, May and June 2007.
- <sup>61</sup> Communication with Julia Goehsing, Programme Officer, MACC SL, 26 June 2007.
- <sup>62</sup> Communication with Dalya Farran, Media and Post Clearance Officer, MACC SL, 26 June 2007; MACC SL, "May 2007 Report of the Mine Action Co-ordination Centre, South Lebanon", 5 June 2007.
- <sup>63</sup> Communication with Julia Goehsing, Programme Officer, MACC SL, 26 June 2007.
- <sup>64</sup> Information supplied by MACC SL.
- <sup>65</sup> "Israel-Lebanon: UN envoy asks for records of cluster bomb strikes", *Integrated Regional Information Networks*, 22 April 2007.
- <sup>66</sup> MACC SL, "April 2007 Report of the Mine Action Co-ordination Centre, South Lebanon", 7 May 2007. p. 8.
- <sup>67</sup> Ibid.
- <sup>68</sup> UNEP, *Lebanon: Post-Conflict Environmental Assessment*, 2007, p. 155.
- <sup>69</sup> Ibid., p. 156.
- <sup>70</sup> Communication with Julia Goehsing, Programme Officer, MACC SL, 26 June 2007.
- <sup>71</sup> MACC SL, *Weekly Sitrep as at Tuesday 26 June 2007*, supplied by email by Dalya Farran, Media and Post Clearance Officer Public Information, MACC SL; communication with Julia Goehsing, Programme Officer, MACC SL, 26 June 2007.

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- <sup>72</sup> MACC SL, "Proposal for Livelihood Projects", 2007.
- <sup>73</sup> Communication with Julia Goehsing, Programme Officer, MACC SL, 26 June 2007.
- <sup>74</sup> Idem.
- <sup>75</sup> Idem.
- <sup>76</sup> MACC SL, "April 2007 Report of the Mine Action Co-ordination Centre, South Lebanon", 7 May 2007.
- <sup>77</sup> Presentation by Steve Priestley, Director for International Projects, Mines Advisory Group, to the Group of Governmental Experts, Convention on Conventional Weapons, Geneva, Switzerland, 20 June 2007.
- <sup>78</sup> Communication with Zak Johnson, consultant, Handicap International (France), 23 May 2007.
- <sup>79</sup> Communication with clearance experts, May and June 2007.
- <sup>80</sup> Communication with Andy Gleeson, Technical Operations Manager, Mines Advisory Group, 10 May 2007.
- <sup>81</sup> Communication with Anders Wedaa, Norwegian People's Aid, 23 May 2007.
- <sup>82</sup> Communication with Chris Fielding, Operations Officer, DanChurchAid, May 2007.
- <sup>83</sup> Informed observers, Lebanon, May and June 2007.
- <sup>84</sup> "Calculating the costs of war", *The Daily Star*, 2 October 2006.
- <sup>85</sup> These figures were taken from the Financial Tracking Service of the UN Office for Coordination of Humanitarian Affairs.



## CHAPTER 4

### CLUSTER MUNITION CONTAMINATION IN CAMBODIA

There are potentially as many as 3.75 million unexploded submunitions, along with many other ERW, contaminating Cambodia as a result of the Viet Nam War and internal conflict.<sup>1</sup> Although there is no agreed figure of the number of cluster munitions littering the country, many mine action practitioners acknowledge that the problem is extensive. However, the humanitarian and socio-economic impacts of cluster munition contamination seem to be little understood, under-researched and to attract only a limited amount of available mine action resources.

One reason for this is that the focus of mine action in Cambodia has been on the millions of landmines that were laid between the late 1960s and the early 1990s as the result of regional and internal conflicts. Landmines were used across the country, but predominantly in the west.<sup>2</sup> Therefore, mine action programmes have concentrated on the western provinces, where there is a high population density and large numbers of casualties have been recorded, in an effort to reduce the impact of mines and increase awareness. The highly successful campaign to ban landmines also played a role in getting mine action programmes to prioritize that part of the country. Most of the contamination from cluster munitions and other ERW is in less populated areas. Humanitarian demining began in Cambodia in the early 1990s, and has made progress in reducing the contamination from landmines and the resultant casualties.

Cluster munitions and other ERW, resulting from the millions of tons of ordnance used by the United States in the 1960s and 1970s, are concentrated in the eastern provinces, where the population density is quite low. Nevertheless, after some 15 years of humanitarian demining, ERW, including cluster munitions, have caused the majority of casualties in recent years.<sup>3</sup> Furthermore, as will be discussed below, increasing economic activities in the east may result in increased population movement there, exposing people to contamination threats that will need to be addressed.

This chapter examines the nature of the cluster munition contamination, assesses its impact and the reasons why it has not generated much attention. It concludes that although such contamination in the past may not have seemed to be a significant problem, the growing population in the east and increasing economic activities there mean that cluster munition contamination should be a serious concern.

