National Survey of UXO Victims and Accidents

PHASE 1

NATIONAL REGULATORY AUTHORITY

European Union

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PHASE 1

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Acknowledgements

First and foremost, our thanks go to the generosity of the donors who have made it possible to carry out this survey and generate a wealth of information to inform policy, plans and actions which will make Laos a safer place.

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Whilst this report is prepared by the authors named on the front cover, it has benefited enormously from the inputs of many others. In particular, we record with gratitude the great contribution of the NRA's first Victim Assistance Officer, Viengprasith Thiphasouda, who was in post throughout the survey planning phase and the conduct of the survey fieldwork. His successor, Mingkhouankham Sisavath, has also made an important contribution which we register with gratitude.

We are especially pleased to record our appreciation of the support and encouragement given to the VA Phase 1 Survey team by colleagues at the NRA, most especially Dr Maligna Saignavongs, Somnuk Vorasarn, Thongphone Keosayadeth, Tim Horner and Phil Bean.

We should also like to extend our thanks to Dr Thongchanh Thepsomphou and Thonglith Sihabandeth at the National Rehabilitation Centre who gave great assistance through the recruitment of the survey team and the conduct of the three regional meetings held towards the end of the survey period.

Ginevra Cucinotta spent three months internship with the NRA in 2008, and helped greatly to define the shape of this report.

Of course, very many people were involved in the planning and execution of the Survey and we are pleased to record their names, in appreciation, in Annex 6 of this document. If we have accidentally omitted anyone, we apologise.

Glossary

AXO:	Abandoned Explosive Ordnance
BLU:	Bomb Live Unit (a cluster munition)
CCM:	Convention on Cluster Munitions
CMVIS:	Cambodian Mine Victim Information System
DE:	District Enumerator
DFP:	District Focal Point
DoS:	Department of Statistics[1]
EPI:	Extended Programme of Immunisation
ERW:	Explosive Remnants of War
GICHD:	Geneva International Centre for Humanitarian Demining
HIB	Handicap International (Belgium)
IMSMA:	Information Management System for Mine Action
LDPA:	Lao Disabled People's Association
LVIS:	Lao Victim Information System
MLSW:	Ministry of Labour and Social Welfare
MoH:	Ministry of Health
MPI:	Ministry of Planning and Investment
MRE:	UXO/Mine Risk Education
NDC:	National Dermatology Centre
NRA:	Lao UXO National Regulatory Authority
NRC:	National Rehabilitation Centre
NSC:	National Statistical Centre
PFP:	Provincial Focal Point
PVAT:	Provincial Victim Assistance Technician
QAC:	Quality Assurance Consultant
UN:	United Nations
UNDP:	United Nations Development Programme
UNICEF:	United Nations Children's Fund
US:	United States
USA:	United States of America
USAF:	United States Air Force
UXO:	Unexploded Ordnance
UXO Lao:	The Lao governmental operation, assisted by the UN, undertaking UXO clearance and UXO/Mine Risk Education
VA:	Victim Assistance
VAPE:	Victim Assistance Provincial Enumerator

Table 14 on page 47, contains acronyms for various prostheses/body parts. Any acronym starting with L, is a left hand limb and R is a right-hand limb. L in the second place stands for leg; A stands for arm. AK means above-knee, BK below knee and F is foot.

[1] By it's Informative No 198/DoS of 4th May 2009, the Ministry of Planning and Investment (MPI), gave notice that the name of the National Statistical Centre was henceforth changed to the Department of Statistics (DoS).

Definitions

Throughout this report, terms are used which have a very specific meaning; the distinction between meanings may be subtle and require reinforcement, so that these terms are redefined in the report.

People

Victims[2]
People who have been killed or suffered physical or psychological injury, economic loss, social marginalisation or substantial impairment of the realisation of their rights caused by an accident with UXO. They include those persons directly impacted by an accident with UXO as well as their affected families and communities.

Casualties
Victims who were involved in an accident with a UXO and either died as a result or survived with injuries.

Survivors
People who were involved in an accident with a UXO, were injured and survived the experience: if such people have subsequently died, the death has not been as a direct result of the accident.

Accident

For the purposes of the NRA's National Surveys of UXO Victims and Accidents, an accident is an explosive event involving a UXO and as a result of which at least one person was injured. UXO accidents in which damage or injury was caused other than to people have not been included in this survey

Ordnance

Explosive Remnants of War

(ERW) means unexploded ordnance (UXO) and abandoned explosive ordnance (AXO)

The appropriate term for the ordnance litter in Lao PDR, which has led to the establishment of UXO Lao and the NRA, is ERW since both AXO and UXO are involved: by long precedent, the problem has been defined through use of the term UXO. Laos has become synonymous with UXO and the main clearance body is named UXO Laos

Unexploded Ordnance

(UXO) 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

(AXO) 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. Abandoned explosive ordnance may or may not have been primed, fused, armed or otherwise prepared for use[3]

[2] This definition is taken from the Convention on Cluster Munitions, Article 3, §1, with the words 'caused by the use of cluster munitions' changed to 'caused by an accident with UXO', and 'directly impacted by cluster munitions' changed to 'directly impacted by an accident with UXO'. Were the words 'an accident with' left out of this amended definition, a much greater proportion of the population of Lao PDR would be included.

[3] Protocol on Explosive Remnants of War (Protocol V to the 1980 Convention on Conventional Weapons -CCW), 28 November 2003, Article 2.

Foreword

BY DR MALIGNA SAIGNAVONGS

DIRECTOR, NATIONAL REGULATORY AUTHORITY

A comprehensive, village-level survey has been conducted in a low-income country with a poorly developed communications network, covering events in a 45-year time-span. Such a survey is an ambitious undertaking. Some of the information collected required enumerators to travel, on foot, for a day in each direction in order to visit a single village.

To have undertaken such a venture has been, of itself, a remarkable achievement.

The information collected is the best that we have available and, as such, it is good. 95% of the villages in the country have been covered, and a probable 97% of the victims have been detailed to one degree or another.

The results that we have charted show that the data are consistent. Some results when viewed overall appear counter-intuitive. When they are broken down into trends, it is apparent that there are reasons for that, and that the trends are steady. The results show that we can rely on the figures that come out of the survey and are catalogued here.

But to say that, begs the question of what can we rely on the data for? To answer that, we have to look at the proposed major uses of the information we have gathered:

1. To draw attention to areas of the country where concentrations of accidents have occurred and to address those areas as priorities for clearance and risk education activities
2. To establish characteristics that appear high risk – activities, occupations, age of victim, gender of victim, detailed locations
3. To allow victim assistance organisations to identify those in need of their services and be able to contact victims to make them aware of the services.

The data are sufficiently comprehensive to allow the first two of these to be carried out effectively.

If there is information missing – either in terms of casualties about whom no information was collected, or for whom incomplete information was collected – this may hamper the last of the three. However, even in this case, so much data have been collected about casualties that victim assistance organisations will have their work cut out attending to those. As time goes by, and a comprehensive database of ongoing accidents is built up through Phase 2 of the survey, then any deficiencies in the Phase 1 survey will become of less importance.

This Report is the first major publication from the NRA dealing with the data that the NRA has collected. It will not be the last, but we hope that it will serve the needs of many stakeholders, not least the victims of UXO, in the broadest sense of that word

I endorse this report and commend it to all who have an interest in making good the damage that has been wrought in the beautiful and gentle land of the Lao.

Dr Maligna Saignavongs
Director of the National Regulatory Authority

Executive Summary

Between February and October 2008 The Victim Assistance Unit of the National Regulatory Authority (NRA), supported by the National Rehabilitation Centre (NRC) of the Ministry of Health (MoH), carried out the field work for a survey of UXO casualties and accidents throughout the Lao PDR.

This work was done in part fulfilment of the mandate of the NRA, as expressed in the Prime Minster's Resolutions 01/PM of 29th April 2004, on the **National Strategic Plan for the UXO Programme in the Lao People's Democratic Republic 2003-2013 "The Safe Path Forward"** where it is stated at Part III Objectives, paragraph 8(c):

> In terms of victim assistance, a national database on Mine/UXO accidents (covering all 18 provinces) will be developed and updated regularly, to feed into the prioritisation of clearance and MRE tasks. The specific needs of survivors of UXO/mine accidents, in terms of both physical rehabilitation and socio-economic integration, will be factored in all national/local public health initiatives

Phase 1 of the survey, reported upon in this document, collected information on casualties and accidents from the period 1964 to 2008 (up to the date of the enumerator's visit to any one village: information collected for 2008 was dependent upon the date of that visit and, in any event, no data were collected after October 2008). The start date of 1964 was chosen for the beginning of the US bombing campaign in Laos. The collection of data for all 2008 and ongoing accidents is the subject of Phase 2 of the survey, which is briefly described in this report.

The survey determined to cover the entire nation. In the event, it covered 95% of villages (see Box 1).

Box 1: Survey Statistics

9,583 Villages in Lao PDR

9,066 villages visited on the Phase 1 Survey (95%)

50,136 casualties recorded (1964-2008)

5.53 UXO casualties per village, on average

The impact is very skewed: by far the dominant province is Savannakhet, where about 25% of the victims currently live: second, with about half of that number, is Xieng Khouang (see Box 2)

Box 2: Results at the Provincial Level

17 provinces in Lao PDR

12,500 Casualties recorded in Savannakhet province

6,000 casualties in Xieng Khouang province

38% of all casualties in just two provinces

Of the 50,136 casualties for whom details were collected, about 60% were killed or injured during the conflict years, 1964 to 1973, and 40% in the period since then.

Box 3: Casualties

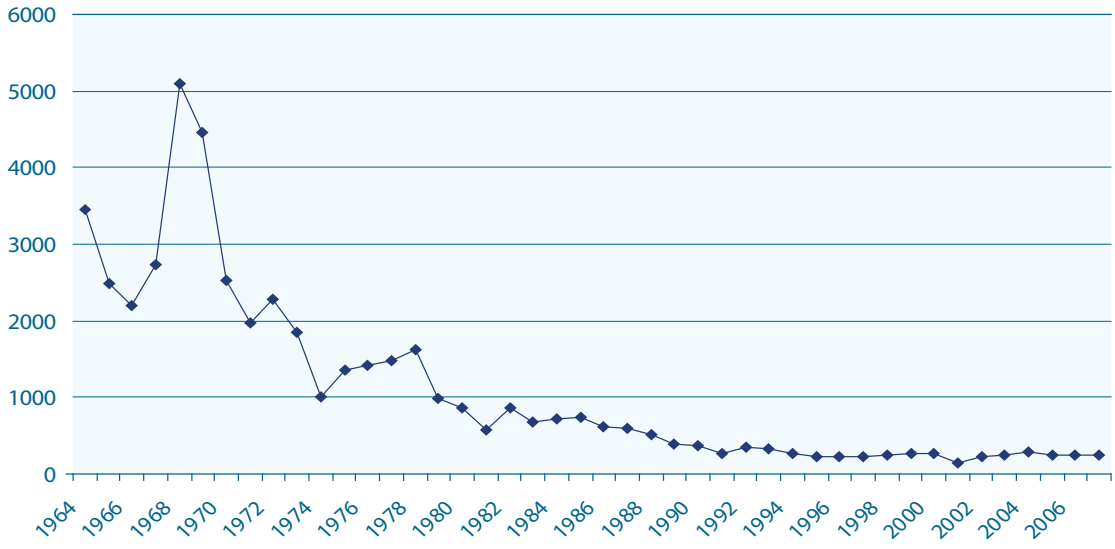
50,136 casualties recorded (1964-2008)

30,128 during the conflict years to 1973

20,008 in the post-conflict years from 1974

This emphasis is clearly reflected in Figure 1, which also shows an initial decline in casualty numbers in the period 1964 to 1966, followed by a very sharp increase.

Figure 1: Number of Casualties 1964-2007



The majority of casualties (60%) were killed in the accident, as is shown in Box 4.

Box 4: Killed and Injured

50,136 casualties recorded (1964-2008)

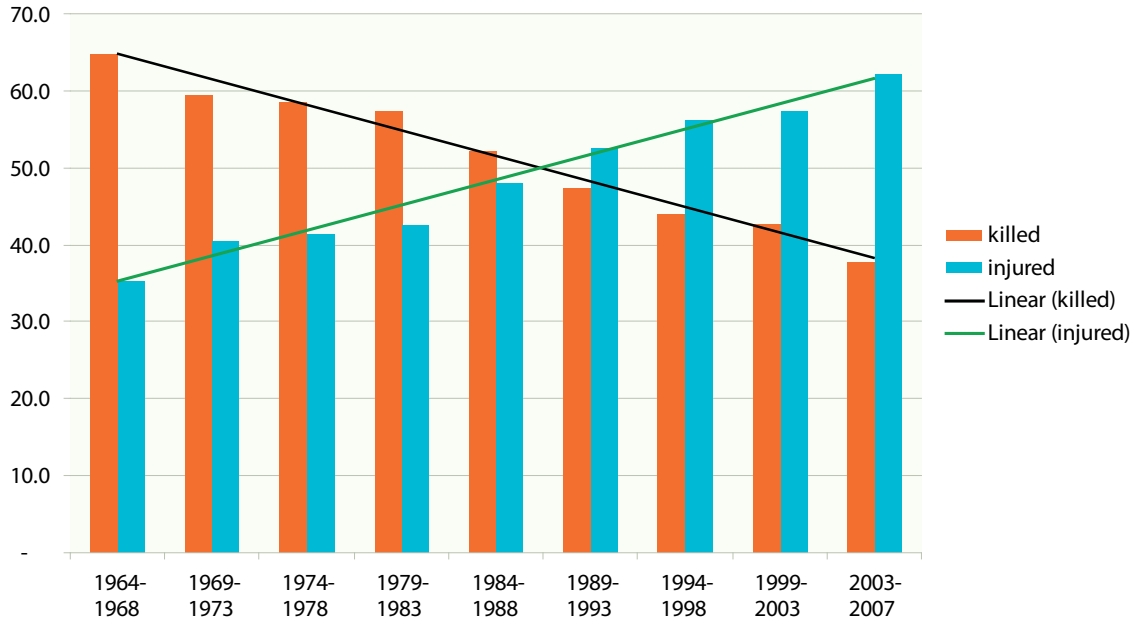
Killed in the accident: 29,410 = 58.66%

Survived with injuries: 20,726 = 41.34%

This result is typical of many others: it reflects the dominance of those wartime casualties on the whole dataset. Showing the results as a time series, and using percentages killed and injured as a measure, a different pattern emerges, as is shown in Figure 2. At the start of the war, almost two thirds of all casualties were killed and one third injured. Most recently, these proportions have almost reversed. In addition, one can see that this is not a haphazard matter, but the result of a steady and continuous trend.

All aspects of the survey results are susceptible to analyses of this nature: simply viewing a report on the total sample will not yield the richness that is available form the survey results.

Figure 2: Percentage of Casualties Killed and Injured, 1964-2007



For these reasons, the central focus of this report is more as a catalogue. It sets out the information that is available from the Phase 1 Survey, and it suggests the different ways in which it can be analysed. It leaves it to stakeholders to specify the reports required.

So, for example, you might determine that results that are time-bound – say 1995 to 2005 – are what you are looking for. And those results might be spatially confined, too – say for Saravan, Sekong, Attapeu and Champasak. Perhaps you want to know the number of females who were under the age of 18 at the time of the accident. All of these combinations are possible, and many, many more besides.

Box 5: Injuries and Prostheses

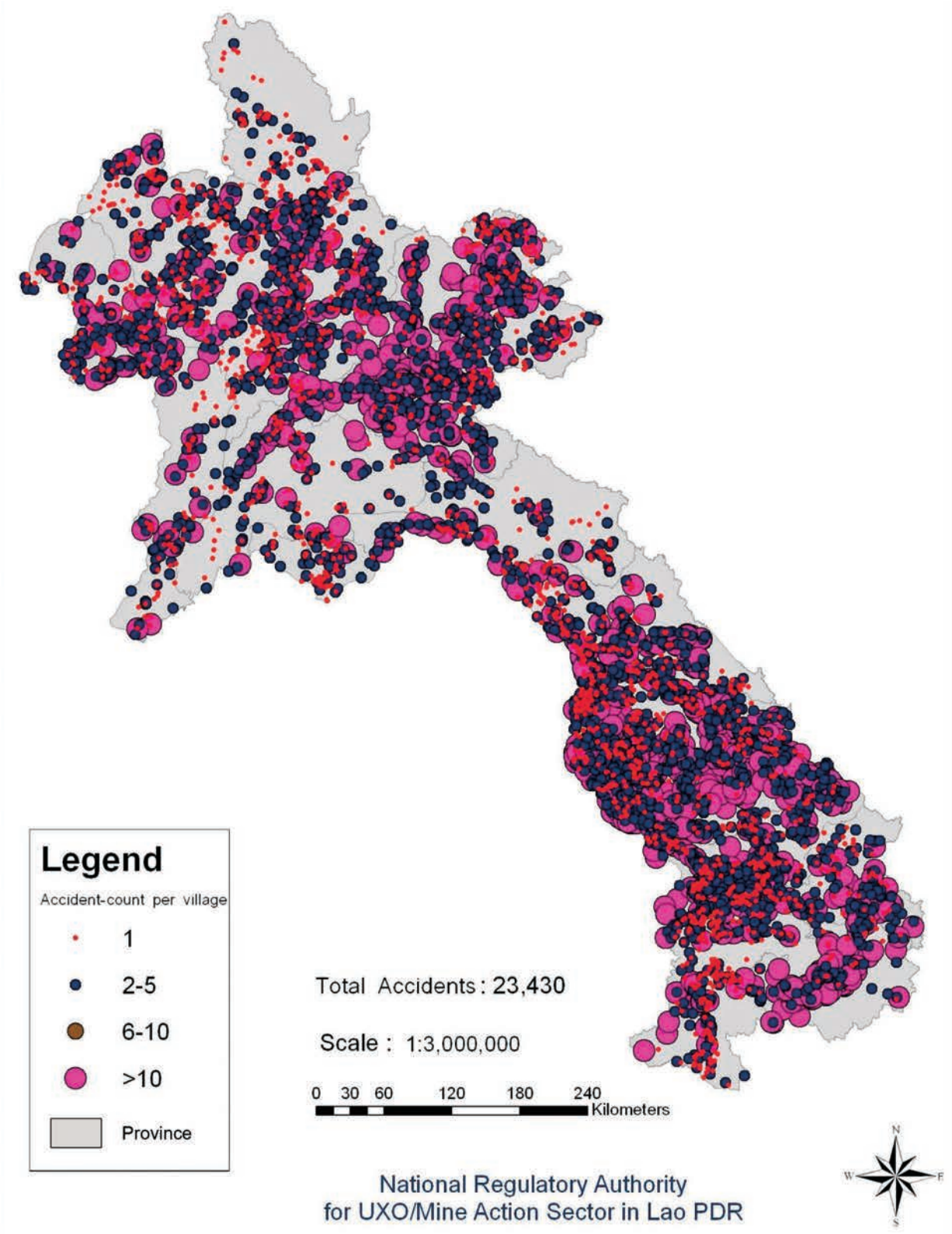
20,493 injuries sustained by survivors require a prosthesis

583 survivors claim to have received a prosthesis

This Phase 1 Survey is a milestone in data availability on UXO issues in Lao PDR. But it is not without its drawbacks. As has been said above, the majority of the accidents reported upon took place before 1974 – now 35 years ago. And the majority of casualties died. As a result, people who were not themselves the casualty have had to cast their minds back to try and recall what happened – to bring back a tragic memory that may be best forgotten. As a result, some of the records we have gathered are incomplete, and some may be inaccurate insofar as the detail is concerned, especially for incidents that are lost in the mists of time. We have complete confidence in the overall indications revealed by the survey: more recent data are likely to be of greater accuracy: results reported by survivors are probably more reliable.

An important way in which we can view data is through maps, showing geographical distribution.

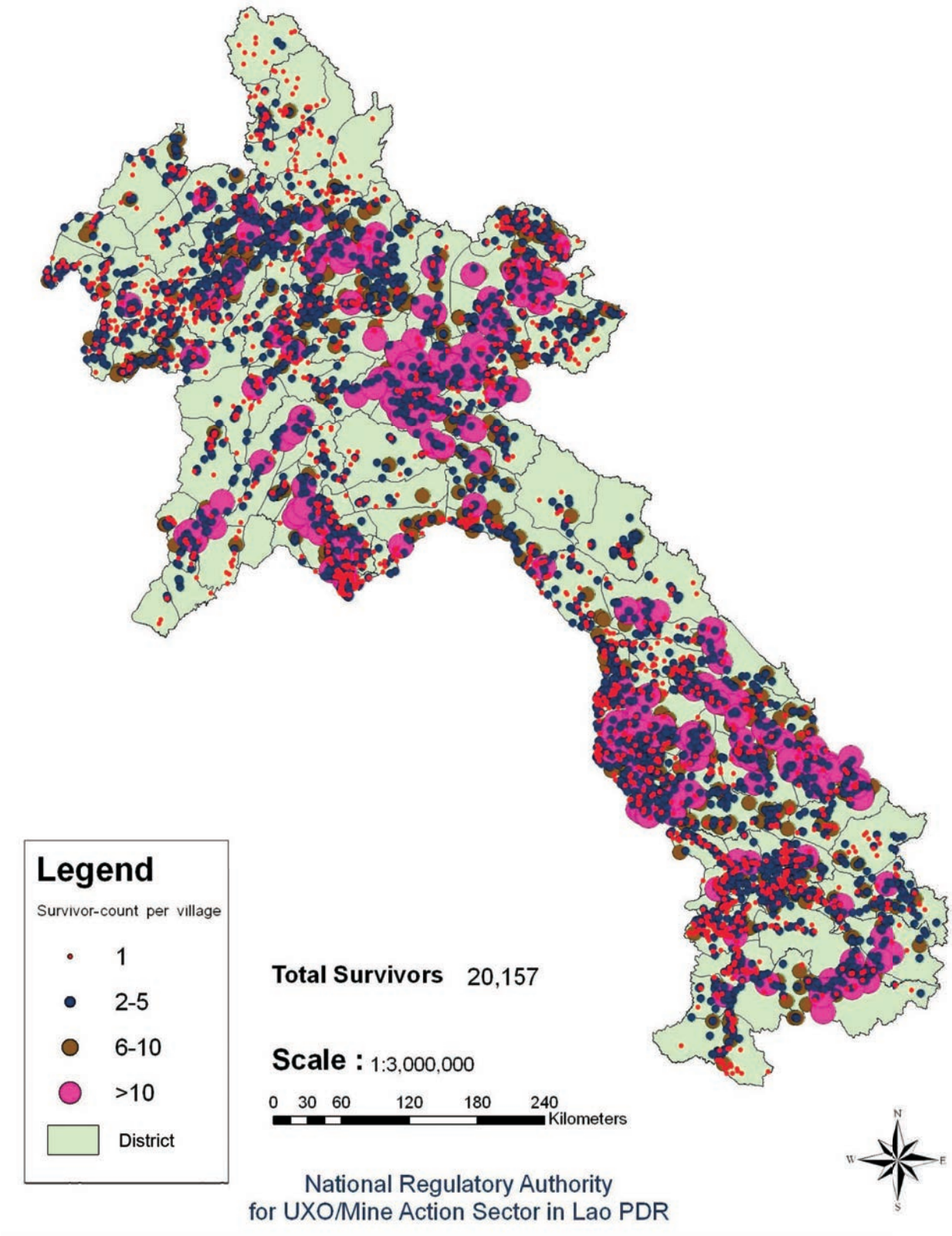
Map 1: Location of UXO Accidents in Lao PDR, 1964-2008



The map shows where the accidents took place. We have been able to identify 23,430 accidents from the data collected. Their distribution contains some surprises.

On the other hand, Map 2 shows the location of the survivors of accidents.

Map 2: Location of UXO Accident Survivors in Lao PDR, 1964-2008



All of the data collected can be shown on maps, at any level from national to district.

Finally, the Lao National Survey of UXO Victims and Accidents Phase 2 is getting under way as this report is issued. This was supposed to take over, seamlessly, from Phase 1, but it did not happen for reasons we do not fully understand. The survey collected information about 210 casualties in 2008, but we know that this figure is very incomplete since we only covered about 45% of the months in which villages could have experienced an accident. So, a new method has been established of collecting information on all accidents that occurred in 2008 and up-to-date in 2009, and that is beginning to yield results.

SURVEY IMPLEMENTATION AND ADMINISTRATION

The implementation and conduct of the Phase 1 survey is reported on in Annex 1 to this report. Statistical details of the implementation and conduct of the survey are contained at Annex 2. Data collection forms used in the survey are presented at Annex 3. A short report prepared by the VA Unit's Quality Assurance Consultants (QAC) is included as Annex 4.


Canon

PART 1
THE SURVEY BACKGROUND AND PROCEDURES

1. INTRODUCTION

1.1 Background

Laos is generally accredited with being the most heavily bombed country in the world, per capita. According to the USA Congressional Record[1] , the following quantities of ordnance were dropped over SE Asia during the Second Indo-China War (1964 to 1973):

Table 1: Ordnance Dropped over SE Asia 1964-73, Total and Per Capita

Location	Tons of ordnance dropped		Population at the time (app) [2]	Tons/person
South Vietnam	3,223,553		18.8 million	0.171
North Vietnam	881,302		21.8 million	0.040
Vietnam Total	4,104,855	4,104,855	40.6 million	0.101
North Laos	320,722			
South Laos	1,762,378			
Laos Total	**2,083,100**	**2,083,100**	**2.4 million**	**0.868**
Cambodia Total	529,129	529,129	6.5 million	0.081
Indochina Total		6,727,084	49.9 million	0.136

Laos received about five times as much as S Vietnam, on a per capita basis, and more than 20 times as much as N Vietnam.

In 1996, the USA made available records of USAF bombing over all three nations. Analysis of these data renders a record of 1.5 million tons of ordnance dropped over Laos, amongst which were some 250 million cluster submunitions[3] or bombies as they are known in Lao PDR.[4] Newly released wartime documents in USA, now declassified, are revealing that the records made available in 1996 contain very incomplete data. It is probable that the final tally will be substantially greater than 2 million tons and 250 million cluster munitions.

All of the 188 different types of ordnance used in Laos[5] experienced a failure rate and are represented, to one degree or another, amongst those still found in the country today. Inevitably, most prevalent are the bombies. It is thought that about 30% of these did not explode on impact and about 80 million are almost all still littered around the countryside and villages.

The result of this is that there continue to be accidents leading to deaths and injuries of people, mainly civilians and a significant proportion of children.

1.2 Foundation of the NRA

In 2004, the Lao UXO National Regulatory Authority (NRA) was established as a joint operation between the UNDP and the Government of Laos, under a Prime Ministerial Decree. The NRA is not an operational body, but has a regulatory function of all UXO activities within Laos. As such, it is mandated to have oversight of three major areas of UXO action, within the period 2003 to 2013:

[1] United States of America Congressional Record – Senate, May 14th 1975, pages 1462 to 1466, which gives considerable details of tonnages, costs, casualties, and other information.

[2] See Annex 7 for a Note on Population Calculation.

[3] A BLU26 submunition, one type of cluster munition commonly used in Laos, is 6cm in diameter: 278 of them would fit in one square metre, packed together. 250 million would occupy, solidly, an area of 90 ha or 222 acres.

[4] McClure, Franki (2007) A Look at the USAF Bombing Data Vientiane, NRA.

[5] See HIB (2002) UXO Reference Manual which catalogues the following: Artillery, 61 types; Aircraft bombs, 16 types; Clusters, 10 types; Grenades, 23 types; Mines, 14 types; Mortars, 21 types; Rockets, 18 types; Submunitions, 19 types; Miscellaneous, 6 types.

1. risk awareness training: to ensure that training is delivered to all impacted communities in the Lao PDR in order to reduce UXO/mine accidents to less than 100 casualties per year

2. clearance: to ensure clearance of some 18,000 ha[6] of agricultural priority and other areas, and

3. victim assistance: to establish a national database of UXO victims, updated regularly, and to factor the physical and socio-economic rehabilitation needs of survivors into all national and local public health initiatives.

The third of these was allocated to the NRA's Victim Assistance Unit to effect. This report, and the data-collection exercise it reflects, can have an impact on all three.

Whilst the legislation establishing the NRA was put in place in 2004, it took until late 2006 to get the organisation operational, through the recruitment of suitable staff. Planning the work programme to respond to the tasks with which it was charged took much of the rest of the year. It was apparent that it would not be possible to undertake the work required to satisfy the rehabilitation needs of survivors in national and local plans without knowing about the survivors, and for that it would be necessary to have details of those survivors, their numbers, their needs, and their present-day location

1.3 Previous Surveys/Information on UXO Casualties

When the NRA got under way, in 2006, there were two sources of information available on UXO casualties and accidents:

- A data-gathering exercise by Handicap International Belgium (HIB) in 1997 covered about 50% of the population.[7] Only information about accidents occurring after 1973 – the end of hostilities – was collected

- UXO Lao was established in Laos in 1995 and its clearance teams began to collect statistics of UXO victims in 1996. Early data came from one province only, and it was not until 1999 that more comprehensive data were collected and have been made available on a monthly basis

The results of the HIB survey showed that there was a total of 10,649 accidents/ victims, in the areas surveyed in 1997. Accidents/victims accumulated at the following rates:

Table 2: UXO Victims[8] in Lao PDR, 1973 to 1996

Period	Years	Average UXO-related accidents/yr
1973-1976	4	1,113
1977-1986	10	362
1987-1996	10	242

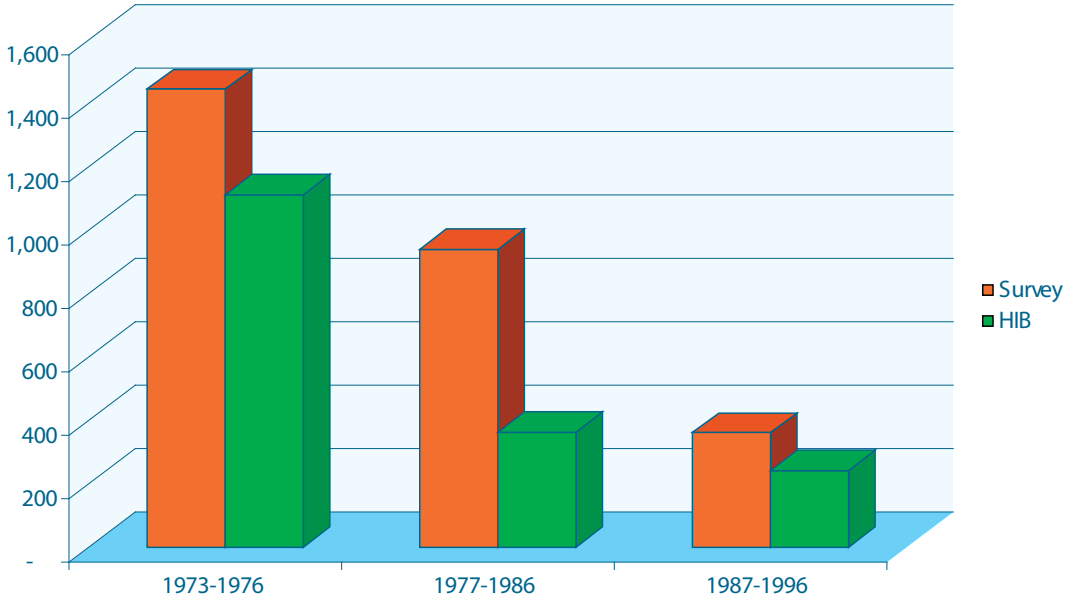
By 1997, it was estimated that the rate was about 200 accidents/victims per annum. A comparison of the HIB survey with the NRA Phase 1 results, over the period 1973 to 1996, show[5] the under-recording of the former, which is to be expected in view of its lower coverage (see Figure 3). What is surprising is the very significant gap between the HIB and Phase 1 results for the period 1977-86. In the first and last periods, the HIB results are, respectively, 23% and 27% lower than Phase 1 for the same periods: in the 1977-86 period HIB figures are 61% lower than Phase 1.

[6] Target for UXO Lao alone.

[7] Handicap International Lao PDR (1997) Living with UXO: National Survey on the Socio-Economic Impact of UXO in Lao PDR The survey covered 15 of the then 18 provinces and 93 of 118 districts in those provinces. It visited 7,675 villages out of a total of about 12,000 at that time. The population covered was about 2.5 million, or approximately half of the national population. The use of the word 'accident' appears coterminous with 'victim' so that it is not possible to differentiate between them.

[8] Note that there is no distinction between accidents and victims in the HIB report.

Figure 3: Phase 1 Survey Compared with HIB (Annual Averages 1973-1996)



The data collected by UXO Lao were subject to the following drawbacks:

- Clearance teams work in nine provinces only (of 18 provinces until 2005, 17 since then[9])
- Data for known accidents only were collected
- Clearance teams do not work in every part of every province so that accidents in other parts may not be recorded
- Even in the districts where they do work, clearance teams do not cover 100% of the district
- There is no system in place to collect information from remote areas where clearance teams are not active
- Clearance teams tend to be active during the dry season (October-May) and limit their range during the rainy season, so that accidents during the rainy season may be under-reported.

To the end of 2007, UXO Lao had collected the following data about UXO/mine casualties:

Table 3: UXO Victims in Lao PDR 1999-2007 (UXO Lao Compilation)

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Injuries	18	63	86	71	76	127	128	33	67
Deaths	84	39	35	28	33	66	36	16	33
Total	102	102	121	99	109	193	164	49	100
Child	60	40	52	47	50	112	88	24	47
Female	42	22	29	23	28	29	18	10	12

[9] An area named Xaysomboun Special Zone was established in about 1975, containing the former US chief operational base, and the remnants of the Hmong opposition to the Lao People's Republican Party: it was marked off as a no-go area, although having provincial status. In 2005, following the capitulation of the Hmong, it was returned to Vientiane and Xieng Khouang provinces, whence it was originally derived.

Had it not been for the high results in 2004 and 2005, and an exceptionally low result in 2006, the figures look persuasive for a case of about 100 UXO/mine casualties per year, continuing the step-reduction trend identified in the HI report. However, the reservations spelled out in the bullets above led some observers to speculate that the real figure may have been double those shown in Table 3.

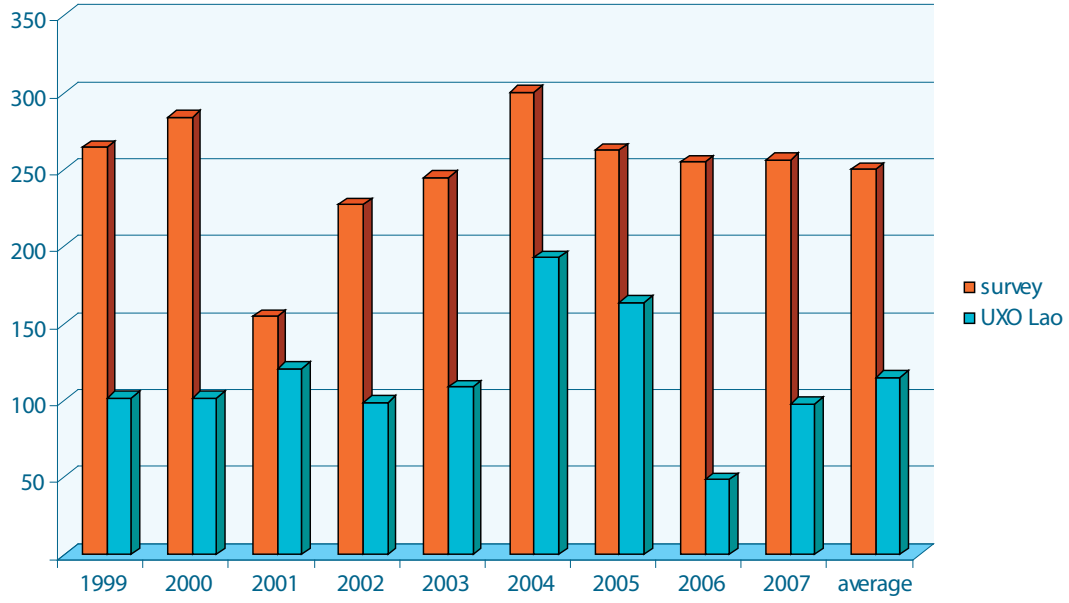
These concerns have, in fact, been borne out by the results of the survey, which show that, over the relevant period, the average number of casualties throughout the country was over 260 per annum, against the UXO Lao average of 115. The UXO Lao results were 44% of the Phase 1 Survey number – or rather less than half.

A comparison between the Survey Results and those for UXO Lao, over the whole time period, is shown in Figure 4. For some years (2001) the UXO Lao figures were quite close to the true figure: for others (2006) they were very far off.

The absence of comprehensive, accurate data in Lao PDR for UXO victims, or even for UXO accidents, made it impossible to plan satisfactory strategies and activities to either handle the ongoing contamination or provide adequate services to UXO victims and their dependents.

For these reasons, and in accordance with its mandate, the NRA determined to undertake a comprehensive survey of UXO casualties, throughout the Lao PDR, as a priority activity.

Figure 4: Phase 1 Survey Compared with UXO Lao (Annual Figures: 1999-2007)



These comparisons clearly vindicate the decision to undertake an entirely new survey, and one which would be as comprehensive as possible.

2. SURVEY ARRANGEMENTS AND COVERAGE

2.1 Survey Arrangements

The Survey was planned and implemented by the NRA VA Unit. Planning was undertaken in 2006/7 and the proposed stationery and methodology was piloted with decisions guided by the Technical Working Group on Victim Assistance (VA TWG) in Sepon and Vilaybourg Districts in Savannakhet Province in June 2007. The collection of data on UXO casualties in Lao PDR is known as the Lao Victim Information System, or LVIS. A more explicit account of the survey programme is given in Annex 1 and a very brief summary, only, is presented below.

Important issues in planning the survey included:

1. The information to be collected: this was planned after extensive investigation of other surveys and methodologies
2. The computer software to be used to store and analyse the data: all data are entered into the GICHD IMSMA 5[10]
3. The network through which the data would be collected: this network was arranged and provided by the Ministry of Health's (MoH) National Rehabilitation Centre (NRC)
4. Training the Provincial Victim Assistance Technicians (PVAT) and the District Enumerators (DE): implemented in two one-week central training sessions for PVAT and 7 two-day regional trainings for DE
5. Quality assurance: the NRA VA Unit retained a quality check consultant to examine every form submitted and ensure that all forms sent for data-entry were of the highest standard; three Quality Assurance Consultants (QAC) were retained to do repeat surveys of a 2% sample of villages; all data entered were verified before being finally passed to the database
6. Data entry was planned as a part of the NRA role: in the event, it was contracted out.

The survey fieldwork was implemented from February to October 2008. Twenty PVAT were recruited, giving two for three of the larger provinces (Luang Phrabang, Savannakhet and Champasak). PVAT were responsible for liaison with the DE in their provinces, and for managing the provincial budget for carrying out the survey. Each PVAT had an imprest account which was replenished upon accounting for expenditure.

For further details, see Annexes 1 to 4.

[10] Geneva International Centre for Humanitarian Demining Information System for Mine Action, Version 5.

2.2 Coverage

The survey sought to cover the entire nation. In planning, data from the Lao Department of Statistics (LDS, then the National Statistical Centre (NSC)[11]) indicated the administrative structure of the country shown in Table 4.

Table 4: Administrative Structure of Laos According to Source

Information↓ / Source→	LDS	Survey
Provinces	18	17
Districts	141	139
Villages	10,522	9,583

Over time, the parameters supplied by the LDS changed: most important was a reduction in the number of villages in the country. This reduction was reported to the NRA by its DE, through the PVAT, all of whom were government officials from the districts and provinces concerned. The decline in the number of villages was attributed to the following:

- Government policy to amalgamate non-viable villages
- Government policy to encourage montagnards to leave their mountain dwellings and move to lower areas, joining existing villages
- Movement of villages from development areas (dams/reservoirs, mineral extraction sites, plantation sites, etc) and amalgamation of their populations upon relocation, or possibly amalgamation with existing villages

Xaysomboun Special Zone was an area of Vientiane and Xieng Khouang provinces separated off in the period following the end of conflict, until conditions were adjudged safe and the areas were returned to the original provinces. This happened in 2007.

The final statistics for the coverage of the survey are given in Annex 2. Of the 9,583 villages, DE visited 9,066, so that 517 villages were not visited and no data were collected. Originally, the survey was expected to be completed in 6 months – from October 2007 until March 2008 – but the start was delayed due to complications in making final arrangements for the appointment of the DE and PVAT, and did not start until February 2008. This delay meant that the survey period extended into the rainy season (May-October) with attendant difficulty of reaching more remote villages. Further to that, previous information[12] suggested that the final figures for the number of casualties could be expected to be in the range 12,000 to 15,000: in planning a figure of 25,000 to 30,000 was used. In practice, information has been collected of 50,136 casualties, and the unexpectedly large number inevitably required that the survey period be extended. In the event, the survey was terminated at the end of October, at which time 517 villages remained unsurveyed. These villages are all in provinces in which it was difficult to obtain full cooperation of DE and PVAT (Luang Namtha, Luang Phrabang, Vientiane Province, and Champasak) and it was agreed that extension of the time period would be expensive and of limited benefit.

The fact that 517 villages have not been covered does not preclude collection of information from them at a later date, and the VA Unit will bear in mind this need when opportunities arise.

[11] Change of name indicated by Ministry of Planning and Investment Letter of 4 May 2009, 198/DoS.

[12] Such as the HIB Survey and the UXO Lao victim data collection exercise, both of which were discussed in Section 1 above.

2.3 Survey Budget and Funding

In preparing the original budget, the NRA VA Unit had only the indications from previous surveys to guide it about the likely overall cost. At the time, from the data-gathering exercises of HIB and UXO Lao, it was generally accepted that the total number of UXO casualties in the period since the end of the conflict was of the order of 14,000. The NRA Phase 1 survey would cast back to the beginning of the conflict and the casualty number upon which the budgeting was based was 30,000 at maximum – rather more than double the figure that had previously been mooted.

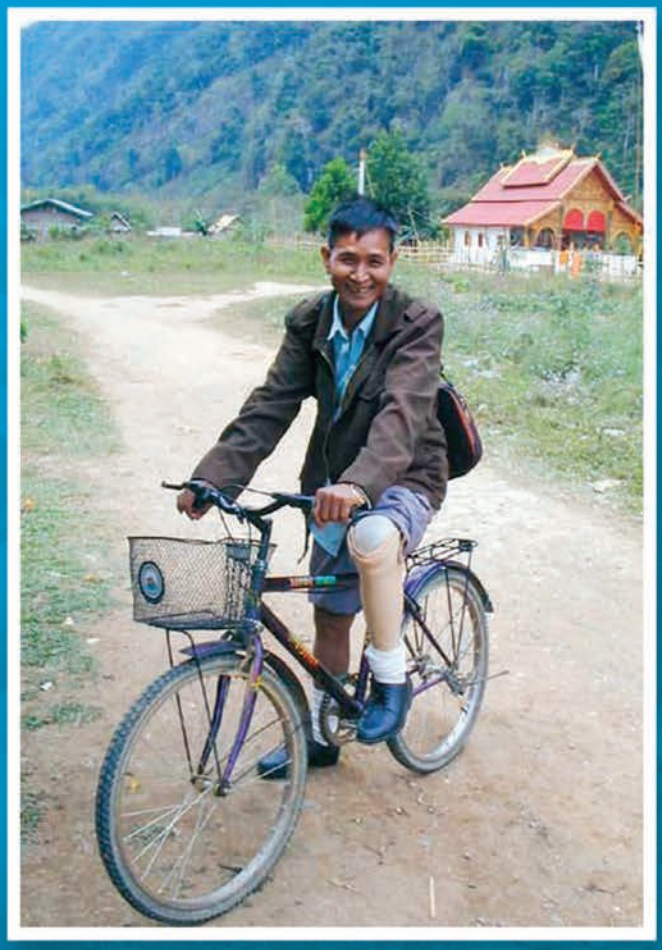
In the event, information about some 50,000 casualties has been collected. The budget for the fieldwork was mainly based on a cost-per-casualty, and this sum was inevitably increased as a result of the much larger number of casualties. In addition, the cost of data entry was larger as a result of the additional forms to be entered and verified.