## CLUSTER MUNITION CONTAMINATION

Cluster munition contamination in Cambodia is believed to be extensive. The Cambodian Mine Action Centre (CMAC), the national agency responsible for the implementation of mine action activities in Cambodia, claims that unexploded submunitions are found in all 24 provinces,<sup>4</sup> with most found predominantly in rural areas east of the Mekong River.<sup>5</sup>

Submunition contamination is particularly dense due to US bombing along the Cambodian–Vietnamese border in the provinces of Ratanakiri, Mondulakiri, Prey Veng, Kampong Cham and Svay Rieng.<sup>6</sup> Cluster munitions were also dropped in the south-east, especially in the area of the Ho Chi Minh Trail.<sup>7</sup> There is also contamination from cluster munitions in the north in provinces such as Banteay Meanchey, Battambang and Pailin as a result of the internal conflict between 1979 and 1988.<sup>8</sup> The Mines Advisory Group, a humanitarian organization that clears mines and ERW worldwide and has been working in Cambodia since 1992, has found submunitions in Kampong Cham in the south-east,<sup>9</sup> in Ratanakiri in the north-east and whole containers of submunitions in Battambang and Pailin in the west, illustrating how widespread cluster munition contamination is in Cambodia.

According to CMAC, 2,090 villages are contaminated by submunitions—15.2% of all villages in the country.<sup>10</sup> Between 1996 and 2006, CMAC located 15,076 submunitions in 104 districts in 20 of the 24 provinces.<sup>11</sup>

In addition to cluster munitions, other ERW and landmine contamination, Cambodia faces serious problems including extreme poverty among the majority of the population, high levels of official corruption, a high number of road traffic accidents, and poor health and healthcare. As cluster munition contamination is just one of many problems, unless the contamination is seen to pose a particular or immediate humanitarian threat, tackling the problem may not be regarded as a priority.

For a variety of reasons, opinions differ about the extent of the humanitarian impact of cluster munitions in Cambodia and whether there should be a greater focus on them. In general there is a lack of information about the scale of the contamination and the impact it is having on communities in the affected areas. Cluster munitions have rarely been differentiated from other ERW, likewise with cluster munition casualties. When they are, the numbers seem low in comparison with those of landmines. Community members themselves do not necessarily make the distinction and, to date, the impact of landmines has overshadowed that of cluster munitions. The following discussion looks at why there is disagreement over the impact of cluster munition contamination in Cambodia.

There is a perception that Cambodia is a country with a landmine problem, not a cluster munition problem. This is partly because more is known about the extent and impact of the mine problem. It is also exacerbated by comparisons made with, particularly, neighbouring countries such as Lao and Viet Nam where there is significant and recognized cluster munition contamination. This contributes to the extent and impact of cluster munition contamination in Cambodia being underestimated.

Furthermore, the eastern provinces, where the majority of submunition contamination is found, are not very densely populated, unlike the mine-affected and densely populated western provinces. However, the number of people moving to the north-east is likely to increase due to expanding economic activities there. In addition to new activities such as mining, an economic triangle zone was drafted in 2006 between Cambodia, Lao and Viet Nam, which will encourage economic migration to the north-east of the country.<sup>12</sup> There is also growing tourism as more people go to Cambodia and try to access less-visited places.

For many practitioners, there is no reason to isolate cluster munitions as a problem separate from that of other ERW; addressing cluster munitions is part of general ERW activity—no distinction is made between cluster munitions and other types of ERW. Submunitions do not make up the majority of ERW,<sup>13</sup> and there are no specialist clearance teams dedicated to dealing with them.<sup>14</sup> Yet while it was seen by some in the past as unnecessary or artificial to make a distinction between cluster munitions and other types of ERW, there is some recognition by people working in mine action in Cambodia that it may be beneficial to highlight the cluster munition problem. The current international attention being paid to the

issue means that some donors may be willing to provide more funding for mine action in areas affected by cluster munitions.

There is also complacency about the presence of cluster munitions and other ERW because people have learned to live with it over the course of more than 30 years. Cambodians do not necessarily identify cluster munitions as a problem, but rather as a “natural hazard” because it has been present throughout all or most of their lives.<sup>15</sup> People also tend to treat ERW differently from mines. People seem to be more cautious about using land contaminated with mines than with cluster munitions and other ERW. This is partly because unexploded munitions are often visible on the surface so people feel that they can work around them, forgetting that some may be sub-surface, and could be detonated by hoeing or digging.

However, many people recognize the threat posed by submunitions, particularly to children, but they do not then see this as a big problem in Cambodia. Rather, submunitions are regarded as a threat to a limited number of individuals and communities. Interviewees often cite the risk posed to children because of the ball-like shape of many submunitions found in Cambodia. The threat of using contaminated land is also recognized. Saa Leang of the Cambodia Red Cross said that he often hears people in the community discussing cluster munitions and their dangers.<sup>16</sup> Of the people interviewed who are aware of the large numbers of submunitions that litter Cambodia there is fear that in the future they could pose a far greater problem to the population than they do now, particularly due to increased migration and activities in heavily contaminated areas.