Table 5, below, sets out the details of the budget, the eventual figure, and the sources of funding to meet the requirements. The total is incomplete insofar as the costs of the VA officer, VA Technician, some part of the VA Technical Advisor, and the support from the NRA's IT Unit are not included in the budget. These items were generally covered by grants from UNDP, AusAID and the Government of Switzerland.

Table 5: Budget and Expenditure for Phase 1 Survey of UXO Victims and Accidents

No	Activity	Budget ($)	Expended			Total
			UNICEF	EU	UNDP	
1	Select database	0	0	0	0	0
2	Define information to collect	0	0	0	0	0
3	Select network	0	0	0	0	0
4	Undertake pilot project	1,322	0	0	0	0
5	Adjust the system	0	0	0	0	0
6	Train trainers (PVAT)	4,224	5,689	0	0	5,689
7	Train enumerators	18,592	7,551	8,202	0	15,753
8	Carry out survey	73,054	3,392	102,911	33,325	139,628
9	Roving enumerators	26,064	0	5,358	1,351	6,709
10	Data validation	50,114	0	547	7,526	8,073
11	Data entry	15,226	0	1,093	9,883	10,976
12	Reporting [13]	5,000	0	0	5,000	5,000
13	Stationery for survey	3,650	3721	1,084	0	4,805
14	Staff costs	0	25,071	0	0	25,071
15	Regional interim workshops	0	0	3,048	3,134	6,182
16	Miscellaneous	0	0	595	0	595
17	Capital Items	38,300	5,006	0	30,226	35,232
	Total	235,546	50,430	122,838	90,445	263,713

[13] The sum included in the budget and expenditure has not, at the time of reporting, been expended since it is the amount allocated for the graphic preparation and printing of this document.



3. DATA COLLECTED

Two forms were used in the survey:

- Form including information on each victim and the accident that he or she experienced: this form is presented in detail below and reproduced in Annex 3
- Form used with Village Chiefs and/or other village elders to get information about the number of casualties/accidents in the village; this form is not presented here, but is shown in Annex 4.

It is important to recognise the distinction between the casualty and the accident.

A casualty is someone, alive or dead, who has suffered a UXO accident at some time between January 1964 and the date of the DE visiting the village where information is gathered about that casualty. In the event that the casualty has died, information was collected from a relative acquainted with the casualty and circumstances or from someone who witnessed the accident/knew the casualty or in some other way had knowledge about the accident and the casualty. In this case, the casualty may have died at the scene of the accident or shortly thereafter as a result of the accident, or s/he may have survived and died subsequently from other causes. In all of these cases, one is reliant on the memory of someone other than the casualty for the information about the casualty and the accident.

More than one person may have contributed to information about a single casualty in circumstances where the casualty was not available, for whatever reason.

The accident is a specific event that is characterised by its time and its location. There are other characteristics, but these are the two chief ones that allow it to be identified.

Complications arise as a result of:

- A casualty experiencing an accident whilst away from his/her village of residence
- Casualties may have moved from the place where they lived when the accident happened (which may or may not have been the location of the accident)
- Casualties may have died either as a direct result of the accident or since the accident and witnesses to the accident may have since moved from the place where they lived when the accident occurred.

All victims are given a unique identification code, consisting of:

- The province official code, consisting of two digits from 01 to 17
- The district official code, consisting of two digits from 01 to 15 (the largest number of districts in any province occurs in Savannakhet, where there are 15)
- The village official code, consisting of three digits from 01 to 150 (the largest district in terms of village numbers is Sepon, where there are 150)

- The accident number, allocated by the DE on the basis of the number of accidents investigated by her/him
- The victim number (being a number from 01 to 9999, depending upon the number of casualties for that accident)

The top right-hand corner of every page of every form thus contained the following:

Province	District	Village	Accident	Victim

The DE completes the code, using the official code for province, district and village and an enumerator-specific sequence from 001 for accidents and from 0001 for victims. Reports are made and coded in the villages where the interviewee lives.

The following 11 items of information requests are contained on each form.[14] Most of the questions are closed – that is to say, a choice is offered between a number of possible answers. Brief commentary on the questions appears in the blue-shaded boxes following the extract from the questionnaire form. The form as it was printed and used appears complete at Annex 3.

1. General Information:

Residence of victim		Village chief name	
Interviewer's name		Interview date	
Interviewee 1: name		Interviewee 2: name	
Victim's parent ☐	Victim's relative ☐	Victim's parent ☐	Victim's relative ☐
Victim's neighbour ☐	Working with victim ☐	Victim's neighbour ☐	Working with victim ☐
Others (specify) ☐	……	Others (specify) ☐	……

This box establishes information about the place where the interview took place and the names of up to two people who provided the information and their relationship to the victim. Lines 3-6 are completed where the victim is not available for interview.

2. Personal Details of Victim

Name & family name		Date of birth	
Nickname		Date of accident	
Male ☐ Female ☐	Died ☐ Injured ☐	Father's name	
Single ☐ Married ☐	Widowed ☐ Divorced ☐	Mother's name	
Number of children		Spouse's name	

The second box has details of the victim: if completed in all details, it allows reasonable assurance of the identity of the casualty and allows any double counting to be avoided.

3. Place of accident

Village name ……..	District name ……	Province ……..

Box 3 is about the accident – more specifically, where it took place ……

[14] In some cases, not all of the information is recorded on the form: there are occasions, for example, when witnesses to an accident that occured 30 or 40 years ago are not able to recall all of the details.

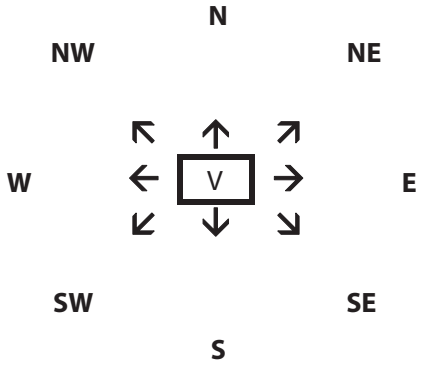
Where accident happened :

in house	☐	road outside village	☐	military camp	☐	upland rice	☐
in village	☐	riverbank	☐	government building area	☐	lowland rice	☐
road in village	☐	river	☐	demolition site	☐	pasture	☐
path in village	☐	fish pond	☐	UXO clearance site	☐	forest	☐
path outside village	☐	don't know	☐	other (describe)			

……. and the type of environment of the accident …….

Give direction from village:

How far and which direction



……. with more geographic detail, if available.

4. Others injured or killed in the accident

None	
Injured	
Killed	
Total	

Information here about the numbers of people involved in the accident ……

If others were injured or killed in the accident, please give their names below

No	Name and surname	died	**injured**	No	Name and surname	died	**injured**
1.		☐	☐	8.		☐	☐
2.		☐	☐	9.		☐	☐
3.		☐	☐	10.		☐	☐
4.		☐	☐	11.		☐	☐
5.		☐	☐	12.		☐	☐
6.		☐	☐	13.		☐	☐
7.		☐	☐	14.		☐	☐

…….. and their names, if possible, to allow cross-checking with other interviewees.

5. Cause of Accident

Please select from one of the following

1. Making fire	☐	7. Doing nothing –exploded beside victim	☐
2. Cutting vegetation	☐	8. Disturbed by animals	☐
3. Collecting food/forest products/wood	☐	9. Bystander/spectator (watching someone handle/tamper)	☐
4. Farming/Gardening	☐	10. Collecting scrap metal	☐
5. Digging	☐	11. Playing (Children)	☐
6. Travelling (but not transporting UXO)	☐	12. Tampering/defusing/dismantling UXO	☐
13. Other…..	☐		

Box 5 asks for details of what the casualty was doing at the time of the accident.

6. Device that caused UXO accident. (See picture)

Big bomb	☐	Mine	☐	Rocket	☐	White phosphor bomb	☐
Small bomb	☐	Mortar	☐	Fuse	☐	Unknown	☐
Bombie	☐	Grenade	☐	Artillery shell	☐	Other ☐ specify	

Box 6 identifies the type of UXO that was responsible for the accident

7. Was the site of accident marked as dangerous?

Yes ☐: No ☐; Don't know ☐; If yes, by whom?

.....

Important for Risk Education – had the site of the accident been identified as dangerous?

8. Victim's Occupation

Before Accident				After Accident			
Child	☐	Student	☐	Child	☐	Student	☐
Soldier	☐	Health worker	☐	Soldier	☐	Health worker	☐
Teacher	☐	Farmer	☐	Teacher	☐	Farmer	☐
Fisherman	☐	Forester	☐	Fisherman	☐	Forester	☐
Government	☐	Labourer	☐	Government	☐	Labourer	☐
Housewife	☐	Miner	☐	Housewife	☐	Miner	☐
Shopkeeper	☐	Unemployed	☐	Shopkeeper	☐	Unemployed	☐
Retired	☐	Scrap metal trader	☐	Retired	☐	Scrap metal trader	☐
Other	☐	(specify)		Other	☐	(specify)	

Here we try to establish what the victim did before the accident and, for those who survived, whether they continued with their occupation following the accident

9. If the victim died, indicate location of death:

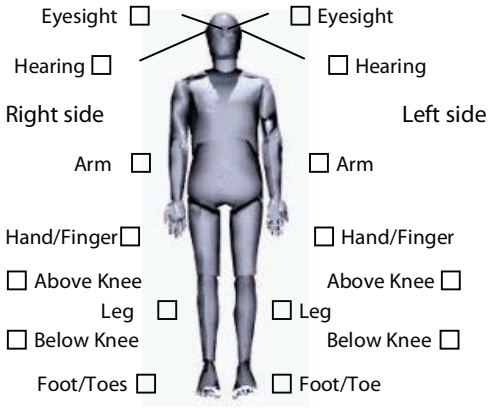
At place of accident ☐	At home ☐	At health centre ☐
In hospital ☐	Whilst travelling to health facilities ☐	Other ☐ describe .....

Please stop interview here if the victim died

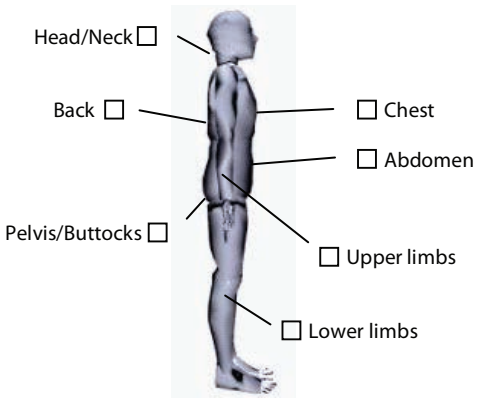
Question 9 is about victims who died at the time of the accident, and where the death took place. If the victim died, then the questions following are of no relevance.

10. Injuries sustained

Loss or injured:



Other Injuries:



Question 10 allows the identification of the types of injuries sustained by those who survived. This is important information for those involved with survivor assitance

11. Assistance received by the Victim (mark all items received)

Assistance	Organisation	Where obtained	When obtained	Continue to receive
Crutches ☐				Yes ☐ ; No ☐
Walking aids ☐				Yes ☐ ; No ☐
Wheelchair ☐				Yes ☐ ; No ☐
Prosthesis ☐				Yes ☐ ; No ☐
Orthosis ☐				Yes ☐ ; No ☐
Physical therapy ☐				Yes ☐ ; No ☐
Vocational training ☐				Yes ☐ ; No ☐
Micro-credit ☐				Yes ☐ ; No ☐
Business advice ☐				Yes ☐ ; No ☐
Other ☐ (specify)				Yes ☐ ; No ☐

Also, whether any assistance has been received by the survivor – and what assistance was it?

There is space at the foot of the form for respondents to offer further information

4. REPORTS AVAILABLE

It is apparent from the data collected that there is a wide variety of reports that can be made available. It is not the purpose of this document to provide those reports, but simply to suggest the types of report that can be prepared for stakeholders and to offer a few examples.

4.1 Major Report Definitions

All of the data described can be presented in the format desired by stakeholders or inquirers. There are, fundamentally, three levels of report available:

1. Aggregated data (of which examples follow)
2. Individual data by code
3. Individual data by name

Release of individual data requires signature of an Undertaking and provision of supporting documentation. Details will be found at Annex 6.

Reports to stakeholders/inquirers can be presented spatially and temporally

- spatially
  - for the whole of Laos
  - for regions of Laos (groups of provinces)
  - for provinces
  - for districts or groups of districts
  - for villages or groups of villages
- temporally
  - for the whole survey (1964-2007)
  - for the period of conflict (1964-1973) and/or post-conflict (1974 and beyond)
  - for groups of years (five-year periods, three-year rolling averages etc)
  - for individual years

4.2 Detailed Report Definitions

On this basis, aggregate reports can be offered for analyses based on (question number on form given in parentheses):

- gender of casualty (#2)
- age of casualty (at the time of the accident) (#2)

- whether killed or injured (#2)
- if killed, detailed location of where the victim died (#9)
- accidents by numbers involved (#4)
- geographical location of accident (#3)
- detailed location of accident (#3)
- activity at time of accident (behaviour etc leading to accident) (#5)
- device causing accident (#6)
- whether the location was marked or otherwise (#7)
- occupation of casualty before the accident (#8)
- occupation of survivor after the accident (#8)
- injuries sustained (#11)
- assistance received by the victim (#12)

4.3 Specifying Report Requirements

Stakeholders might ask for a variety of information in a single report. In order to avoid confusion, it is best to set out requirements fully and in the type of format in which the report might be issued.

For example, a stakeholder might request the following information, in a format that specifies

- the area to be covered
- the time period
- aggregate information by age group, gender and activity at the time of the accident

For Xieng Khouang province, in the period 1998-2007, number of casualties as follows[15]:

activity	Killed					Injured					Grand Total
	Man	Woman	Boy	Girl	Total	Man	Woman	Boy	Girl	Total	
Bystander											
Exploded nearby											
Passing by											
Disturbed by animal											
Cutting vegetation											
Collecting food etc											
Digging											
Farming/ gardening											
Making fire											
Playing											
Tampering											
Collecting scrap											
Other											
Total											

A stakeholder could specify such a report, year-on-year, for each year in the period.

[15] For simplicity, some categories of activity have been abbreviated from those that appear in the form.


TOM
YUM
GOONG
Tony Ja
WARRIOR

5. STRENGTHS AND SHORTCOMINGS OF THE SURVEY

In his foreword to this report, Dr Maligna has set out many of the positive aspects of the survey process. They can be summarised as:

- A nationwide survey of a class of individuals has been planned and carried out
- The survey covered 95% of the villages in the country
- It has collected details of some 50,000 individuals who have suffered an accident with UXO
- It gives a sound basis for initiating and investigating clearance proposals
- It provides critical information for planning risk education work
- It contains details of individual UXO victims in need of one sort of assistance or another

These characteristics represent a remarkable achievement and give the NRA and its operators, in clearance, risk education and victim assistance, a significant platform upon which to plan and carry out their work.

It is appropriate that we should register the following drawbacks to the survey, since they are important for the representation of the results, and they may constrain the use of the data for certain stakeholders:

1. Enumerators were generally government functionaries whose main work is not to collect data; whilst they all went through a two-day training, their expertise in conducting questionnaire surveys was very variable
2. PVAT were supposed to be full-time and to sit with every DE when they handed over their forms, going over each form in detail and ensuring that the forms were correctly and fully completed, returning those that were not so completed; in the event, it is thought that not one of the PVAT was full-time on the survey and that few, if any, undertook the prescribed methodology for checking forms with DE[16]
3. The survey did not cover 100% of the villages: of the 9,583 villages, only 9,066 were surveyed (see Annex 2)
4. It relied on local knowledge, word-of-mouth and hearsay to identify who was and who was not a UXO casualty in any village, whether a survivor or not and whether alive or dead
5. There has been considerable movement of population in Lao PDR over the last 45 years, so that many victims, or their reporting relatives, now live somewhere other than where the accident occurred or the place where they lived when the accident occurred; as a result, important details are lacking and the data can be hard to correlate

[16] It was for this reason that the NRA's VA Unit set up a quality assurance function within the Unit in June 2008.

6. The quality assurance check run on 204 villages (see Annex 4) shows that the survey could have under-recorded the number of victims by more than 20%[17]: there can be no doubt that many casualties/victims will have gone unrecorded because the person died on the scene and those who might have testified have moved to places where the village elders are unaware of that aspect of their history: in other cases, people have died at the scene of the accident, in deep jungle, and the cause of their disappearance has never been known

7. It is possible that, in reporting casualties that occurred during the period of the conflict, respondents are giving details of people who were killed by ordnance that behaved as it was designed; none of the major civilian death events[18] are apparent in the responses

8. Many response forms are incomplete: as an example, accidents are chiefly characterised by the place at which they occurred and the date: place is best described by village, district and province and date by day, month and year. Respondents recounting an accident suffered by someone who died at the scene in the 1960s have difficulty being precise about all of these details, and a considerable number of responses lack finer details

9. A small number of responses turn out to be not for UXO accidents, but for other types of accident

10. The survey collected details of accidents that impacted humans only: accidents involving, for example, farm livestock only are not recorded.

11. Completed form handling problems have arisen despite best efforts to avoid them: forms had to pass from the DE to the PVAT to the NRA reception, to the VA Unit forms-received register, to the VA Unit quality controller, to Cosco for data entry, to the NRA IT Unit for data verification, to the VA Unit for archiving. At all times, efforts have been made to keep all victim forms from an individual village in one bundle, and all data forms from a district in one box, etc. Unfortunately, in handling some 50,000 victim and 9,000 village forms, there have been occasional errors, which mean that we are not currently able to account for every form which has been registered. This has held up the production of the report, as we have attempted to track down every mismatch between the register and the database – a process that is continuing.

This list of drawbacks is most probably not complete. Despite their number, the positive aspects of the survey, set out at the head of this section, still have validity. The results can still be used, with confidence, for the three purposes for which they were designed.

[17] This result is very skewed by the check in two provinces.
[18] Such as the rocket attack on Tuam Piu cave which caused the deaths of 374 people in a single incident.

6. PHASE 2 VICTIM AND ACCIDENT SURVEY

6.1 BACKGROUND

The Lao National Survey of UXO Victims and Accidents is designed in two Phases:

- Phase 1: Historical, back to 1964, and
- Phase 2: Ongoing, as accidents occur in real time

The Phase 1 survey was carried out between February and October 2008, so that we can only rely on having complete information for the period up to January 2008. For all villages surveyed during February 2008 (the first month) details of accidents in January will have been collected, together with a varying amount of information about accidents in February, as the month progressed. For all villages surveyed in October 2008, the last month of the survey, enumerators would collect complete data for the period January to September 2008, plus a variable amount of data for October. No information at all was collected of any accidents that occurred during November or December 2008.

Phase 1 was expected to move seamlessly into Phase 2. During the course of their Phase 1 work, DE were required to instruct each Village Chief on action to be taken in the event of any accident following the DE's Phase 1 visit. This action was for Village Chiefs to notify the PVAT in their area of the accident and the PVAT would then undertake a full investigation, using a separate set of Phase 2 forms, to collect details of the accidents and the victims. For this purpose, in part, all PVAT were furnished with motorcycles, as well as GPS devices for locating the precise location of villages and accidents.

The arrangements, quite apparently, did not work. The VA Unit at the NRA received details of very few accidents through this route. Meanwhile, during the course of 2008, other agencies operating in the field supplied details of accidents in villages that had been surveyed for Phase 1 and where the Village Chief should have implemented the Phase 2 arrangements.

This failure required the NRA to make fresh arrangements which would:

- Ensure that, as rapidly as possible, the NRA has in its possession details of every UXO accident that there has been in the Lao PDR during 2008 and thereafter, up to the time that Phase 2 is implemented
- Ensure that a system is in place whereby the NRA is notified of any UXO accident that occurs at any time thereafter

The Phase 2 Survey is a very different activity to Phase 1.

Phase 1 was designed to visit every village, whether or not there had been an accident there, and locate everyone connected with any UXO accident over the time period since 1964. This would lead to

the collection of information about the accident and, more particularly, about the casualties involved.

From the results of Phase 1, we know that there may be about 200 accidents every year.[19] Perhaps those accidents occur one per village. It would be an extravagant system that repeated the Phase 1 methodology for these purposes, and it would not secure the result, either, since details of accidents occurring following the enumerator's visit would not be collected.

6.2 COLLECTING INFORMATION ABOUT 2008 AND ONGOING

Elements of the system now required for Phase 2 are:

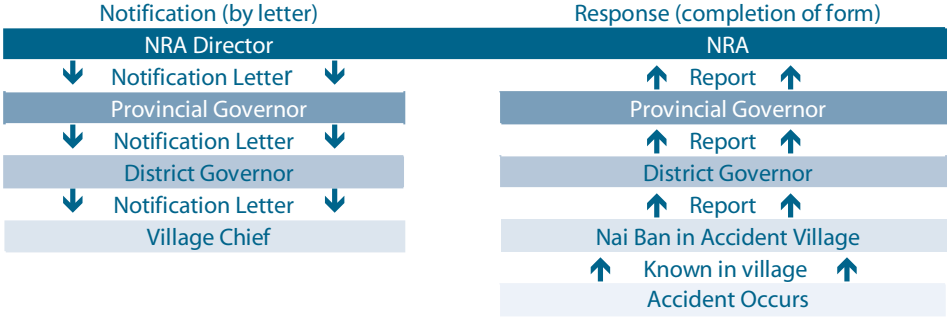
- An existing network to notify the NRA of any UXO accident that occurred during 2008 onwards
- A route through which notification may be made
- Reliable data collectors who can then go into the countryside and visit villages where accidents have occurred, collecting all information, and returning it immediately to the NRA

The system chosen relies on Village Chiefs as primary reporters. The NRA has agreed with the Department of Labour and Social Welfare in each province to appoint a Provincial Focal Point (PFP) for the province. The role of the PFP is to organise a District Focal Point (DFP) in each of the province's districts, who will contact all Village Chiefs and require them:

(a) To complete a simple form stating whether there has been an accident with a UXO in their village at any time since January 1st 2008 (Yes/No)

(b) To send the form back to the DFP as quickly as possible

(c) If, at any time following the completion of the form, an accident occurs within the area of the village, to contact the DFP



[19] There is an average of more than one casualty per accident.

The stationery to be used is as follows here.

REPORT FROM VILLAGE

To be passed from Village Chief, to District Governor to Provincial Governor to NRA.

Village name _____ Village Code _____

District Name _____ District Code _____

Province Name _____ Province Code _____

Has there been an accident with an unexploded ordnance (UXO) in this village since January 1st 2008 YES ☐ NO ☐

If Yes, please give date _____

There were _____ people injured

There were _____ people killed

Signed and sealed

Nai Ban

Date _____

If the DFP receives notification of an accident in any village, then s/he is requested to pass that information to the PFP as rapidly as possible, giving simply the name of the village and the date of the accident. Other information can be provided, such as the number of casualties, but that is not required.

If possible, the contents of this message/form should be passed by telephone, radio or other rapid communication as soon as the accident occurs. When the PFP receives a report from a DFP, s/he is requested to pass it as soon as possible to the NRA VA Unit, which will deploy one of its Victim Assistance Phase 2 Enumerators (VAPE) to visit the village as soon as possible and complete a form describing the accident as well as a form giving details of each casualty (one form per casualty).

In order to defray any expenses that the Village Chief, DFP and PVP may have, a sum of money is offered for the service:

- Village Chief: 50,000 kip for each report
- DFP: 25,000 kip for each report
- PFP: 25,000 kip for each report

This payment is made by the VAPE when they travel to the field to complete the accident and casualty forms.

In order to get this system under way, the NRA has conducted an exploratory meeting with officials from each province and has followed that up with a training session for all PFP and DFP on a sub-regional basis:

- Sekong on 06/07/2009, with PFP and DFP from Sekong, Attapeu and Champasak
- Savannakhet on 08/07/2009 with PFP and DFP from Savannakhet and Saravan
- Khammouane on 10/07/2009 with PFP and DFP from Khammouane Bolikhamxay
- Thalat on 25/09/2009 with PFP and DFP from Vientiane Capital and Vientiane Province
- Samneua on 04/08/2009 with PFP and DFP from Xieng Khouang and Houaphan
- Luang Phrabang on 06/08/2009 with PFP and DFP from Luang Phrabang and Xayabouri
- Luang Namtha on 09/12/2009 with PFP and DFP from Phongsaly, Luang Namtha, Bokeo and Oudomxay

At the time of writing, results are arriving at the NRA from this process. As soon as all villages throughout the country have reported, the results for 2008 will be announced. Thereafter, reports will be made to each VA TWG on accident and casualty numbers month-by-month, as they occur. These results will be placed on the NRA's website and will be sent via e-mail to any interested party.

PART 2

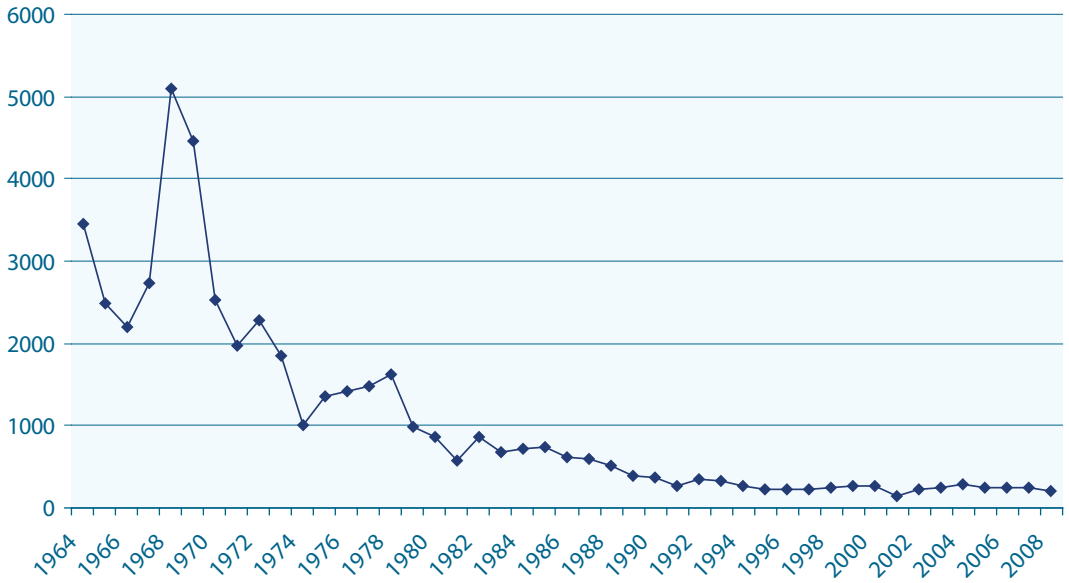
TYPICAL RESULTS FROM THE SURVEY

7. EXAMPLES OF REPORTS FROM PHASE 1

7.1 Numbers of Casualties

The survey data, collected for the period from 1964 to 2008, is dominated by results from the wartime period (1964-1973).

Figure 5: Total Number of Casualties, 1964-2008[20]



We can see the significant annual rate of casualties in the wartime, starting high in 1964, falling and then rising to a peak of over 5,000 in 1968. Thereafter, the rate declined continuously, but it was not until 1973 that it fell below that of the mid-1960s.

The aerial bombardment of Laos began in July 1964: the Paris peace accord with Vietnam was signed in January 1973, but hostilities over Laos did not cease until July of that year. Thus, the period of conflict lasted nine years. However, for ease of data handling, it is easier to regard the whole of 1964 and 1973 as years of conflict, giving two five-year periods, or a single ten-year period of the war years.

When we allocate all of the casualties to individual years, we have a total of 48,375 between 1964 and 2008.[21] Of these, the distribution between conflict and post-conflict years is as follows:

- Conflict 1964-1973 29,070 60.1%
- Post-conflict 1974-2008 19,305 39.9%

[20] Generally, no data are presented for the individual year 2008, since the data available at the time of preparing this report are incomplete for the year. Where those data are aggregated with other years, they are included in the analysis, introducing potential for minor inaccuracies in the aggregates that include the figures.

[21] At the time of preparing this report, there are 48,849 reports verified and on the database: this is 1,287 less than the number of casualty forms recorded as having been completed: The difference is due, for example, to forms that are recorded as complete but are still held by PVAT in the provinces. For any one analysis shown in this section, the result will almost always be less than 48,849 because of data issues. Thus, there are 48,375 in total between the years 1964 and 2008: the balance of 474 is accounted for by returns dated earlier than 1964 or later than 2008.

This shows that the number of wartime casualties were 60% of the total. In this Section, it will be seen how this distribution can bias the result from the whole population.

7.2 Casualties Killed and Injured

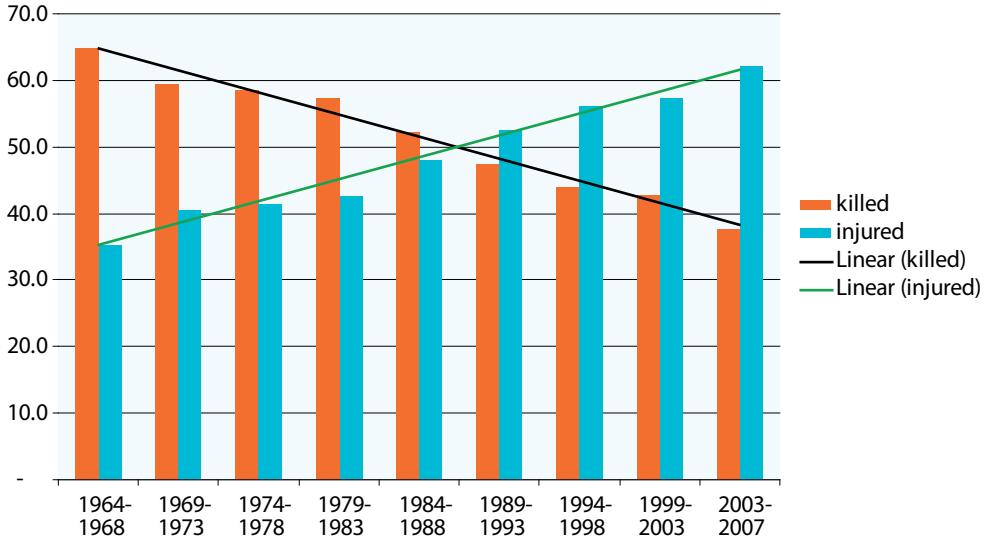
One example is the distribution between killed and injured:

- Killed 28,377 58.7%
- Injured 19,998 41.3%

Simply looking at the entire sample will lead one to expect that almost 60% of all casualties die as a result of the accident, and that only 40% survive.

Examining the distribution, for the nation, between killed and injured over time shows us a very different perspective:

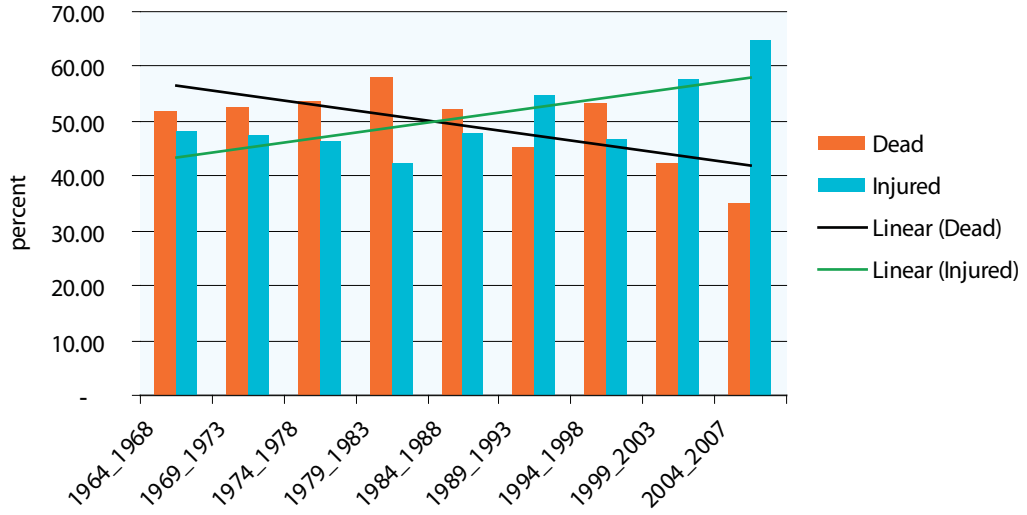
Figure 6: Percentage Killed and Injured: Lao PDR, 1964-2007



The ratio of killed to injured has, effectively, reversed over the period covered by the survey. Whilst the numbers suffering an accident have fallen dramatically (from over 3,000 per annum during the early war years to about 260 per annum in more recent time), the proportion killed has dropped from almost 65% to well under 40%, whilst the percent injured has progressed in the opposite way. We can only speculate about the causes of this, but would suspect that it is likely that villagers have learned safer habits, that emergency medical responses have improved and that time to get to hospital has fallen.

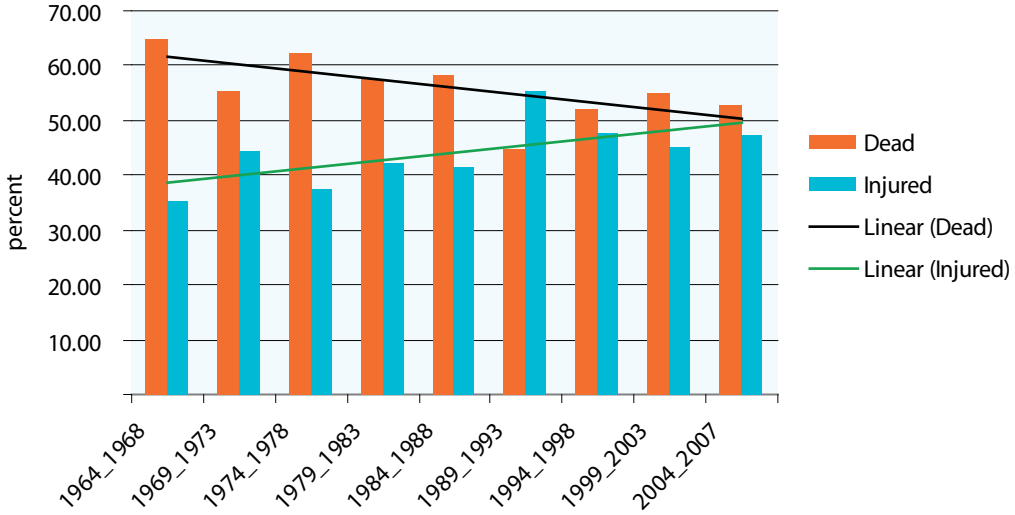
This result is reflected in the provinces around the country, but it is not always as neat and well defined, as is shown by the Bolikhamxay results.

Figure 7: Percentage Killed and Injured: Bolikhamxay Province, 1964-2007



On the other hand, it seems that results from Khammouane are only just reaching the cross-over point (see Figure 8). This analysis is revealing and can be repeated for every province – and indeed, for districts which are contaminated. The results tell us that there are factors at work which make some places more dangerous to encounter UXO: it is still more likely that a person having a UXO accident will die in Khammouane than in Bolikhamxay. The reasons for this are not known and strongly invite investigation.

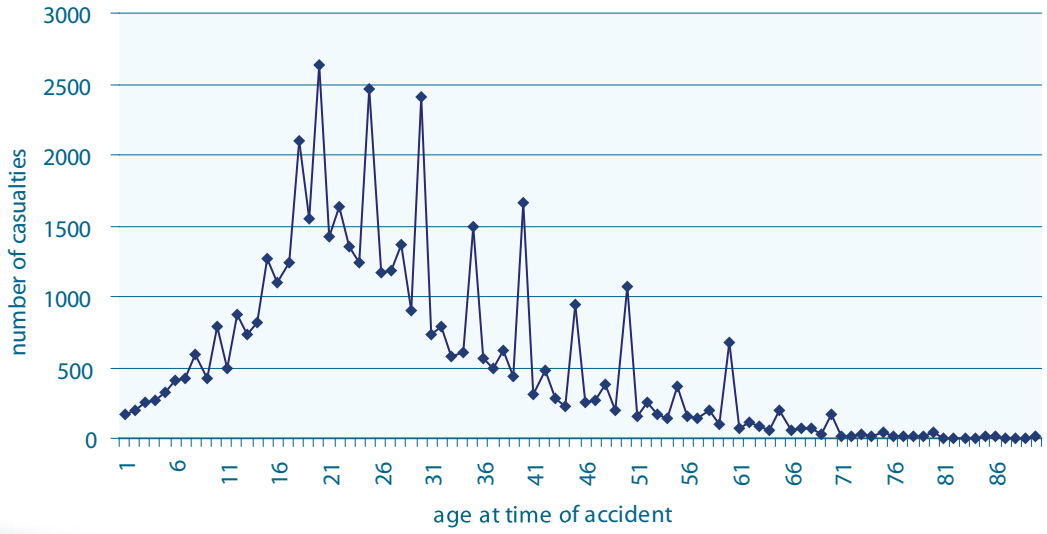
Figure 8: Percentage Killed and Injured: Khammouan Province, 1964-2007



7.3 Age and Gender of Casualties

The record of age at the time of accident yields some interesting results, as seen in the Figure 9.

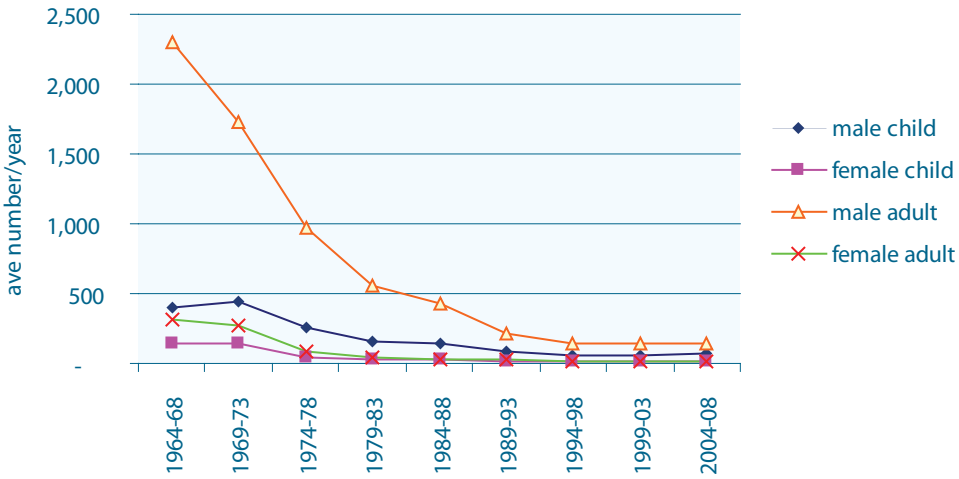
Figure 9: Total Number of Casualties by Age at Time of Accident, 1964-2007



It would be expected that the bulk of UXO casualties would be between 15 and 35, and this, indeed, is what the graph shows. What it also shows is an interesting saw-tooth pattern: investigation reveals that the regular peaks occur at ages 15, 20, 25, 30, 35, 40, 45 etc. Bearing in mind that 60% or more of the casualty forms will have been completed by people other than the casualty, this implies that the age of the victim was not accurately known and that respondents suggest that the person was 'about 30'. There are also secondary peaks in the dataset, at the 2 and 8 marks (i.e. 22, 32, and 28, 38) suggesting that where the answer is 'between 20 and 25', the DE tends to select 22, whilst for a response of 'between 25 and 30, it is 28 that is chosen.

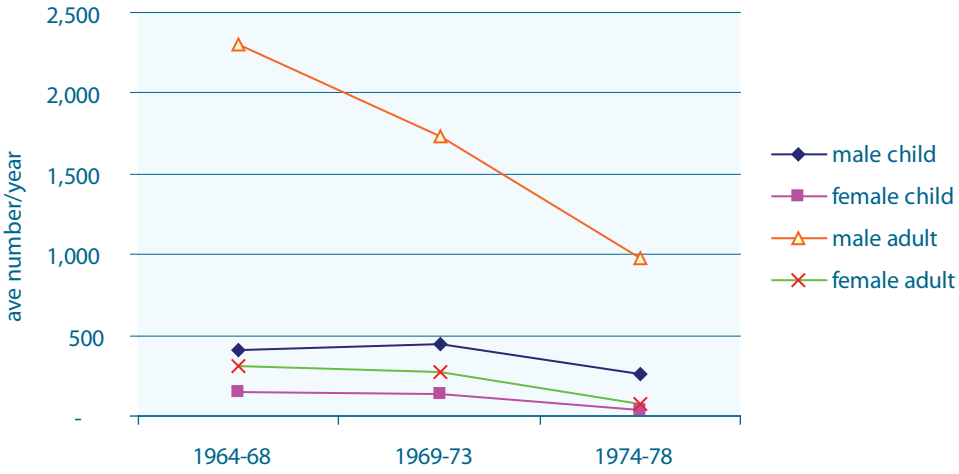
If the data are presented over the whole time period for groups such as male and female adults and children, the magnitude of the figures in the early years can overwhelm the details in later years, as is shown in Figure 10.

Figure 10: Numbers of Casualties by Age and Gender, 1964-2008



This figure represents the obvious dominance of adult males in the casualty numbers over the period, but gives little indication of changes in recent years. Distinctions can be made clearer by dividing the statistics into the conflict and immediate post-conflict period (Figure 11) and the later post-conflict period (Figure 12).

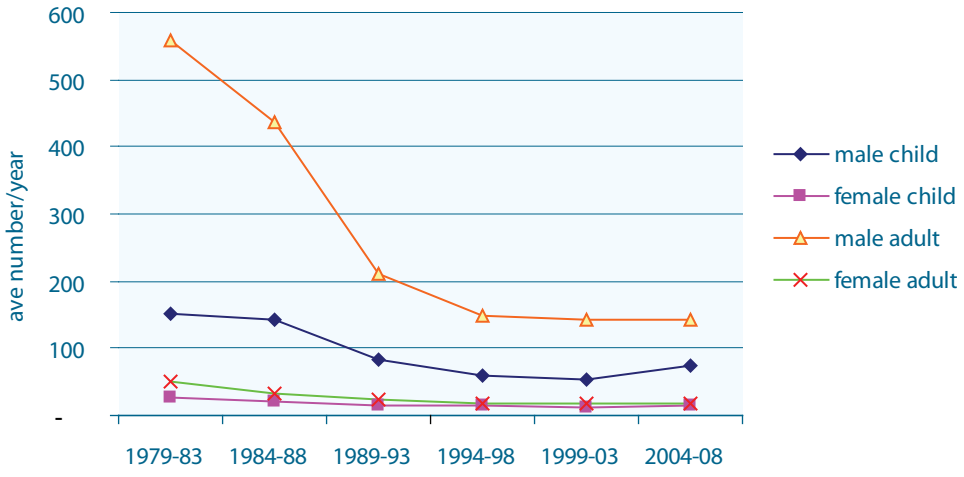
Figure 11: Numbers of Casualties by Age and Gender, 1964-1978



Here we see more clearly the magnitude of adult male casualty numbers, and also their steep decline. Boys, under 18 years of age, are the second most numerous group, but do not show the same decline. Women and girls (under 18) are next and decline to very low numbers by the end of the period 1974-79.