## **THE HUMANITARIAN IMPACT**

There are limitations in what can currently be determined about the humanitarian and socio-economic impact of cluster munitions because little if any research or programming focuses on cluster munitions specifically. Rather, information is gathered on ERW more generally and the focus of mine action operators is on landmines in the western provinces. Less research has been conducted in the east of the country than in the west because fewer people live there, and attention has been directed to where people are perceived to be most at risk.<sup>17</sup>

## INJURIES AND DEATHS

The Cambodian Mine/UXO Victim Information System (CMVIS) was established in 1994 and is the main mechanism for gathering data on mine/UXO casualties in Cambodia.<sup>18</sup> Between January 2005 and December 2006 more people were killed and injured by ERW than by mines, with ERW deaths and injuries making up 58% of the casualties.<sup>19</sup> However, many people think there is a limited humanitarian impact in Cambodia as the majority of cluster munitions are in areas of low population density with few people living in contaminated areas.

Between 1998 and 2006 there were 124 recorded cluster munition casualties, which is low in comparison with the number of mine-related deaths and injuries. However, casualties of submunitions and other types of ERW only became subcategories on the CMVIS incident reporting sheet in September 2006. Before then, many submunition casualties were not previously recorded as such. Only a few submunition accidents were recorded and there were some years when no submunition-related incidents were reported at all, but this is likely due to submunition incidents being attributed to other ERW, or any explosive incident being described as a landmine incident. Only one word in Khmer is used to describe mines and bombs, which has also resulted in under-reporting of ERW. Based on reported submunition incidents, the lowest casualty rates were in the north-east but there was an increase in accidents in that region at the end of 2006 possibly as a result of improved reporting.<sup>20</sup> In Kampong Cham in the south-east, 50% of the casualties are said to be children, and most recorded casualties to be 35 or younger.<sup>21</sup>

According to Saa Leang of the Cambodian Red Cross, men have more submunition incidents than women, and the incidents are usually linked to livelihood activities; incidents tend to occur while farming or collecting scrap metal.<sup>22</sup> The loss of the principal income provider through death or injury has serious consequences for the entire family.<sup>23</sup> If a husband is injured, it can be difficult for him to provide for his family—a responsibility that normally falls to men as women tend to look after the children and the homestead. The wife then must find work in order to support the family. The impact on injured men is social, economic and psychological, with them being constantly worried about who will provide for the family.<sup>24</sup> Furthermore, disabled men often lose their position in society and there is general discrimination against disabled people in Cambodian society.<sup>25</sup>



The victims of cluster munitions tend to be poor with little money for medical care. Those families that manage to pay for medical care often find themselves in a worse financial position afterwards. Some families are unable to afford any treatment.<sup>26</sup> The combination of lost income and costly medical expenses can force families into a downward spiral of poverty.

Opinions about whether any cluster munition or other ERW accidents go unrecorded are mixed. CMVIS has an excellent reputation for operating a comprehensive incident monitoring system. Through a network of volunteers, CMVIS has considerable outreach throughout the country—including the north-east where there are two volunteers and Kampong Cham where there is one volunteer.<sup>27</sup> However, some interviewees wondered whether it was possible to effectively cover remote areas where contamination is severe, such as the northern and eastern provinces, because of the lack of paved roads and low population density. While it is possible that there are very few or no incidents in those areas and that all incidents are recorded, it is more likely that they go unrecorded in these remote and sparsely populated areas.

The provision of medical services is inadequate in many parts of Cambodia. Healthcare at the district level tends to be under-equipped so mine/ERW casualties often have to go to provincial hospitals, which as well might not have the equipment necessary for addressing severe injuries. If this is the case, the injured must be sent to Phnom Penh.<sup>28</sup> The Cambodian Mine Action and Victim Assistance Authority (CMAA) recently delegated responsibility for the coordination of victim assistance to the Ministry of Social Affairs and to the Disability Action Council.<sup>29</sup> Organizations providing victim assistance include Veterans International, the Capacity Building of People with Disability in Community Organization, the National Centre for Disabled People and Opération Enfants du Cambodge.<sup>30</sup> CMVIS is beginning to collect data on victim assistance but, because of the lack of distinction between victims of landmines, cluster munitions and other ERW, there is no clear data on victim assistance for cluster munition casualties; it is also because victim assistance is not provided solely for the victims of mines and ERW—many victim assistance organizations provide for all people with disabilities in an effort to treat all people equally, even though some of the funds provided may have been raised specifically for mine action victim assistance.<sup>31</sup>

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## THE ECONOMIC IMPACT

Out of economic necessity, some people are forced to interact with cluster munitions, as well as other ERW and landmines, in order to clear land, access natural resources or to collect scrap metal. But even if people do not deliberately interact, they can be killed or injured while engaged in livelihood activities in contaminated areas.