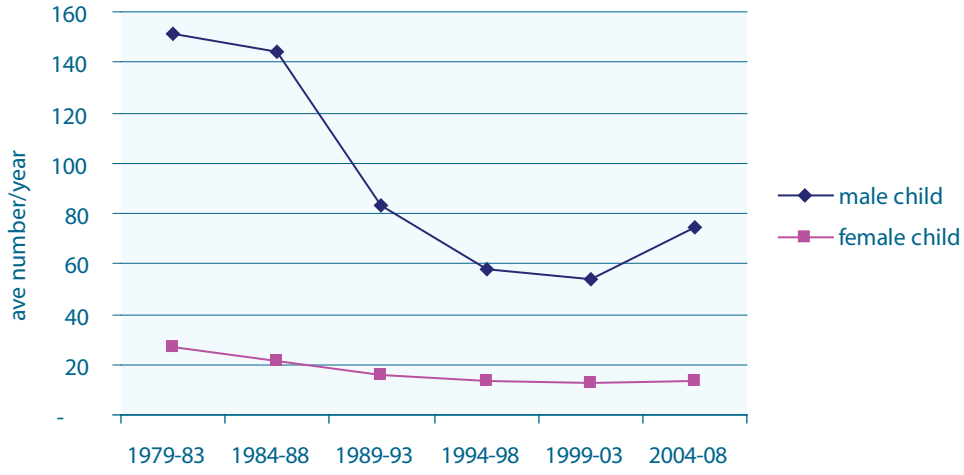
Using an analysis based on groups of years has the advantage of smoothing out year-to-year fluctuations.

Figure 12: Numbers of Casualties by Age and Gender, 1979-2008



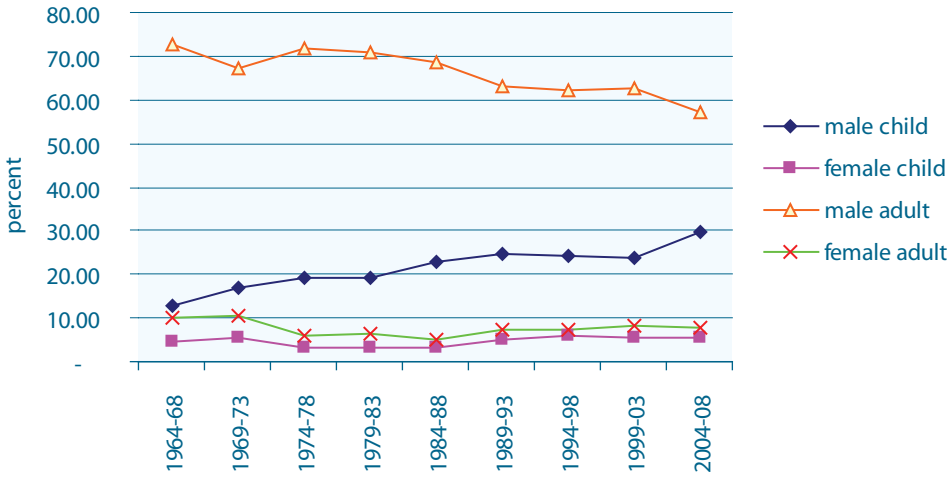
In Figure 10, the figures for male adults still dominates the series, although it can be seen that the numbers of boys is actually increasing towards the end of the series. If children alone are represented over this last 30-year period, this rise in numbers can be seen in both boys and girls (Figure 13).

Figure 13: Numbers of Casualties, Boys and Girls, 1979-2008



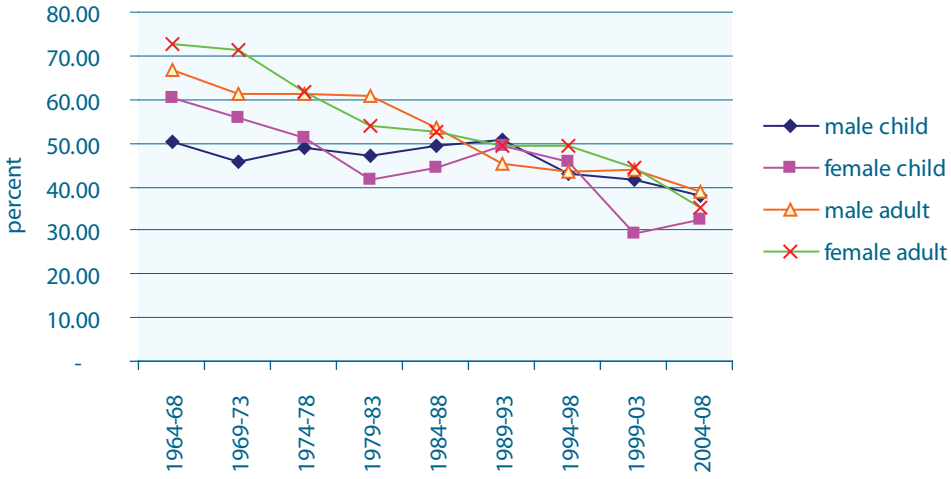
The results in this section have so far been presented simply as numbers. A different perspective can be gained by seeing percentage distributions over time, as was seen in Figures 6, 7 and 8 above. Figure 14 below shows the percentage distribution of adults and children casualties, by gender. Over the years, the proportion of all victims represented by adult men has declined from over 70% to below 60% - a decline of about 16%. Meanwhile, the proportion of casualties represented by women and girls has remained relatively static at below 10% and 5% respectively. The growth that has replaced the decline in men victims has been steady and consistent and has occurred in the proportion of boys, which has increased from around 13% to almost 30%. These statistics tell us that it is the male population that is most at risk and that boys should be targeted with risk education messages.

Figure 14: Percentage of Casualties, by Gender and Age, 1964-2008



The data in Figure 15 concern the impact of uxo accidents on men women, boys and girls. What proportion of those involved with a UXO accident die as a result? Is there a differential propensity to survive following a UXO accident?

Figure 15: Percentage of Casualties Dying as a result of UXO Accidents, by Gender and Age, 1964-2008



Whilst there is some change-over in the mid-1990s, the data are generally consistent in the messages that they deliver:

- There is a strongly increasing tendency to survive accidents amongst all groups (illustrated by the downward sloping lines from left to right in all groups)
- Women are more likely to die from a UXO accident than other groups
- Girls have a slightly greater propensity to survive than boys

- And this is the remarkably surprising result: adults are more likely to die than children as a result of a UXO accident

This exploration of the effects of UXO accidents by age and gender is but a start. There are many other aspects to be explored – impact of different types of UXO by age and gender, for example; occupation of casualties before the accident, activities at the time of the accident, location of the accident, and so forth.

7.4 Activities of Casualties at the Time of the Accident

When we examine what people were doing at the time of the accident, with the range of activities offered on the questionnaire, we get the results in Table 6.

Table 6: Activity of Casualties at Time of Accident, 1964-2008

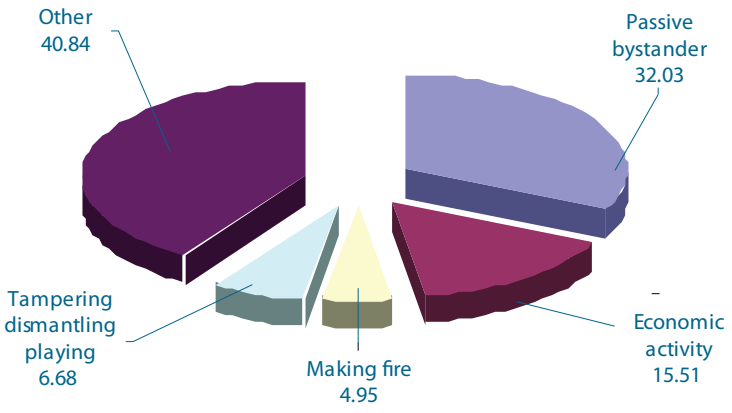
Activity	No	%
Bystander/Spectator	2,578	5.35
Doing Nothing/Exploded Beside Victim	2,429	5.04
Travelling, But Not Transporting UXO	8,635	17.92
Disturbed By Animals	1,789	3.71
Collecting Food/Forest Products/Wood	2,857	5.93
Cutting Vegetation	1,372	2.85
Farming/Gardening	894	1.86
Digging	2,349	4.88
Making Fire	2,383	4.95
Playing	1,116	2.32
Collecting Scrap Metal	182	0.38
Tampering/Defusing/Dismantling UXO	1,919	3.98
Other	19,673	40.84
Total	48,176	100.00

These results, too, are counter-intuitive. It is difficult to understand how the range of answers offered was so narrow that it justified over 40% replying with 'Other'. Three possibilities arise:

- Respondents (on behalf of casualties not present) did not know what the casualty was doing at the time of the accident and the questionnaire failed to offer this response so that 'Other' was chosen
- Respondents were not prepared to reply with a more damning – though accurate – response of 'Collecting scrap metal' or 'Tampering, defusing or dismantling UXO' and selected the 'Other' option as a way out
- There truly are many other options that the VA Unit failed to anticipate in constructing the questionnaire

Even when we group the results, as in in the colouring of the table above, the 'Other' category is still overwhelmingly dominant (see Figure 16).

Figure 16: Activity of Casualties at Time of Accident (percent), 1964-2008



Again, there are advantages in examining changes that occur in activities over time.

Figure 17: Activity of Casualties at Time of Accident, over Time, 1964-2007

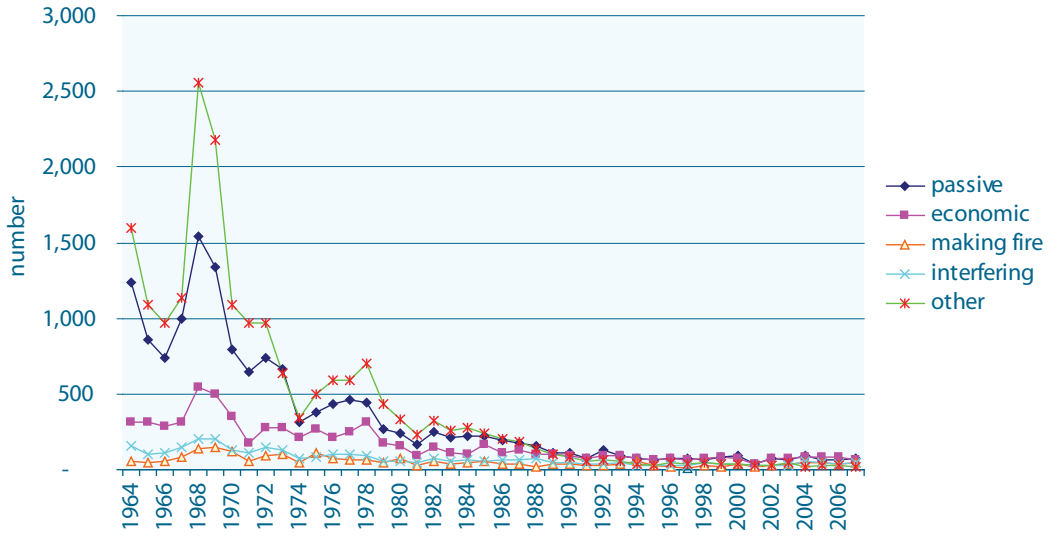
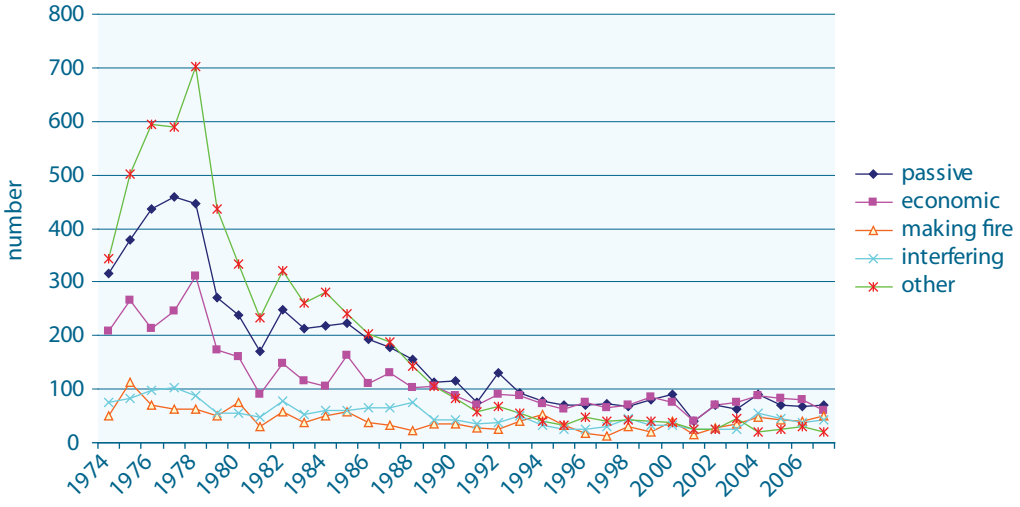


Figure 17 shows the way in which the 'Other' category dominated in the early years, but fell away rapidly once the conflict ended, in common with the 'Passive' group. However, we are not able to gain any real understanding of what has happened more recently because the scale of the graph demanded by the magnitude of conflict-era figures does not allow an appreciation of the more recent finer detail. In these circumstances, it helps understanding of the changes that have taken place to simply focus on post-conflict data, as is shown in Figure 18.

Figure 18: Activity of Casualties at Time of Accident, over Time, 1974-2007



This shows that 'Passive' and 'Economic' activities, at the time of the accident, are becoming more important with the passage of time, and that the ill-defined group of 'Other' is declining in significance, thus sending clearer messages for the emphasis of risk education. But, despite the removal of the first ten years' data, the distinction between different groups of activities is still unclear and a further reduction in the time period is helpful.

Figure 19: Activity of Casualties at Time of Accident, over Time, 1988-2007

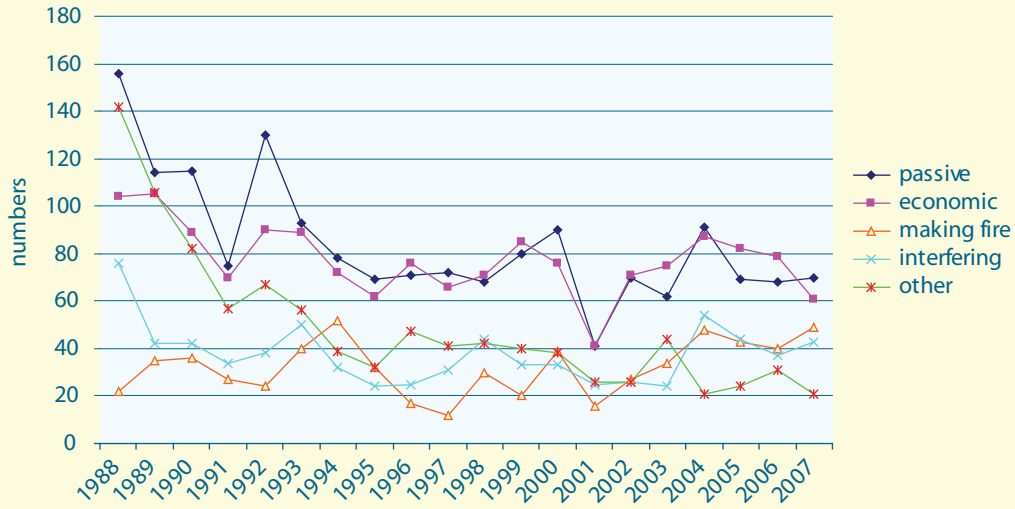
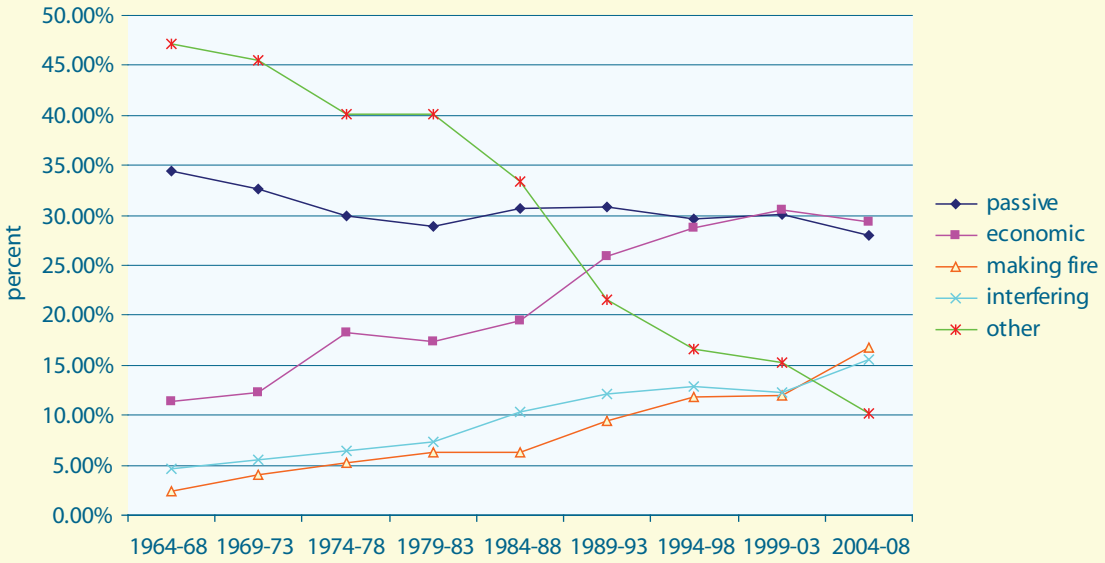


Figure 19 shows the results for the period 1988 to 2007 only. The 'Other' category can now be seen as the least important in the last few years, whilst 'Interfering' (especially) and 'Making fire' have remained relatively unimportant, contrary to expectations.

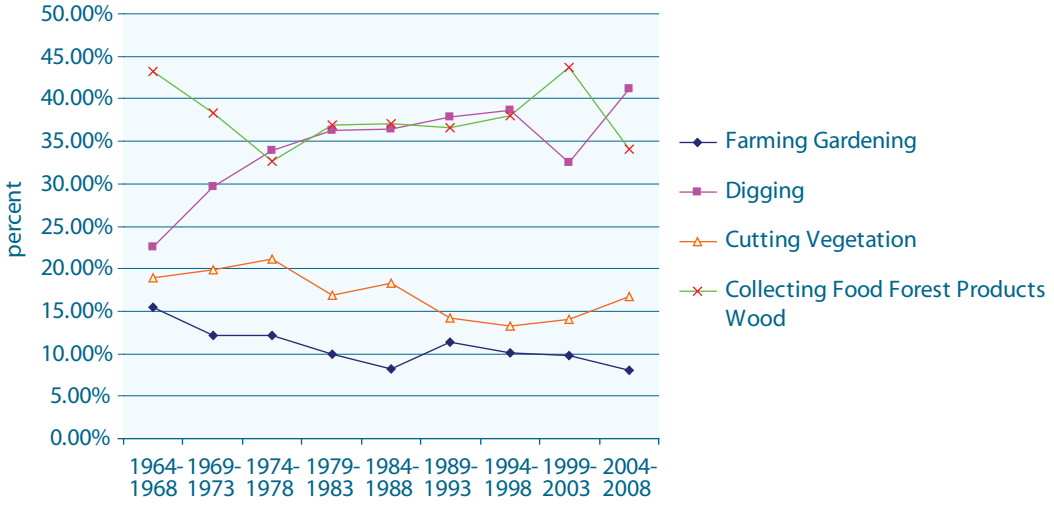
It is instructive, in examining this characteristic, to investigate the relative distribution of the different activities over time, and Figure 20 does this. The use of groups of years helps to smooth out year-to-year variations which distract from the overall trend.

Figure 20: Percent Distribution of Main Groups of Activities at Time of Accident, 1964-2007



The decline in unspecified 'Other' activities is now very clear, as is the continuing dominance of 'Passive' activities. Meanwhile 'Economic' activities have increased in importance over the years, as have – although to a lesser extent – 'Making a fire' and 'Interfering'. It becomes safe to draw the conclusion that the chief reason for the magnitude of the 'Other' category has been a lack of knowledge amongst those reporting accidents whose victims are no longer living, and that recent distributions are likely to be more representative.

Figure 21: Percent Distribution of Economic Activities at Time of Accidents, 1964-2007



Using the percentage distribution of these activities over time gives a much clearer indication of these trends.

All of these statistics for activities at the time of the accident can be broken down and examined more closely. So, for example, it is instructive to see the movement in the constituent activities of the group 'Economic' activities. See Figure 21.

Over time, proportionately fewer people have become casualties as a result of 'Farming and gardening' activities, and from 'Cutting vegetation'. 'Collecting food, forest products and wood' has continued as a high risk activity amongst these economic occupations, and 'Digging' has increased in riskiness over the period. It is difficult to know, from the data and analysis performed, whether the digging referred to formed any part of farming and/or gardening.

7.5 UXO Involved in Accidents

The analysis here relates to the number/percent of casualties and not to the number/percent of accidents.