### LIVELIHOOD ACTIVITIES

Incidents often occur when people are farming contaminated land. Cluster munitions can explode from accidental contact resulting from hoeing and ploughing, or through deliberate contact as people attempt to clear submunitions. Burning vegetation to clear land for crops can likewise trigger detonation. In the Kampong Cham area cluster munition incidents have occurred on rubber plantations while trees were being felled.<sup>32</sup> An incident was also reported when a dam was being built in Kampong Cham—a bulldozer came into contact with cluster munitions, which exploded resulting in casualties.<sup>33</sup> There are also reports of soldiers or former soldiers extracting explosive material from cluster munitions and other ERW for fishing purposes. This is not a widespread activity but it results in a significant number of casualties. The activity supplements household income rather than funding a household completely.<sup>34</sup>

### SCRAP METAL TRADE

A significant portion of people being killed and injured by mines and ERW in Cambodia is a result of deliberate interaction with ERW, particularly for the collection of scrap metal. Even though cluster munitions are relatively small and not necessarily of much value, they still make up part of the trade. People use imported or improvised metal detectors to search for cluster munitions and other ERW, often locating cluster munition strikes that explosive ordnance disposal (EOD) teams were previously unaware of as the submunitions are buried underground.

The Law on the Management of Weapons, Explosives and Ammunition was approved by the National Assembly in April 2005 and is being enforced by the police in order to control and monitor the scrap metal trade. People can be fined or imprisoned for handling or possessing mines or ERW. The law aims to encourage scrap metal dealers to cooperate with the police

and mine action operators and to report anything suspicious. There is currently a one-year pilot project, Risk Reduction Through Scrap Metal Dealers, being funded by the United Nations Children's Fund. This targets dealers and stores in Kandal and Kampong Speu provinces, letting them know about the law, getting them to help in locating ERW and showing them how to complete reporting forms. Eight stores and 120 dealers in the two provinces have been involved.<sup>35</sup> Since late 2004 Thailand (to which Cambodia exports much scrap metal) has banned the import of any type of ordnance in the scrap metal trade after an item of ERW blew up in a Thai metal factory.<sup>36</sup> There are large fines of 10,000 baht (US\$ 250) per item for people who breach the ban.<sup>37</sup>

#### THE GROWING ECONOMIC IMPORTANCE OF THE NORTH-EAST

The two main economic activities in the north-east are tourism and mining projects.<sup>38</sup> The north-east has many natural attractions and the number of tourists visiting the region is rising, facilitated by improved road access. Mining companies, including Oxiana, BHP Billiton and a Taiwanese company, have also started exploration work in the north-east. Previously migration within Cambodia has mainly been towards the west but people are starting to move to the north-east because of increasing economic opportunities there.<sup>39</sup> BHP Billiton is funding CMAC to clear ERW from the land where it intends to operate.<sup>40</sup> This is a useful alternative source of funding and training for CMAC at a time when donor interest seems to be waning. However, there are questions about the benefits local communities will receive in affected areas from this clearance work. There is concern among some mine action practitioners that with the increase in economic activity and population in the north-east there will be an increase in the numbers of accidents caused by cluster munitions.

#### ECONOMIC CONDITIONS AND ACCIDENT RATES

According to CMVIS data there was a significant drop in the number of recorded mine and ERW casualties between January and August 2006, which fell by 51% compared with the number of casualties reported during the same period in 2005.<sup>41</sup> This was reported to be in part due to clearance and MRE becoming more targeted, especially in terms of scrap metal dealers and traders, but also due to improved economic conditions.<sup>42</sup> A study conducted in the final quarter of 2006 to identify why there had been such a drop concluded that an improvement in economic conditions

was a significant factor. The agricultural sector had enjoyed record growth due to favourable weather and irrigation renovation in 2005.<sup>43</sup> Not only have recent harvests been good but people are able to find work labouring both in Cambodia and in Thailand—an option preferred to collecting scrap metal.<sup>44</sup> However, it is not clear if the economic conditions have improved in the east as well; the focus of the study was on the west.

Generally, the deliberate handling of submunitions is linked to poverty. Often it is when people are struggling financially that they are driven to collect scrap in order to supplement their income. Even if they have received MRE, many still collect metal due to economic necessity. The above-mentioned study warned that less favourable economic conditions in the future could lead to an increase in the numbers of mine and ERW-related incidents.<sup>45</sup>

CMVIS accident data has been plotted against the agricultural calendar and indicates that there are peaks in the numbers of incidents caused by ERW at times when farmers are harvesting or cutting vegetation. There are also peaks in the number of incidents during the dry season when people collect scrap metal as they have run out of money and food from the previous harvest and need to survive until the next harvest.<sup>46</sup> The correlation between economic activity and the number of incidents caused by ERW is indicative of the dynamic relationship between the prevailing economic conditions and activities and ERW contamination.

### **A NEW EMPHASIS ON ERW CLEARANCE AND EDUCATION?**

Greater focus on and awareness of the ERW problem in Cambodia is mainly the result of the development of a national ERW strategy in 2006 that came out of research conducted by the CMAA and Norwegian People's Aid.<sup>47</sup> This research urged the government to address the long-term ERW problems and to reorient mine action resources towards achieving this goal. It also proposed the establishment of a Centre of Excellence on ERW.<sup>48</sup> Although the strategy was approved by donors in December 2006, no decision had been taken by the government on any of the study's recommendations by mid-2007.<sup>49</sup> Implementation of this strategy requires altering the expertise and equipment within CMAC and the CMAA.