Figure 22: Percent Distribution of Type of UXO Involved in Accidents, 1964-2008

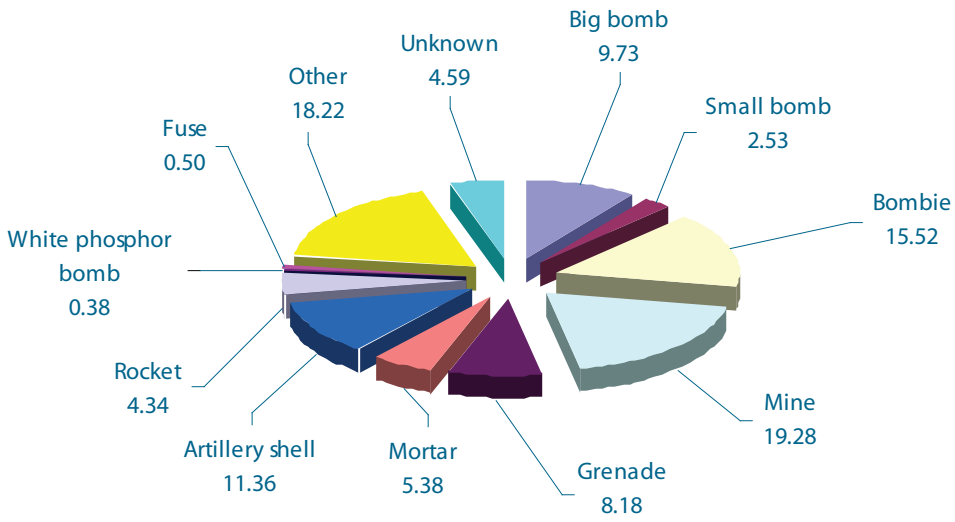
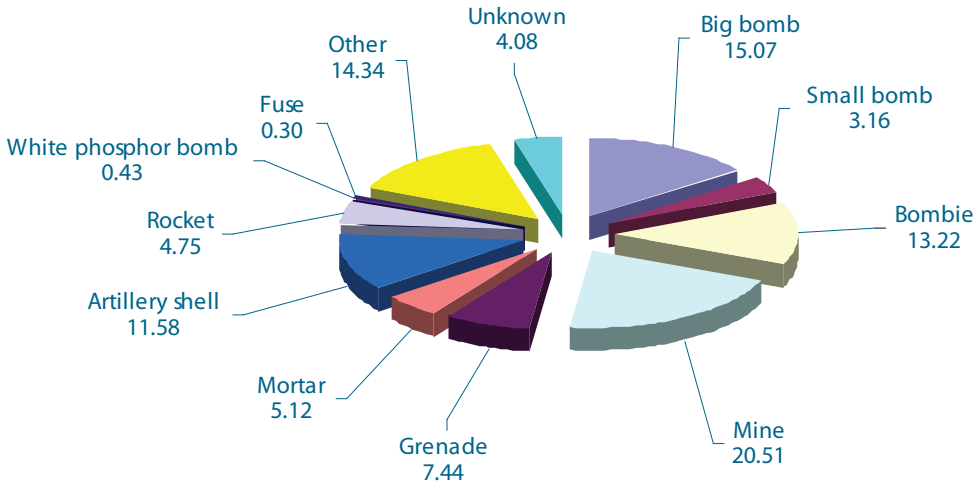


Figure 22 shows the relative importance of different types of devices causing UXO accidents in Lao PDR. Surprising is the high proportion of mines (19.28%), as well as artillery shells (11.36%) and, by comparison the lower-than-expected importance of bombies (15.52%).

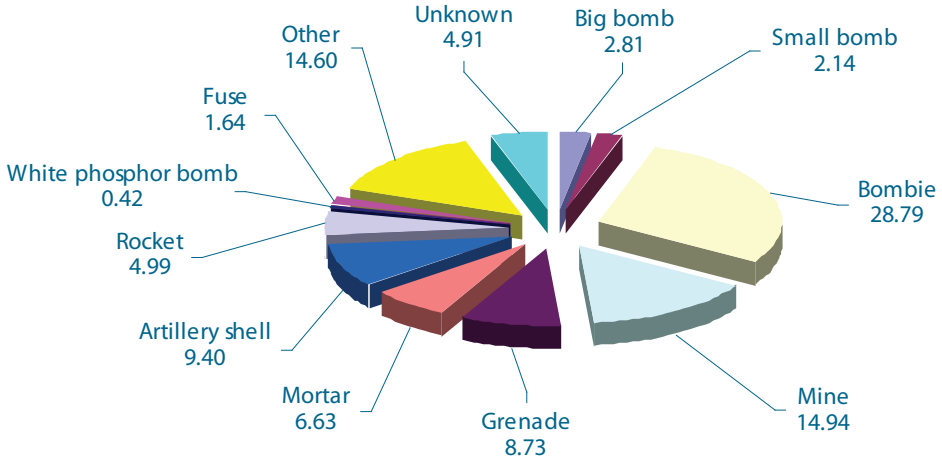
Inevitably, the type of device causing the accident also changes markedly over time. Examining the distribution during the conflict years gives the results shown in Figure 23.

Figure 23: Percent Distribution of Type of UXO Involved in Accidents, 1964-1973



Big bombs were especially important during the conflict years, claiming over 15% of the casualties, whilst bombies accounted for only 13%. Artillery shells were more important, too, as might be expected of a period of conflict. Mines involved over 20% of victims and it is thought that this figure probably includes those affected by gravel mines as well as a number of respondents who automatically stated that the accident was with a mine, regardless of the type of device.

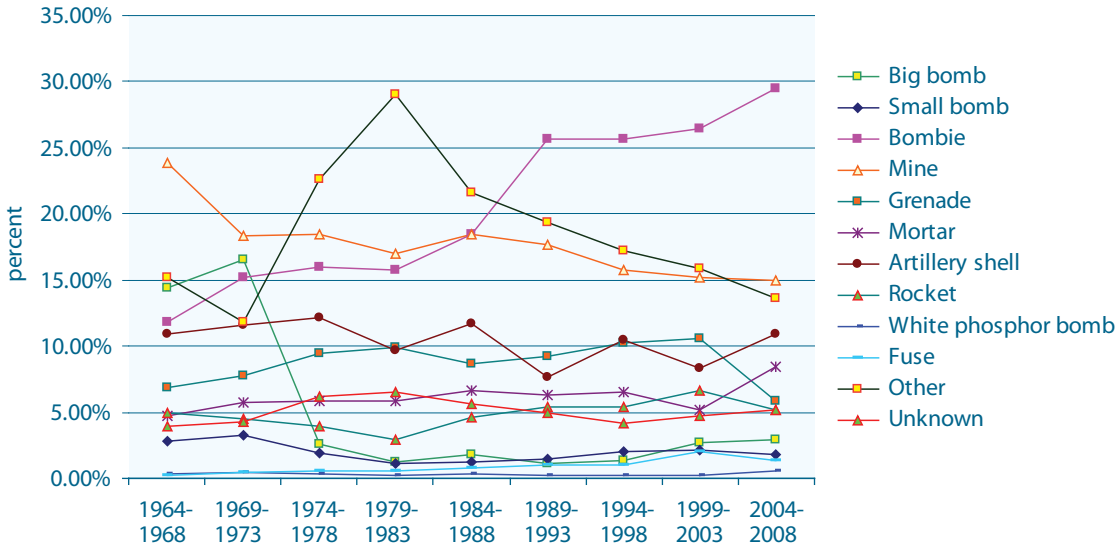
Figure 24: Percent Distribution of Type of UXO Involved in Accidents, 1999-2008



In more recent times, the distribution has changed significantly: big bombs and small bombs have become relatively unimportant in accidents, whilst bombies make up the biggest category.

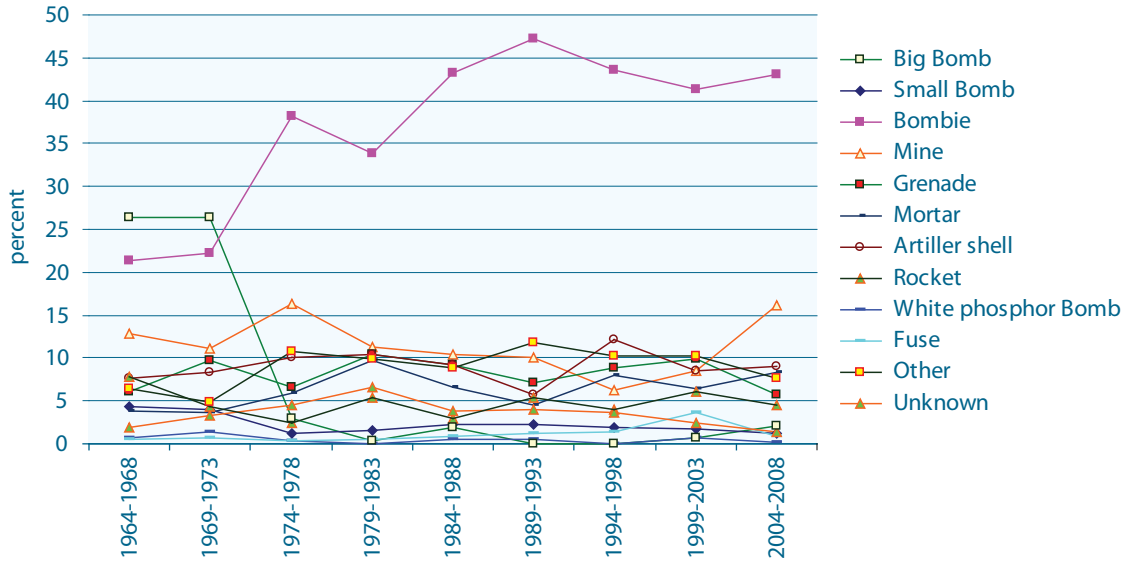
These changes over time are shown in more continuous manner in Figure 25, where the emergence of bombies as the most important source of UXO casualties, by far, is apparent. The steep decline in prevalence of big bombs is shown, as is the modest reduction in mines and the early increase and later decline in the 'Other' category.

Figure 25: Changing Relative Importance of Device Causing Accidents, 1964-2008



Finally under this head, it is possible to look at the manner in which UXO differentially impact on particular groups. In Figure 26, we spotlight only the interaction of UXO on children and students. The graph shows the percentage of accidents in the average year at the time, due to any particular type of UXO.

Figure 26: Percent Distribution of Device Causing Accidents to Children and Students, 1964-2008



During the conflict years, young people were susceptible to accidents with big bombs, but these fell away in importance very rapidly once the conflict had ended. Meanwhile, bombies assumed over-arching importance and have maintained that position over the years. Also of note has been the effect

of mines: these have not had the same level of impact on children and students as they have on some other groups, but they have continued as an important minority device.

An important part of the Phase 1 survey was to establish whether the casualty was killed or injured, as has been discussed above. The information about those killed and those injured can be examined against any characteristic in the survey, so that it is possible to discover what type of behaviour is more (killed) or less (injured) risky than others. That type of analysis can be applied, too, to the type of device. Which devices are more likely to cause death and which injury? It will not come as any surprise to see, in Table 7, that it is much more likely that an accident with a big bomb will lead to death than for any other form of device. After that, small bombs are the most lethal. Least likely to lead to death are accidents with fuses followed by white phosphor bombs.

Table 7: Death vs Injury Caused by UXO

Device	Percent of Casualties	
	injured	killed
Big bomb	29.92	70.08
Small bomb	36.42	63.58
Bombie	43.73	56.27
Mine	43.16	56.84
Grenade	52.24	47.76
Mortar	49.29	50.71
Artillery shell	43.82	56.18
Rocket	42.61	57.39
White phosphor bomb	54.55	45.45
Fuse	68.25	31.75
Other	41.16	58.84
Unknown	35.09	64.91
	42.32	57.68

7.6 Occupation of Casualty

In the Survey, 17 different occupational areas were identified in the Victim form check-boxes. Table 8 shows the full list of occupations, and also whether they were killed or injured in the accident.

First, many of the predetermined occupations are almost entirely unpopulated in this sample, or populated with very low numbers. Soldiers make up the largest single sector of casualties, at 45% of all casualties. Next are farmers, at nearly 35%, giving a total of 80% between them. Taking students and children together yields almost a further 13%. Apart from government workers and 'Other', no other occupation rates more than 1%.

When the distribution between killed and injured is examined[22], retired people have the lowest likelihood to be killed, and foresters the highest. Housewives and farmers are also more at risk of death than most other groups. The unemployed, government workers and soldiers are also relatively at risk.

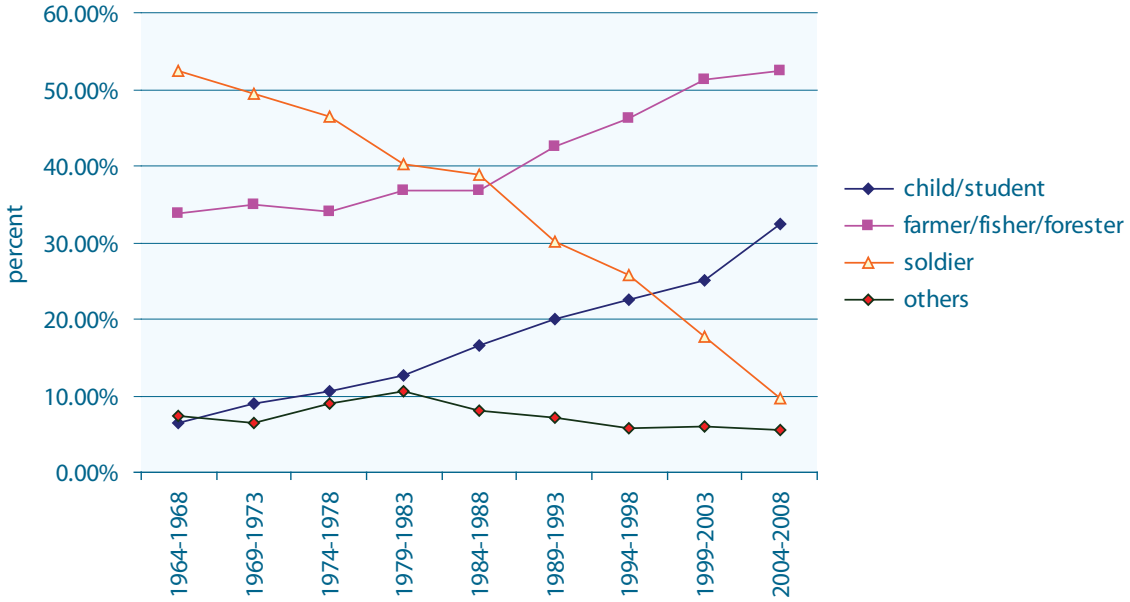
[22] In these observations, miners are not taken into account.

Table 8: Distribution of Occupations amongst UXO Casualties, 1964-2008

Occupation	number			percent		
	injured	killed	total	injured	killed	total
Child	1264	1788	3052	41.42%	58.58%	6.35%
Student	1431	1738	3169	45.16%	54.84%	6.59%
Teacher	147	129	276	53.26%	46.74%	0.57%
Health Worker	70	77	147	47.62%	52.38%	0.31%
Housewife	117	204	321	36.45%	63.55%	0.67%
Farmer	5881	10714	16595	35.44%	64.56%	34.53%
Fisherman	18	16	34	52.94%	47.06%	0.07%
Forester	9	37	46	19.57%	80.43%	0.10%
Labourer	147	139	286	51.40%	48.60%	0.60%
Miner	1		1	100.00%	0.00%	0.00%
Government	432	624	1056	40.91%	59.09%	2.20%
Soldier	9804	11835	21639	45.31%	54.69%	45.03%
Shopkeeper	46	36	82	56.10%	43.90%	0.17%
Scrap Metal Trader	3	2	5	60.00%	40.00%	0.01%
Retired	10	4	14	71.43%	28.57%	0.03%
Unemployed	33	59	92	35.87%	64.13%	0.19%
Other	501	741	1242	40.34%	59.66%	2.58%
Total	19914	28143	48057	41.44%	58.56%	100.00%

For any organisation planning UXO/mine risk education activities, these statistics give important indicators about target groups. They can, of course, be refined. Have these predominant groups always had the same importance? In Figure 27, children and students are grouped together, as are farmers, fishermen and foresters; soldiers have their own designation, but all 11 other occupations are grouped together.

Figure 27: Percent Distribution of UXO casualties in Occupational Groups, 1964-2008



Soldiers were an important casualty group during the conflict and for some time thereafter, but they have declined from above 50% of casualties to below 10% today. In the opposite direction, farmers and allied occupations have grown to occupy the dominant position, with more than 50% of all casualties, and children and students have shadowed them until they constitute more than 30% of all casualties.

If the intention is to target the most affected groups with a risk education message, then this is an important step along that route. Risk-education messages can be aimed at three groups and achieve more than 90% of all at-risk occupations.

7.7 Micro-Location of Accidents

In this section the type of location of accidents is discussed, as opposed to the more general province, district, and village. Here we look at locations in terms of the type of environment in which accidents have happened – forest, paddy rice, rural road, village, house – in order to establish the environments where people are most at risk

Here the results are presented in tabular format. Of course, all of these variables can be presented in the different ways already discussed, including geographically, in map form.

By far the largest response for the location of where the accident took place (Table 9) is 'Forest', which accounts for 30% of responses. This often means that the casualty was some way from the village, and that a village cannot be cited as the location, making it difficult to identify the accident by location (that is, province, district and village code as an indicator of the accident location). About another 30% are attributable to one place or another in the village, and approaching 15% on farmland. Almost 5% of all casualties report the accident in the house: it is possible that, in these cases, the victims were dismantling a device when it exploded, although there are records of UXO explosions under cooking fires, in homes with dirt floors

Table 9: Location of Accidents, 1964-2008

Where the accident happened	number of casualties	%
Lowland rice	3,458	7.2
Upland rice	2,125	4.4
Pasture	1,076	2.2
Fish pond	147	0.3
On/near riverbank	2,847	5.9
River	1,324	2.8
Forest	14,247	29.7
Path in village	450	0.9
Road in village	499	1.0
In village	6,991	14.6
In house	2,201	4.6
Path outside village	4,067	8.5
Road outside village	705	1.5
Demolition site	23	0.0
Government building area	55	0.1
Military camp	4,534	9.5
Other	2,670	5.6
Do not know	440	0.9
UXO clearance site	31	0.1
Total	47,890	100.0

7.8 Injuries Sustained by Survivors

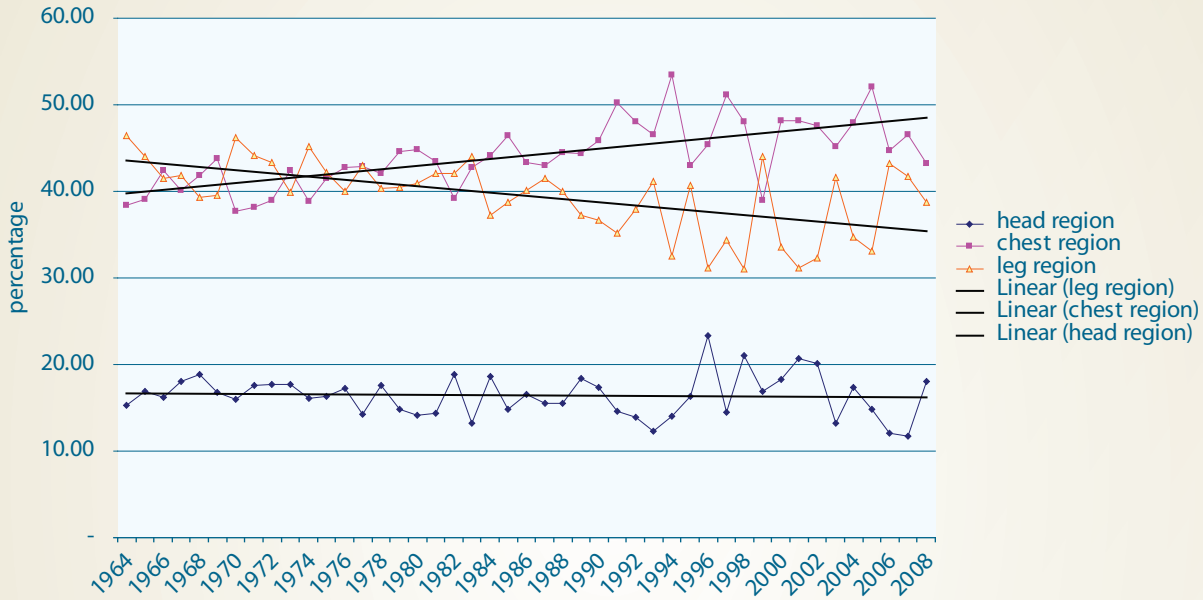
Table 10 contains a very simplified presentation of data collected on injuries sustained by surviving casualties (20,221 – indicating an average of about 1.5 injuries per survivor). Below-knee injuries represent the single biggest group, and arm or upper limb the second biggest. No other form of injury comes above 10% of all injuries.

Table 10: Injuries Recorded in Certain Body Areas: All records 1964-2008

Injury to	number of injuries recorded	%
Head or neck	2,020	6.76
Eyesight	2,065	6.91
Hearing	1,269	4.25
Arm or	5,289	17.70
Hand	2,442	8.17
Chest	1,576	5.27
Back	1,923	6.43
Abdomen	1,327	4.44
Pelvis/buttock	1,038	3.47
Above knee	2,205	7.38
Below knee/lower limb	7,755	25.95
Foot	977	3.27
Total	29,886	100.00

Looking at the distribution over time (Figure 28) it can be seen that injuries in the head region have been relatively constant at below 20% of all injuries in the period 1964-2008, whilst injuries in the chest region have increased from about 40% to almost 50% of all injuries, and those in the leg region have declined from about 44% to about 36%. These changes probably reflect the declining impact of landmines and the increasing incidence of bombie accidents – bombies leading to more high level injuries.

Figure 28: Percent Distribution of Injuries to Major Regions of the Body, 1964-2008



7.9 Injuries Requiring Prostheses

A total of 13,835 survivors have lost a combined 18,200 limbs. The distribution is given in Table 11.

Table 11: Distribution of Limb Loss Amongst Survivors, 1964-2008

Limbs lost/survivor	Survivors		Limbs lost	
	No	%	No	%
1 limb	10,224	73.90	10,224	56.18
2 limbs	2,998	21.67	5,996	32.95
3 limbs	472	3.41	1,416	7.78
4 limbs	141	1.02	564	3.10
Total	13,835	100.00	18,200	100.00

Almost three-quarters of all UXO amputees have lost a single limb and more than one-fifth have lost two. Less than five percent have lost more than two limbs. The following table shows the distribution for those who have lost one limb.

Table 12: Distribution of Limbs Lost by those who Have Lost One Limb, 1964-2008

Amputation	Numbers		Percentages	
Upper Limb Amputees				
Left arm	1,453		14.21	
Right arm	1,225	2,678	11.98	64.19
Left hand	853		8.34	-
Right arm	641	1,494	6.27	35.81
Upper Limb Subtotal	4,172	4,172	40.81	100.00
Lower Limb Amputees				
Left leg	1,303		12.74	-
Right leg	1,058	2,361	10.35	39.01
Left AK	683		6.68	-
Right AK	574	1,257	5.61	20.77
Left BK	967		9.46	-
Right BK	837	1,804	8.19	29.81
Left foot	320		3.13	-
Right foot	310	630	3.03	10.41
Lower Limb Subtotal	6,052	6,052	59.19	100.00
Overall Total	**10,224**			

About 40% have lost an upper limb and 60% a lower limb. Almost two thirds of those losing an upper limb have lost their arm, and one third their hand. The most common lower limb to lose is the whole leg: survivors have lost their legs in greater numbers than those who lost a leg above the knee or below the knee, and this does not accord with practical observation. It is considered, therefore, that many of those who responded that they had lost their entire leg had, in fact, been amputated below or above the knee. There is no information available on this that would lead to reallocation of those figures to other categories. A somewhat higher proportion of lower limb amputees are below-knee than above knee.

The total number of amputees with a double amputation is 2,998, with 5,996 amputations.

Table 13: Distribution of Limbs Lost by those who Have Lost Two Limbs, 1964-2008

Amputation	amputations		survivors
	No	%	%
left arm	941	15.69	31.39
right arm	735	12.26	24.52
t hand	381	6.35	12.71
right hand	352	5.87	11.74
left leg	813	13.56	27.12
right leg	719	11.99	23.98
left AK	408	6.80	13.61
right AK	366	6.10	12.21
left BK	506	8.44	16.88
right BK	477	7.96	15.91
left foot	159	2.65	5.30
right foot	139	2.32	4.64
Totals	5,996	100.00	

Again, upper limb amputations accounted for about 40% of the total and lower limb for 60%. Also, the predominance of leg amputations amongst the lower limb amputations is noticeable once more.

There are 52 combinations of two amputations possible with the range of individual amputations shown in the table without axiomatic combinations (e.g, left arm, left hand). The largest single combination accounts for just 10% of the total.

Table 14: Combinations of Limb-loss by those who Have Lost Two Limbs, 1964-2008

POSITION	COMB	NO	POSITION	COMB	NO	POSITION	COMB	NO
1	LL+ RL	298	19	RA+LH	51	37	RH+RAK	24
2	LA + LL	224	20	LA+RH	49	38	LBK+RF	22
3	LA+RA	167	21	LH+LL	46	39	LH+LF	21
4	LBK+RBK	163	22	LL+RAK	46	40	RL+LAK	19
5	RA+RL	150	23	LH+LBK	45	41	LL+RF	18
6	LA+RL	119	24	LA+RBK	43	42	LA+RF	15
7	LA+LAK	118	25	RH+RBK	42	43	RA+LF	15
8	LA+RBK	113	26	RH+RL	40	44	LAK+RF	15
9	LAK+RAK	111	27	LH+LAK	38	45	RAK+LF	15
10	RH+LH	96	28	LAK+RBK	37	46	RBK+LF	15
11	RA+RBK	90	29	RH+LL	37	47	RH+LAK	14
12	RA+LL	83	30	RF+LF	35	48	RA+RF	13
13	LL+RBK	61	31	LA+LF	34	49	RH+RF	13
14	LA+RBK	59	32	RAK+LBK	29	50	RH+LF	12
15	RA+RAK	57	33	RH+LBK	26	51	RL+LF	12
16	RA+LAK	56	34	LH+RL	25	52	LH+RF	8
17	RL+LBK	56	35	LH+RAK	25			
18	RA+LBK	53	36	RH+LBK	25			

This analysis shows that double amputations of left and right limbs of the same type appear to be relatively more common that amputations of dissimilar limbs. With the exception of right foot and left foot, all the five other left/right amputations are in the first ten incidents.

Three-limb amputees (472) are fortunately much less numerous than single-limb or double amputees.

Table 15: Distribution of Limbs Lost by those who Have Lost Three Limbs, 1964-2008

Limb	Number of amputations	Percent	
		amputations	limbs
Left arm	243	17.16	51.48
Right arm	198	13.98	41.95
Left hand	98	6.92	20.76
Right hand	93	6.57	19.70
Left leg	168	11.86	35.59
Right leg	162	11.44	34.32
Left AK	98	6.92	20.76
Right AK	92	6.50	19.49
Left BK	107	7.56	22.67
Right BK	94	6.64	19.92
Left foot	28	1.98	5.93
Right foot	35	2.47	7.42

No analysis has been made of combinations of three amputations. The number would be too lengthy to carry any meaning. What can be said is that of the 472 triple amputees, 160 (34%) have lost two upper limbs and 312 (66%) have lost two lower limbs. The 160 who have lost two upper limbs have inevitably lost one lower limb, and the converse for the 312.

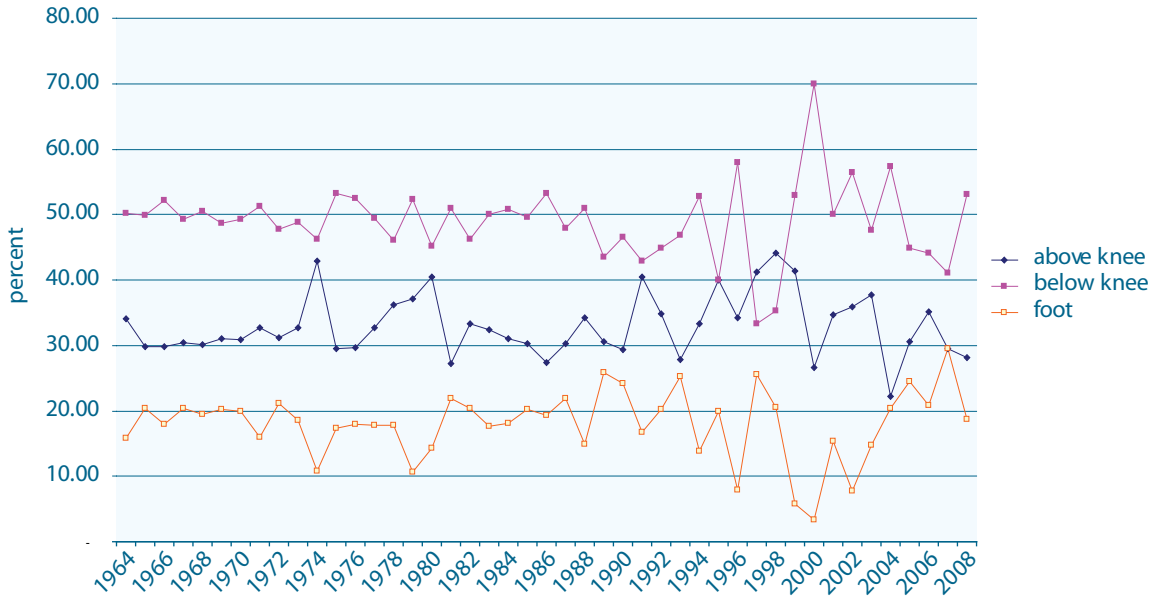
There are 141 quadruple amputees – people who have all lost two upper limbs and two lower limbs. In extreme cases these people have lost their arms and their legs: there are 50 in this category.

Table 16: Distribution of Limbs Lost by those who Have Lost Four Limbs, 1964-2008

Limb	Number of amputation	Percent	
		amputations	limbs
Left arm	109	19.33	77.30
Right arm	106	18.79	75.18
Left hand	32	5.67	22.70
Right hand	35	6.21	24.82
Left leg	86	15.25	60.99
Right leg	78	13.83	55.32
Left AK	20	3.55	14.18
Right AK	23	4.08	16.31
Left BK	25	4.43	17.73
Right BK	31	5.50	21.99
Left foot	10	1.77	7.09
Right foot	9	1.60	6.38

An examination of the distribution of different parts of the body lost over time reveals considerable annual variation – the more emphasised with the passage of time – but little long-term changes. Trend lines fitted to the observations in Figure 29 are flat, at around the 48% level for below-knee, 33% for above knee and 20% for foot.

Figure 29: Percent Distribution of Lower-limb Amputations, 1964-2008



The details contained in the record of injuries of casualties leads to some conundra. Table 17 shows that there is a consistent difference between left-side injuries and right-side injuries: there are always more injuries on the left side of the body than on the right. These differences are highly significant statistically. Quite why this should be is not understood, although there must be a rational explanation. The difference varies from body part to body part, although there is, in fact, a consistency to be seen here: the higher the body part, the greater the discrepancy: the lower, the less the discrepancy.

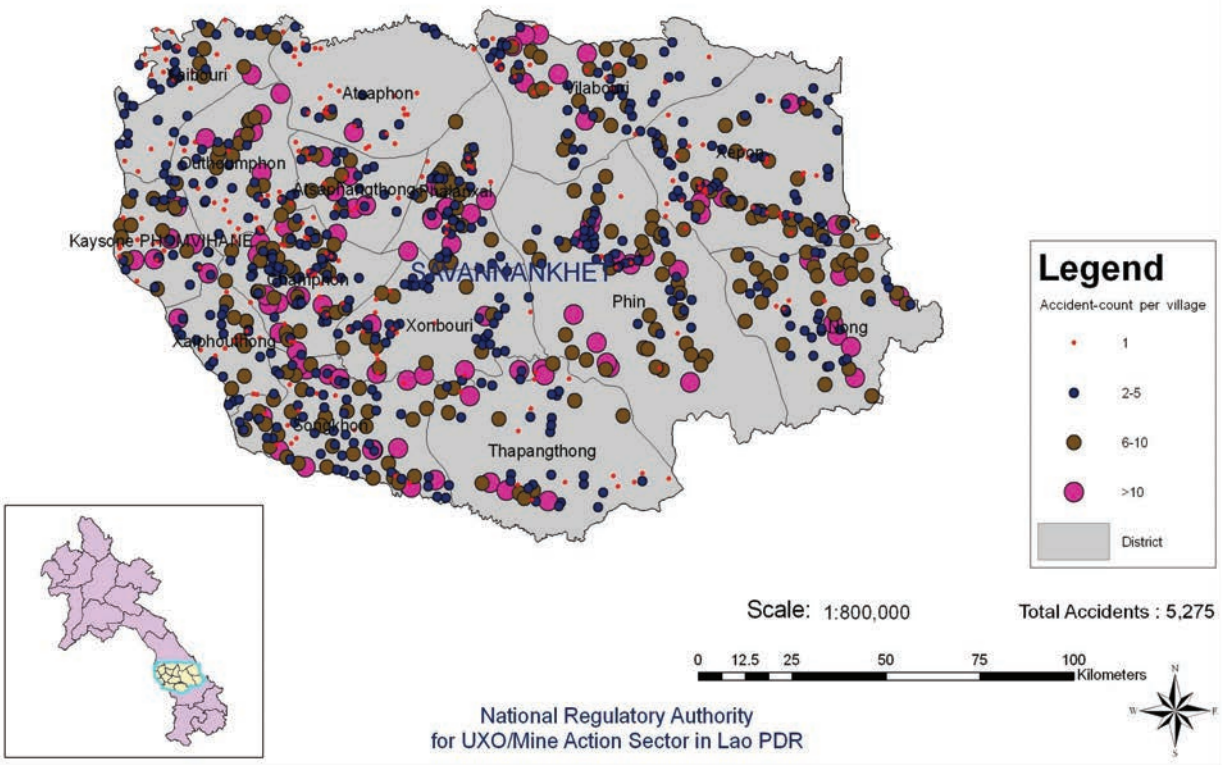
Table 17: Side of Body upon which Faculty or Limb Lost, 1964-2008

Injury	Side of the body injured		Difference in number	% difference	
	left	right		on left total	on right total
Eyesight	1,252	882	370	29.6	42.0
Hearing	740	583	157	21.2	26.9
Arm	2,746	2,264	482	17.6	21.3
Hand	1,572	1,272	300	19.1	23.6
AK	1,430	1,210	220	15.4	18.2
Leg	2,372	2,018	354	14.9	17.5
BK	2,190	1,893	297	13.6	15.7
Foot	815	711	104	12.8	14.6
Total	13,117	10,833	2284	17.4	21.1

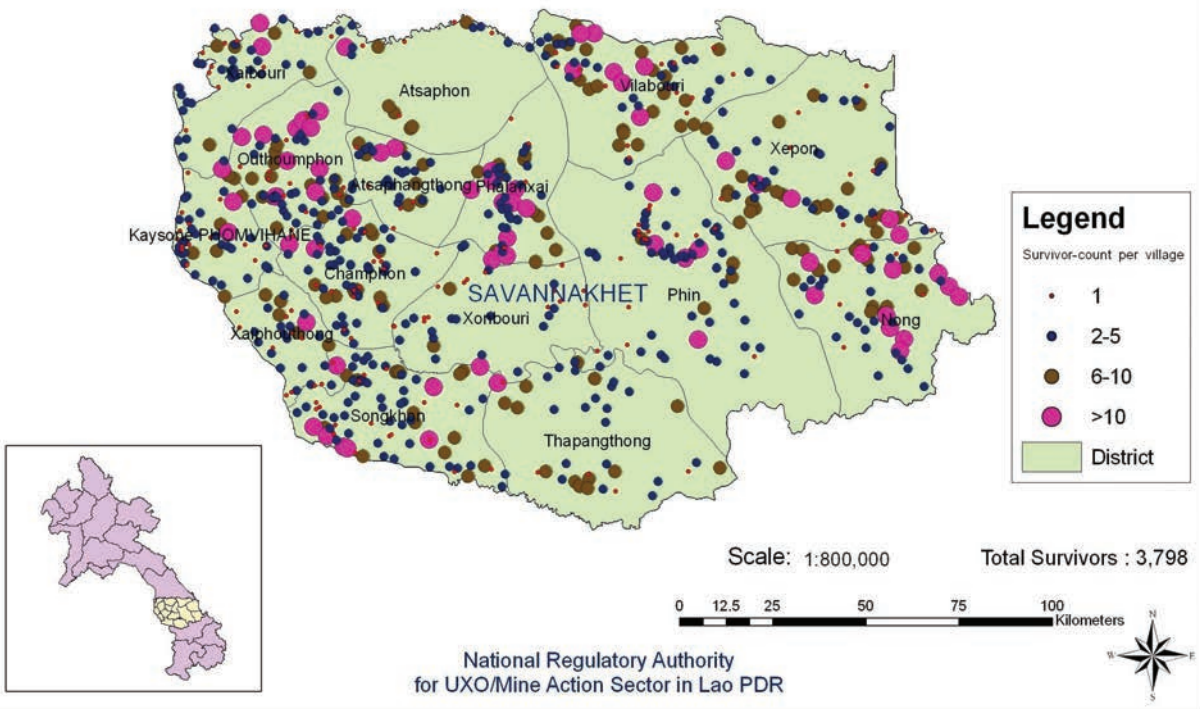
7.10 Maps

Maps have been reserved until last. Two maps showing the situation nationally were presented in the Executive Summary (pp xii-xiii) and no further maps at that level are presented here. As was stated there, maps can also be prepared at the provincial and district levels, and examples are presented here. Only results for the location of accidents and the location of survivors are given here, but maps can be prepared for any of the variables about which data have been collected, and for any year or period.

Map 3: Location of UXO Accidents, Savannakhet Province, 1964-2008

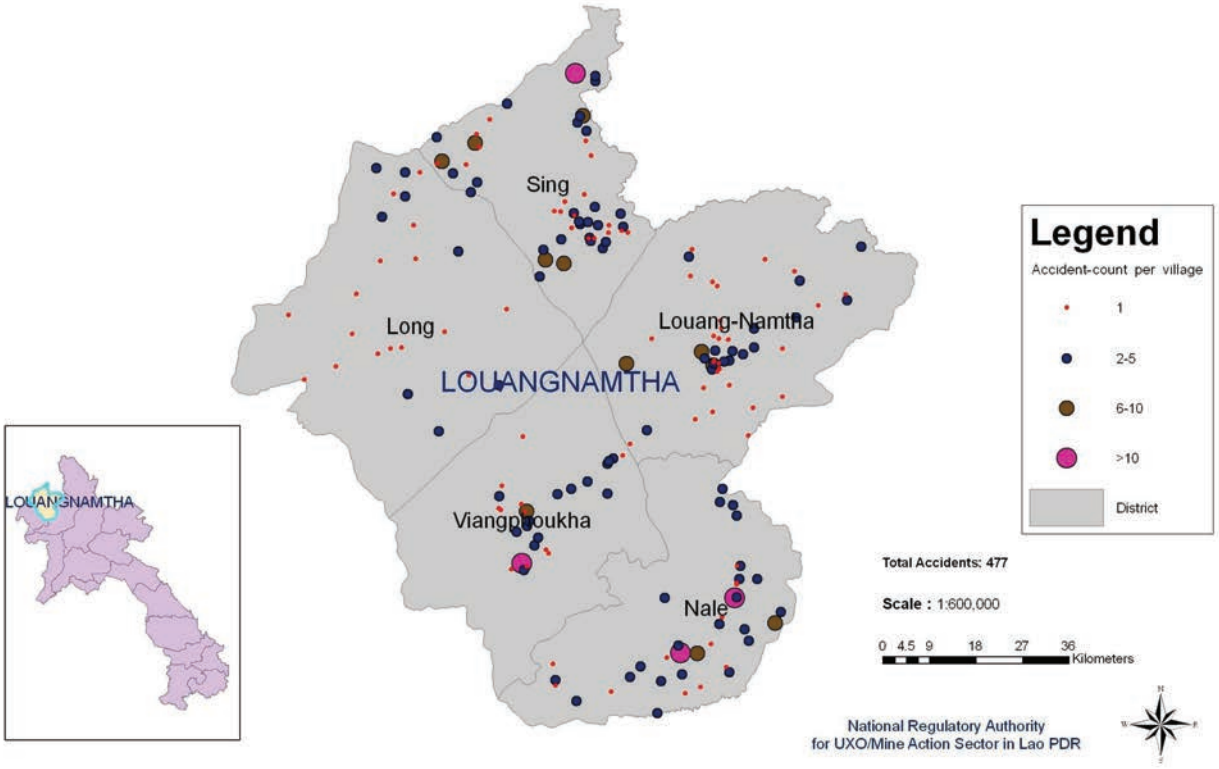


Map 4: Location of UXO Accident Survivors in Savannakhet Province, 1964-2008

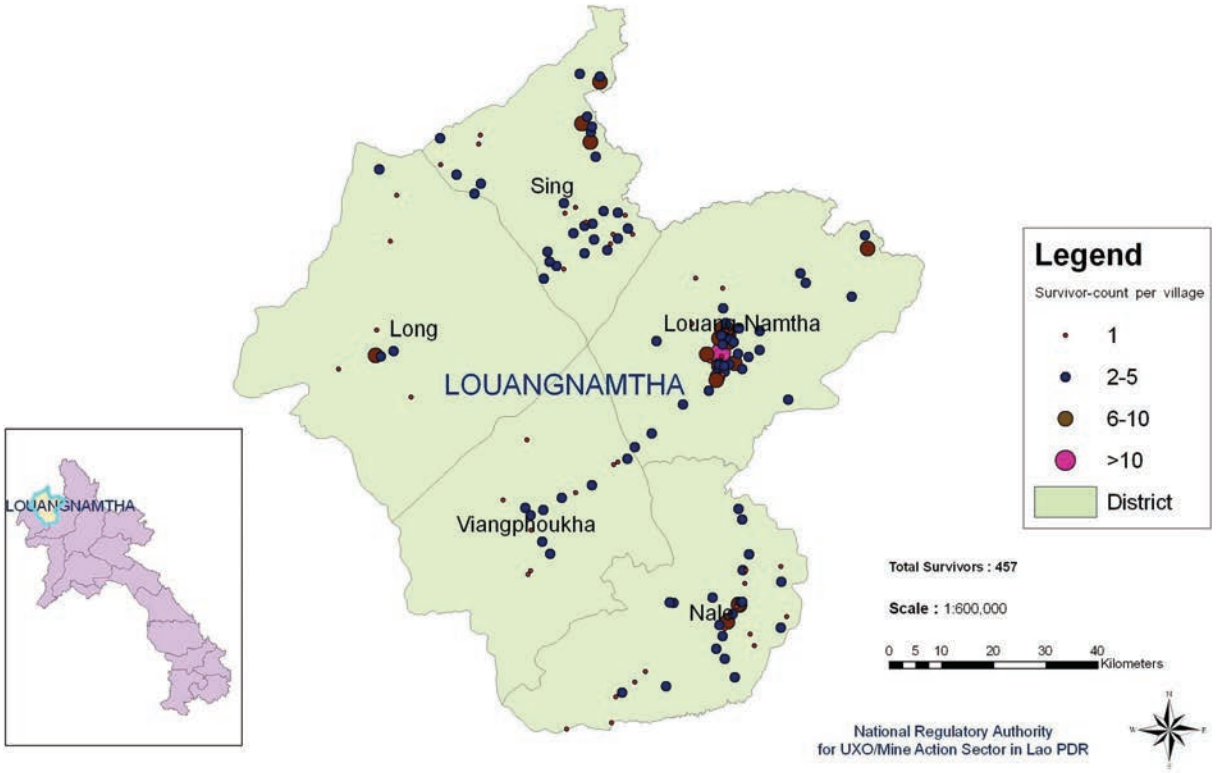


The first four maps show the results for location of accidents and victims in two provinces, Savannakhet and Luang Namtha. Savannakhet was chosen as an example because it was both very severely bombed and it contains about a quarter of all casualties. Luang Namtha, on the other hand, lying to the north-west of the Lao PDR, was bombed very little, and one would expect to see almost no accidents, even if some casualties are now located there.