The CMAA is responsible for coordinating mine action in Cambodia. The mine action planning process is decentralized through Mine Action Planning Units (MAPUs) and Provincial Mine Action Centres (PMACs). The PMACs

are responsible for determining priority areas for demining operators. Committee members include the provincial governor or deputy, the police, military and the district chief and are meant to be representative of local communities. The MAPUs provide technical support to the PMACs.<sup>50</sup> The process aims to involve local communities to identify priorities and reduce the amount of land grabbing by establishing land rights—issues the government takes seriously.<sup>51</sup> Coordination is improving but some observers believe that more could be done to address the threat posed by ERW. For example, the MAPUs and the PMACs are not considering ERW when prioritizing mine action tasks, perhaps because they are based in areas where ERW is not the primary problem. Land rights are predominantly a mine-related problem as land is cleared, but land grabbing is becoming an issue in the north-east as people look to own land in an area populated by a number of ethnic groups. People are acquiring land, both legitimately and illegitimately, in the hope that the mining companies will buy the land from them if valuable resources are discovered there.<sup>52</sup> Others believe that if there were no commercial interests, such as mining in the north-east, pushing for ERW clearance then there would be no other interest in clearing ERW.

According to the Director of Planning and Operations, CMAC has 21 EOD teams deployed throughout the country and, with support from the Japanese government, this number will grow in 2007 to 27 to increase CMAC's capacity to deal with ERW. They are mobile and are deployed on a request basis but they are limited in their capacity and training. There are also 13 community-based teams called community mine clearance teams, each of which has nine full-time members. They were originally intended for mine clearance, but are also needed for ERW clearance. They are quick intervention teams that can respond to small tasks required by the community without waiting for the annual work plan. They clear minefields less than one hectare in area, but lack the expertise to clear cluster munitions so they have to request an EOD team for assistance.<sup>53</sup>

CMAC reports that there are also community-based UXO risk-reduction district focal points that teach local communities about the hazards of mines and ERW, collect information about mines and ERW, and inform the EOD teams of reported items. These focal points are based in high-casualty districts and there were 16 as of March 2007 with another 10 being recruited, so there will eventually be 26, each in a different district. Each one establishes a volunteer network to gather information regarding

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ERW. CMAC has also recently opened a regional EOD office in Kampong Cham. Apparently there used to be a CMAC office in the east but this was closed because of a lack of funding.<sup>54</sup> It is unclear whether the office is being opened because it is felt that there is a greater need for action against ERW in the region, or whether it is because funding has been made available.

However, beyond the CMAC office in Kampong Cham and its roving EOD teams, as well as a Mines Advisory Group base in Kampong Thom, there are no mine action operators based further north. The United Nations Development Programme funds one roving EOD team in the east. Still, there is no real national capacity to deal with the serious munitions problem in Cambodia.<sup>55</sup>

Reports about ERW threats can come from the police, local commune authorities, NGOs, the military and the general public. Village chiefs often report items of ERW to CMAC. People sometimes phone CMAC or stop CMAC vehicles, which are well marked, to report ERW personally. Other reports come through radio communication or the post. The Cambodian Red Cross also records information through its volunteer network. Sometimes people are unsure about how to report ERW threats to the authorities, but once one person has done so there is frequently an increase in the number of reports in that area.<sup>56</sup> Often when CMAC is dealing with ERW, locals hear the planned detonation and then come forward to report more ERW.<sup>57</sup>

Most people in the majority of affected areas have received MRE and there are many programmes raising awareness of the dangers of cluster munitions, other ERW and mines. For example, in Kampong Cham province, CMAC has television and radio spots to warn people of the dangers, the Cambodian Red Cross is actively involved in MRE and people know that they can report ERW to the Mines Advisory Group and CMAC EOD teams. The United Nations Children's Fund financially supports the Ministry of Education, Youth and Sports to provide MRE.<sup>58</sup> Children, teachers, parents and community organizations are all targeted by this programme. MRE is not provided nationwide, but rather in high-risk areas, as determined by CMAA through a consultation process.<sup>59</sup> People have a relatively good understanding of the importance of safe behaviour around mines and ERW but this does not mean that it is practiced. However, some interviewees felt that the level of risky behaviour was decreasing.

To date, the focus of mine action in Cambodia has concentrated on the western provinces where landmines have caused high casualty rates and prevented access to resources, particularly agricultural land. There has been a relatively recent shift in thinking by some that more should be done in the eastern provinces but this strategy is not accepted by all working in mine action. Those who believe that it is unnecessary to do more in the eastern provinces cite the low casualty rate and compare it with the casualty rate in the west of the country. Although they accept that according to US bombing data a lot of cluster munitions were dropped, they feel that they do not know whether this translates into casualties and other impacts on the local population. Some of this disagreement appears to be related to different interpretations of what CMAC is doing in terms of its ERW strategy, with some people under the mistaken impression that resources are being re-allocated from west to east, rather than new teams being added. Others, however, argue that while cluster munition contamination is not as significant as the mine problem, it is a bigger problem than the resources it attracts.<sup>60</sup>

## Notes

- <sup>1</sup> Norwegian People's Aid in collaboration with CMAA, *National Explosive Remnants of War Response Study, Cambodia*, Phnom Penh, Cambodia, March 2006, p. viii.
- <sup>2</sup> Information provided by CMAC.
- <sup>3</sup> CMVIS, "Annual Report 2006", Cambodian Red Cross and Handicap International (Belgium), 2006, <[www.redcross.org.kh/services/cmvis.htm](http://www.redcross.org.kh/services/cmvis.htm)>, p. 11.
- <sup>4</sup> Information provided by CMAC.
- <sup>5</sup> Interview with Leng Sochea, Deputy Secretary General, and In Channa, Deputy Director of Database Department, CMAA, Phnom Penh, 7 March 2007.
- <sup>6</sup> Information provided by CMAC.
- <sup>7</sup> Interview with Leng Sochea, Deputy Secretary General, and In Channa, Deputy Director of Database Department, CMAA, Phnom Penh, 7 March 2007.
- <sup>8</sup> Idem.
- <sup>9</sup> Saa Leang of the Cambodian Red Cross in Kampong Cham thinks cluster munitions are a severe threat to local communities with many districts in the province affected by cluster munitions including Memot,

Ponhea Kreuk, Dambe, Tbuong Kmoum, Chamkar Leu, Stueng Trang and Krouch Chhmar; interview with Saa Leang, Cambodian Red Cross, Eastern Regional Office, Kampong Cham, 5 March 2007.

<sup>10</sup> Idem.

<sup>11</sup> Idem.

<sup>12</sup> Interview with Leng Sochea, Deputy Secretary General, and In Channa, Deputy Director of Database Department, CMAA, Phnom Penh, 7 March 2007.

<sup>13</sup> Interview with Cheng Rady, Explosive Ordnance Disposal Manager, CMAC, 5 March 2007.

<sup>14</sup> Idem; and Tep Sakouen, Explosive Ordnance Disposal Officer, CMAC, Eastern Regional Office, Kampong Cham, 5 March 2007.

<sup>15</sup> Interview with Leonard Kaminski, BHP Billiton, Kampong Chhnang, 6 March 2007.

<sup>16</sup> Interview with Saa Leang, Cambodian Red Cross, Eastern Regional Office, Kampong Cham, 5 March 2007.

<sup>17</sup> Interview with Burt Kearney, Asian Regional Manager, BACTEC, Phnom Penh, 9 March 2007.

<sup>18</sup> See "Cambodia Mine/UXO Victim Information System (CMVIS)", Cambodian Red Cross, <[www.redcross.org.kh/services/cmvis.htm](http://www.redcross.org.kh/services/cmvis.htm)>.

<sup>19</sup> CMVIS, "Monthly Report: December 2006", Cambodian Red Cross and Handicap International (Belgium), 2006, <[www.redcross.org.kh/services/cmvis.htm](http://www.redcross.org.kh/services/cmvis.htm)>, p. 8.

<sup>20</sup> Interview with Chhiv Lim, Project Manager, CMVIS, and Keo Vuthy, Training and Monitoring Officer, CMVIS Project, Handicap International, Phnom Penh, 2 March 2007.

<sup>21</sup> Interview with Saa Leang, Cambodian Red Cross, Eastern Regional Office, Kampong Cham, 5 March 2007.

<sup>22</sup> Idem.

<sup>23</sup> Information gathered from several interviews conducted in Cambodia, 1–9 March 2007.

<sup>24</sup> Interview with Saa Leang, Cambodian Red Cross, Eastern Regional Office, Kampong Cham, 5 March 2007.

<sup>25</sup> Idem.

<sup>26</sup> Idem.

<sup>27</sup> Beginning in January 2007, six of the part-time volunteers have been paid. Interview with Chhiv Lim, Project Manager, CMVIS, and Keo Vuthy, Training and Monitoring Officer, CMVIS Project, Handicap International, Phnom Penh, 2 March 2007.



- <sup>28</sup> Interview with Saa Leang, Cambodian Red Cross, Eastern Regional Office, Kampong Cham, 5 March 2007.
- <sup>29</sup> Interview with Bruno Leclercq, Country Director, Jean-Francois Michel, Coordinator of Operations, and Anne-Claire Bouffartigue, working at CMVIS, Handicap International (Belgium), Phnom Penh, 8 March 2007.
- <sup>30</sup> Interview with Lesley Miller, Head of Section, Child Protection Programme, United Nations Children's Fund, Phnom Penh, 8 March 2007.
- <sup>31</sup> Idem; interview with Ruth Bottomley, Norwegian People's Aid, Phnom Penh, 9 March 2007.
- <sup>32</sup> Interview with Saa Leang, Cambodian Red Cross, Eastern Regional Office, Kampong Cham, 5 March 2007.
- <sup>33</sup> Idem.
- <sup>34</sup> Richard Moyes, *Tampering: Deliberate Handling and Use of Live Ordnance in Cambodia*, Handicap International, Mines Advisory Group and Norwegian People's Aid, 2004, p. xiii.
- <sup>35</sup> Interview with Lesley Miller, Head of Section, Child Protection Programme, United Nations Children's Fund, Phnom Penh, 8 March 2007.
- <sup>36</sup> Interview with Tong Try, Senior National Project Officer, CMAA/United Nations Development Programme, Phnom Penh, 8 March 2007.
- <sup>37</sup> Ruth Bottomley, "A Study on the Dramatic Decrease of Mine/UXO Casualties in 2006 in Cambodia", CMVIS, Handicap International (Belgium), Norwegian People's Aid and the United Nations Children's Fund for the CMAA, 2007, p. 8.
- <sup>38</sup> Interview with Oum Phumro, Director of Planning and Operations, CMAC, Phnom Penh, 2 March 2007.
- <sup>39</sup> Idem; and interview with Leng Sochea, Deputy Secretary General, and In Channa, Deputy Director of Database Department, CMAA, Phnom Penh, 7 March 2007.
- <sup>40</sup> Interview with David McCracken, ERW Manager, BHP Billiton, Phnom Penh, 9 March 2007.
- <sup>41</sup> Ruth Bottomley, "A Study on the Dramatic Decrease of Mine/UXO Casualties in 2006 in Cambodia", CMVIS, Handicap International (Belgium), Norwegian People's Aid and the United Nations Children's Fund for the CMAA, 2007.
- <sup>42</sup> Ibid.
- <sup>43</sup> Ibid., p. 7.

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- <sup>44</sup> Interview with Ruth Bottomley, Norwegian People's Aid, Phnom Penh, 9 March 2007. Also see Ruth Bottomley, "A Study on the Dramatic Decrease of Mine/UXO Casualties in 2006 in Cambodia", CMVIS, Handicap International (Belgium), Norwegian People's Aid and the United Nations Children's Fund for the CMAA, 2007.
- <sup>45</sup> *Ibid.*, p. 8.
- <sup>46</sup> CMVIS, "Monthly Report: December 2006", Cambodian Red Cross and Handicap International (Belgium), 2006, <[www.redcross.org.kh/services/cmvis.htm](http://www.redcross.org.kh/services/cmvis.htm)>, p. 5.
- <sup>47</sup> That research was conducted by David McCracken while working as an independent consultant.
- <sup>48</sup> *Idem.*
- <sup>49</sup> Interview with Leng Sochea, Deputy Secretary General, and In Channa, Deputy Director of Database Department, CMAA, Phnom Penh, 7 March 2007.
- <sup>50</sup> Interview with Tong Try, Senior National Project Officer, CMAA/United Nations Development Programme, Phnom Penh, 8 March 2007.
- <sup>51</sup> Interview with Steve Munroe, Programme Manager, Mine Action, United Nations Development Programme, Phnom Penh, 8 March 2007.
- <sup>52</sup> Interview with Burt Kearney, Asian Regional Manager, BACTEC, Phnom Penh, 9 March 2007.
- <sup>53</sup> Interview with Oum Phumro, Director of Planning and Operations, CMAC, Phnom Penh, 2 March 2007.
- <sup>54</sup> *Idem.*
- <sup>55</sup> Interview with Steve Munroe, Programme Manager, Mine Action, United Nations Development Programme, Phnom Penh, 8 March 2007.
- <sup>56</sup> Interview with Cheng Rady, Explosive Ordnance Disposal Manager, and Tep Sakouen, Explosive Ordnance Disposal Officer, CMAC, Eastern Regional Office, Kampong Cham, 5 March 2007.
- <sup>57</sup> *Idem.*
- <sup>58</sup> *Idem.*
- <sup>59</sup> *Idem.*
- <sup>60</sup> Interview with Robert Keeley, RK Consulting Ltd, Phnom Penh, 7 March 2007.



## CHAPTER 5

### CONCLUSION

The humanitarian impact of cluster munitions is dependent on the degree to which people are brought into contact with them. Thus, the impact in one country, or even one area of a country, will not be the same as in another. It depends, among other things, on the level of contamination, the terrain, land use, population density, common economic activities and resources, and the level of development. Impact also varies over time as these factors change. Yet, in any case, the effects of cluster munition use for individuals, communities and societies are immediate, and the resulting contamination makes these effects long lasting and deep. While it may be difficult to quantify the scale of contamination and its effects—as in Cambodia, where cluster munitions are only one aspect of a generation-old threat from explosive ordnance and landmines—the recent case of Lebanon should be taken as a lesson of the certainty that cluster munition use and contamination disrupts lives and societies.

Like all things mechanical, cluster munitions can malfunction, resulting in unexploded submunitions. Thus, given that they are used in the hundreds, thousands, or even millions, contamination is almost unavoidable. Clearance operations cost millions of dollars and can require years of effort, as seen in South-East Asia.

Compounding the destruction and death caused at the time of use, contamination impedes post-conflict recovery and development. Infrastructure, property and resources are rendered unusable or unsafe. Livelihoods are threatened, with effects felt throughout the economy.

The poor are most exposed and susceptible to the threat of cluster munition contamination, in that they have fewer alternatives, for example, in terms of where they can live and work and how they can generate income. Even when people are aware of the mortal danger posed by submunitions, as well as other ERW, some have little choice but to come in contact with them. This could be because the only agriculture land available to them is

contaminated, and they either take their chances by using the land anyway or by attempting to clear the land themselves. Or it could be because the contamination presents the only viable option for income generation, as seen with the scrap metal trade in areas affected by extreme poverty. As well, in the event of casualties from incidents with cluster munitions, the poor are less able to carry the burden of lost income and medical costs. The humanitarian impact is underlined by such experiences, in that the most vulnerable are made even more so.

Yet the lack of livelihood alternatives is not restricted only to the most poor. One of the main challenges that has been faced in Lebanon is the fact that so many people in contaminated areas are dependent on agriculture. Despite this, it is standard procedure to prioritize infrastructure and built-up areas, as the threat is most immediate. As such, agricultural land could only be prioritized later. Yet farmers and their families are dependent on these lands and crops, and often do not have the luxury to wait for their land to be released to them. As seen in both Cambodia and Lebanon, despite clearance operations and widespread MRE, people often take risks nevertheless, such as farming contaminated land or attempting clearance themselves—while they may be aware of the dangers from contamination, the possibility of destitution or starvation is more immediate and more real.

Cluster munition incidents are not always purely accidental. As just stated, most people living with contamination face other serious challenges every day. Often, intentional interaction with cluster munition contamination is the result of need, whether it be for income, resources or food. Thus it must be noted that clearance and risk education are not sufficient in themselves. If the livelihood activities in which people engage themselves expose them to risk from contamination, then alternatives must be developed to sustain them while the contamination itself is addressed. Such an economic approach to managing the effects of contamination can work—as discussed in the case of Cambodia, when economic conditions improve or when employment alternatives can be found then there is less reason for people to interact with contamination. The result is fewer casualties and costs overall.

These casualties and costs are not borne by individuals alone. Families bear these burdens as well. Death or injury to a family member is traumatic, and this is only exacerbated by the resulting socio-economic strains. The loss

of a loved one is also the loss of an income earner; injuries mean reduced income, if the survivor can still work, and costs for long-term medical care that many families cannot afford and that the medical services often cannot provide. In contaminated communities, men are both the primary income earners and the most likely to be cluster munitions casualties. The result is that many women become head of household, and these households are among the most vulnerable in any given community.

Survivors must also contend with disability, which can result in social and economic exclusion, adding pain to poverty. This is exemplified by children who survive a cluster munition incident, who will face exclusion most of their lives. They may be unable to pursue an education, they may never be able to work, perhaps they may never be able to integrate socially. Such can happen to survivors of any age, but it is children who must suffer the longest.

And when there have been such impacts on a family, it is likely that they are not alone. These affects can spread through communities, and then throughout societies. It is simple to describe contamination in terms of numbers of submunitions and square metres. However, this ignores the human cost, and the fact that the humanitarian impact cannot be confined to strike zones.

Whatever the scale of cluster munition use, whether minor or massive, there will be a humanitarian impact. Even after decades of experience with contamination and long-term clearance operations, as in Cambodia, there continues to be a humanitarian impact. Even when clearance and risk education are well-funded, rapid and begun immediately after time of use, as in Lebanon, there is a humanitarian impact. Whenever cluster munitions are used, they will continue long after to maim and kill indiscriminately and to disrupt families and communities, economies and countries.



## ACRONYMS

CMAA	Cambodian Mine Action and Victim Assistance Authority
CMAC	Cambodian Mine Action Centre
CMVIS	Cambodian Mine/UXO Victim Information System
EOD	explosive ordnance disposal
ERW	explosive remnants of war
FAO	Food and Agriculture Organization of the United Nations
ICBL	International Campaign to Ban Landmines
ICRC	International Committee of the Red Cross
IDF	Israel Defence Forces
IDP	internally displaced person
LAF	Lebanese Armed Forces
LMAC	Lebanon Mine Action Center
MACC SL	United Nations Mine Action Coordination Centre South Lebanon
MRE	mine risk education
NGO	non-governmental organization
UNEP	United Nations Environment Programme
UNIFIL	United Nations Interim Force in Lebanon
UXO	unexploded ordnance



The humanitarian impact of cluster munitions is dependent on the degree to which people are brought into contact with them. Thus, the impact in one country, or even one area of a country, will not be the same as in another. It depends, among other things, on the level of contamination, the terrain, land use, population density, common economic activities and resources, and the level of development. Impact also varies over time as these factors change. Yet, in any case, the effects of cluster munition use are immediate, and the resulting contamination makes these effects long lasting and deep.

This report examines the immediate and long-term humanitarian and socio-economic impact of cluster munition contamination on civilian populations. It draws on a wide range of sources, including case studies from Cambodia and Lebanon, information gathered from practitioners and documentation from contaminated countries, to present an overview of the ways in which such contamination affects the daily lives, opportunities and prospects of ordinary people.