Map 5: Location of UXO Accidents in Luang Namtha Province, 1964-2008

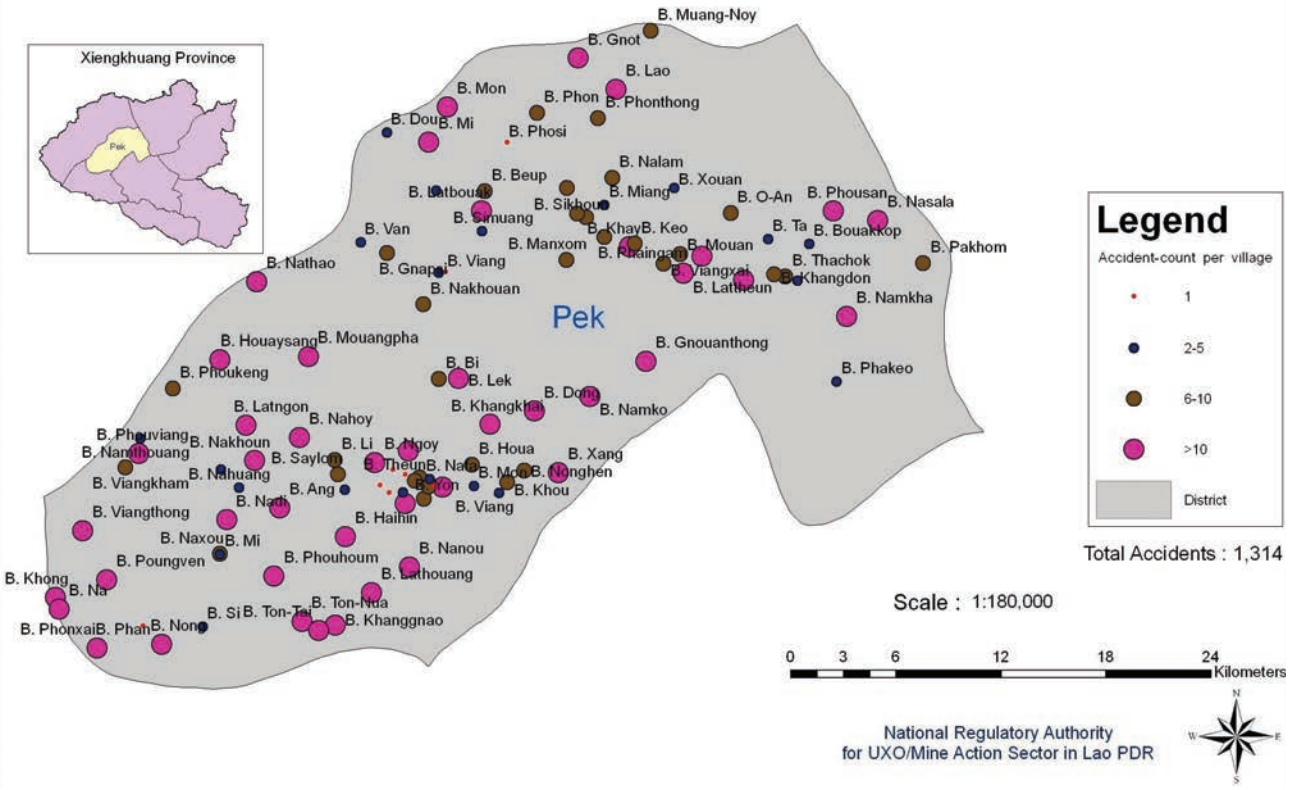


Map 6: Location of UXO Accident Survivors in Luang Namtha Province, 1964-2008

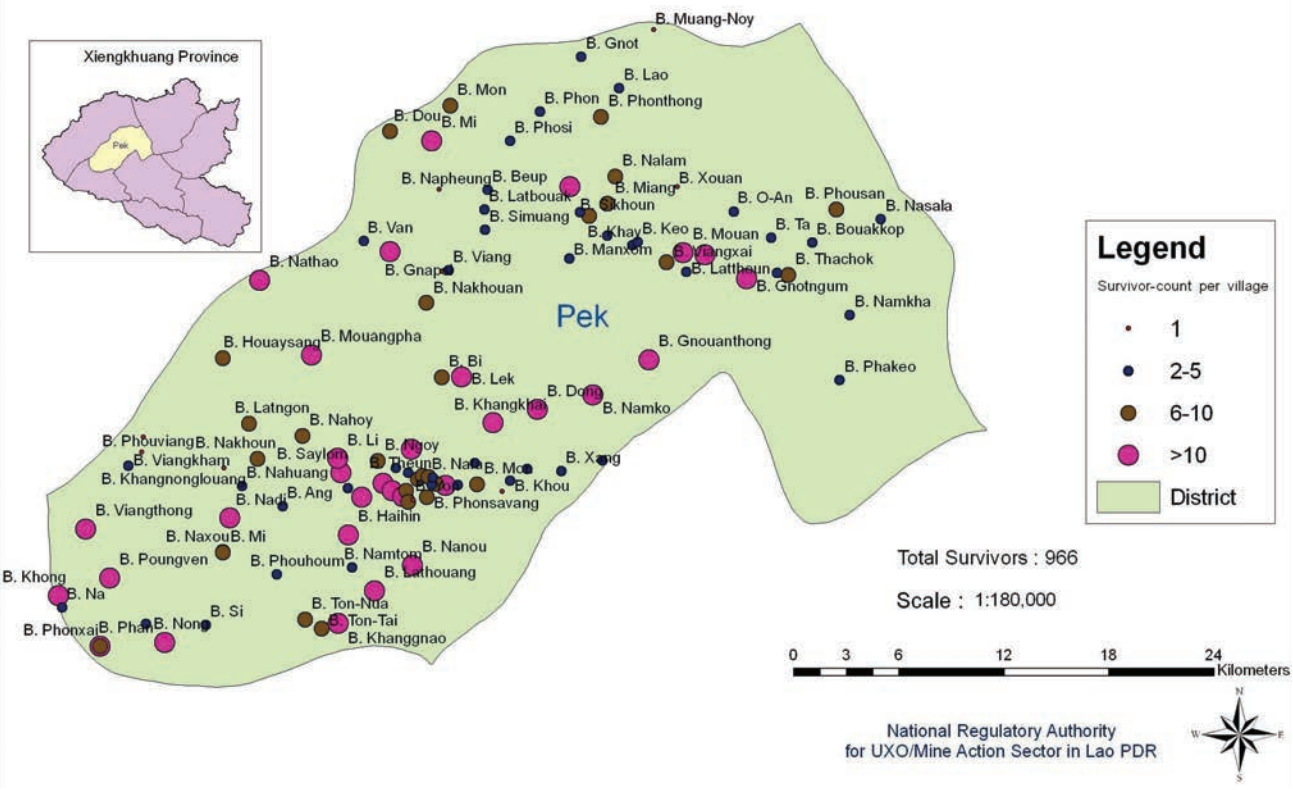


Pek District, in Xieng Khouang province, being the location of the Plain of Jars, was also heavily bombed. Here, it is expected that there would be both large numbers of accidents and of victims, and that expectation is borne out by the contents of Maps 7 and 8 below.

Map 7: Location of UXO Accidents, Pek District, Xieng Khouang Province, 1964-2008

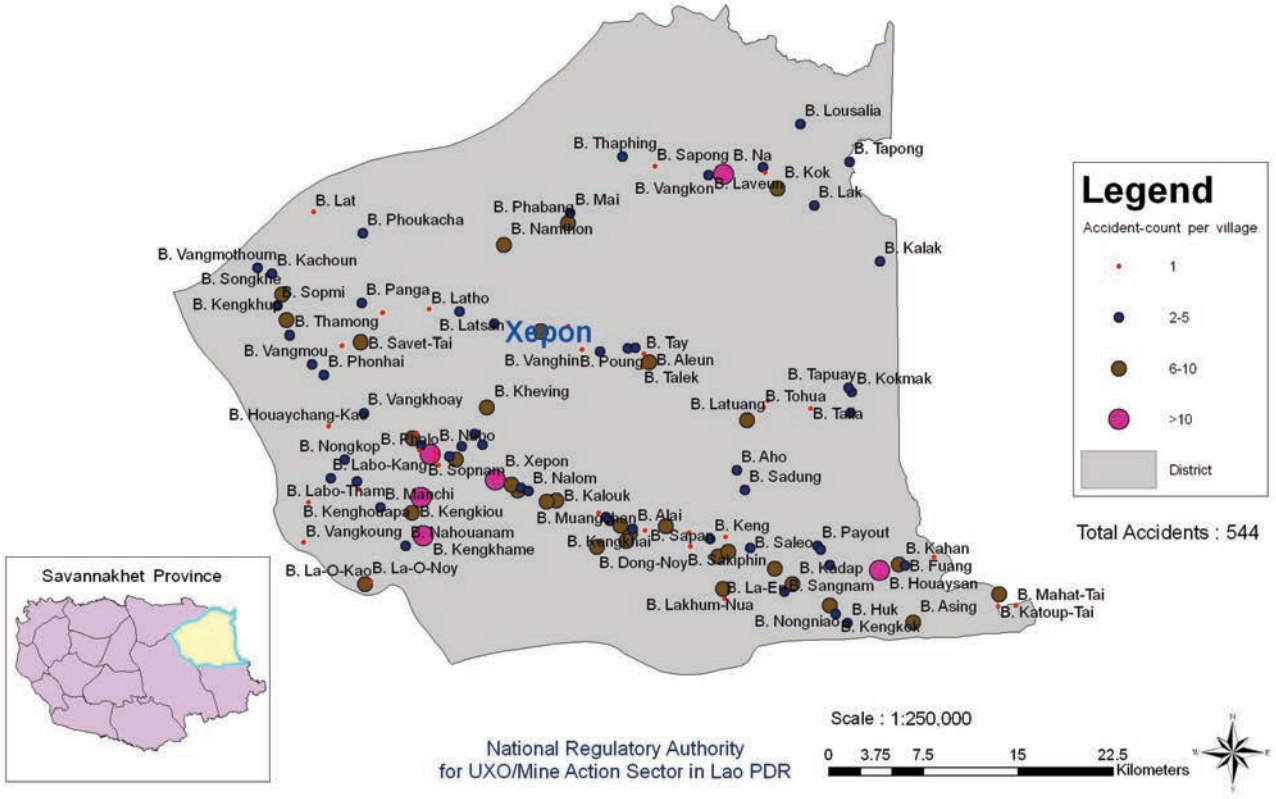


Map 8: Location of UXO Accident Survivors in Pek District, Xieng Khouang Province, 1964-2008



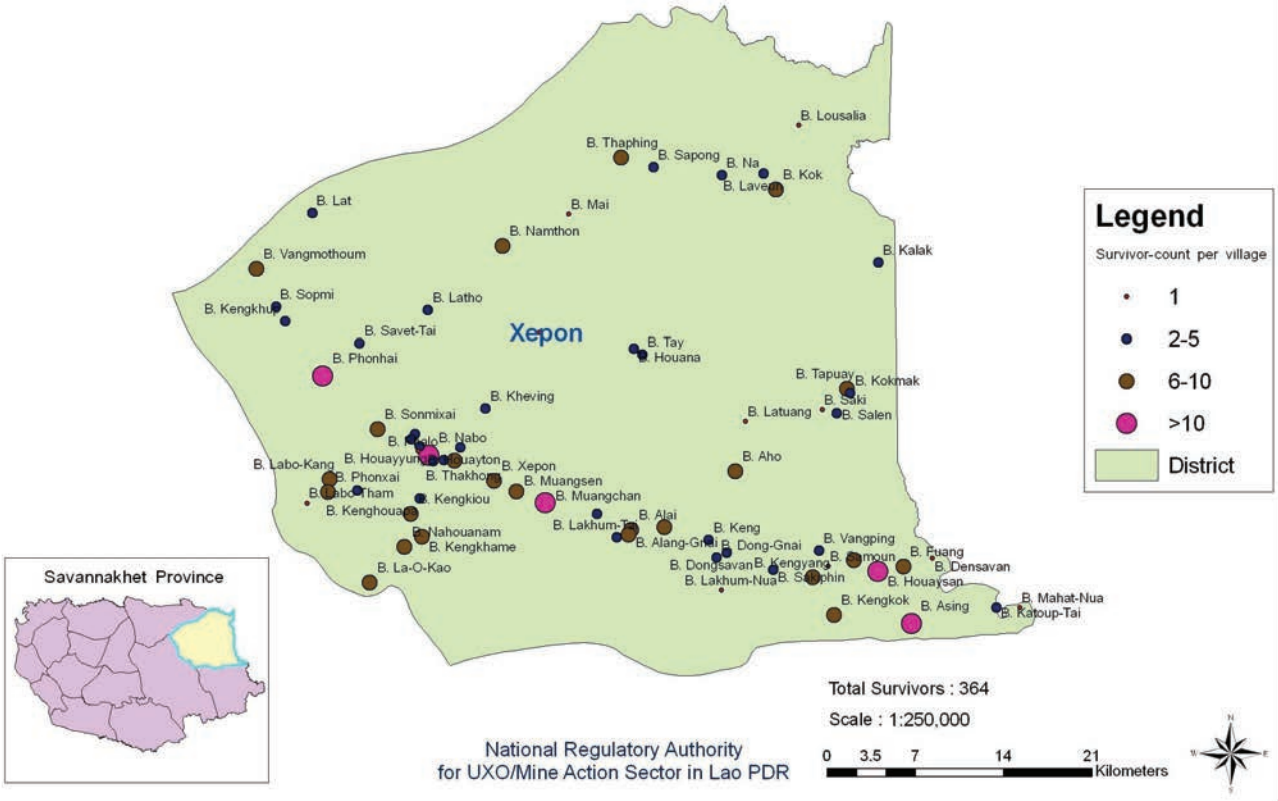
Finally, the results are shown for Sepon District in Savannakhet Province. Again, this was heavily bombarded during the conflict, and it is anticipated that there will be many accidents and victims.

Map 9: Location of UXO Accidents, Sepon District, Savannakhet Province, 1964-2008



Map 10 shows a lower level of intensity for victims than Map 9 shows for accidents, suggests that either many casualties were killed, or that survivors have moved away.

Map 10: Location of UXO Accident Survivors in Sepon District, Savannakhet Province, 1964-2008



PART 3
ANNEXES

NATIONAL REGULATORY AUTHORITY
VICTIM ASSISTANCE UNIT
SURVEY OF UXO VICTIMS AND ACCIDENTS
REPORT ON ACTIVITIES

1. INTRODUCTION AND BACKGROUND

The NRA is mandated to collect data about UXO victims and accidents. From the establishment of the NRA's VA Unit, in August-September 2006, this has been a major focus of its work programme. Initial work involved a visit to Cambodia to evaluate the manner in which this work is undertaken there, followed by a major workshop of Lao VA stakeholders in October 2006. This led to the establishment of the VA Technical Working Group (VA TWG) which met on a two-monthly basis thereafter and planned the implementation of the survey (the complete series of steps involved in planning and implementing the survey, and achievements against each, is given in Section 2, below):

- Select a database system
- Agree information to be collected
- Select an existing nationwide network to collect the information

It is important to note that the NRA did not develop a network of surveyors for the purpose; that network was provided by the National Rehabilitation Centre, which is a part of the Curative Department of the Ministry of Health. Working through Provincial and District Departments of Health, the NRC was able to recruit 139 district-based enumerators (DE) whose role was to visit every village in their district and collect information on all persons who had suffered an accident with a UXO in the period since 1964. The NRC also recruited 20 (initially, but declining to 18) Provincial Victim Assistance Technicians (PVAT), who were to supervise the work of the DE. In turn, the PVAT were supervised by the Victim Assistance Unit in the NRA.

After a period of three months receiving forms from PVAT, the VA Unit employed a quality control consultant to check the information on every form received.

The rationale and methods for the survey were conveyed to field operatives through a one-week training session with 20 PVAT, and seven regional training workshops with the DE, each one attended by the relevant PVAT from that region. The necessary equipment and stationery, required for the survey, were provided at these training sessions. The survey got underway immediately following the training of the DE.

Fieldwork for the survey took place over the period February to October 2008, during which time about 1,000 villages were visited every month. Each month, the DE arranged to hand over completed forms to their PVAT. The PVAT, in turn, sent the forms back to the VA Unit in Vientiane, where they were individually checked upon arrival; data entry to the computer was undertaken on a subcontract. All

data entered were again checked for accuracy as part of the verification process required by IMSMA.

All PVAT were required to establish imprest accounts in their local bank branches, and to send to the VA Unit an accounting of their expenditure in any one month, whereupon, the imprest account was topped up.

Three Regional Workshops were held in August/September 2008, with PVAT and high-level Provincial and District government staff to explore any problems and seek solutions.

The job of data entry was contracted out, initially to a company named DDD Ltd and later to Cosco Ltd, who each placed ten data entry clerks on the project at their own offices, and four data verification clerks in the NRA's offices. This phase of the work continued until June 2009.

The body of information about UXO victims in Lao PDR is known as the Lao Victim Information System (LVIS). LVIS data are currently stored in the database system provided by the Geneva International Centre for Humanitarian Demining (GICHD), known as the Information Management System for Mine Action (IMSMA) 5. In order to generate reports from the database, the VA Unit has retained its own database consultant.

2. THE NATIONAL SURVEY OF UXO VICTIMS AND ACCIDENTS 2008

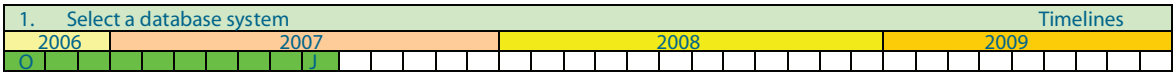
At the start of 2007, a proposal to collect data on all UXO victims since 1964 was developed by the NRA Victim Assistance Unit, in discussion with stakeholders attending the VA TWG. The following 13 elements were identified and formed the basis of a successful funding application to the European Union. Each is now reported upon, together with a note of the time or time period over which it was executed:

1. Select a database system:

Following a visit to Cambodia, and investigation of the successful Cambodian Mine Victim Information System (CMVIS), it was determined to adopt and adapt this for use in Laos (LVIS): however, following many meetings and discussions with experts from the Geneva International Centre for Humanitarian Demining, it was then decided to use its International Management System for Mine Action (IMSMA) Version 4, scheduled to be available in mid-2007: that decision has been fraught with problems.

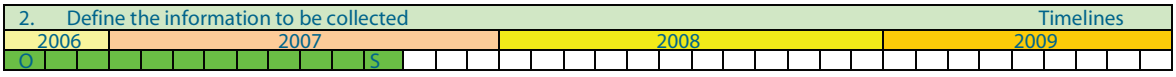
IMSMA was promoted on an ease-of-use basis. It was said that one could drag and drop items of input from a pre-prepared menu, building up a computer front-end that corresponded to the data being collected, for ease of entry by data-entry clerks. Step 2 was to drag and drop the reports that one wishes to receive, from the database, from another pre-prepared menu. IMSMA automatically makes the connection between the inputs and the outputs and prepares the reports for delivery.

These promised benefits were never realised, despite numbers of visits by GICHD professional staff, the development of IMSMA Version 5 and many updates to that. At the end of 2008, we have collected information from 50,000 victims and 9,000 villages, a significant proportion has been entered into the database, but obtaining reports is extremely difficult.



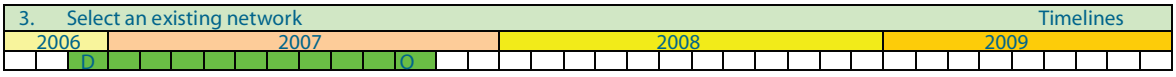
2. Define the information to be collected:

Through the VA TWG stakeholders, information requirements were defined and agreed, and the separate victim and accident data collection forms were prepared. These also took into account the standard forms proposed by GICHD, CMVIS and others, all of which have separate forms for victims and accidents. In the event, following the pilot survey (see #4 below) it was determined that these forms were too complex when undertaking an historical survey reaching back decades and, accordingly, they were simplified and combined into a single form. At the same time, it was understood that village chiefs and elders have much valuable information about UXO victims, and that a separate form needed to be devised to collect such information.



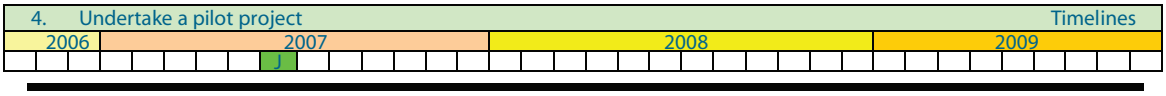
3. Select an existing network through which the information can be collected:

The VA TWG agreed upon a list of potential data-collecting networks and seven separate operators were interviewed. Three were short-listed, each of which claimed 100% coverage of the country. When cost, ease of implementation and other parameters were examined, the Extended Programme for Immunisation (EPI) was selected. Communication with EPI was channelled through one individual who was frequently away. When it was then discovered that EPI coverage was far from 100% and that the organisation would be very busy with a whooping cough vaccination programme at the time the survey would be running, the second option was chosen: this was the National Dermatology Centre (NDC), with its network of provincial and district-based leprosy workers (PLW, DLW) and a schedule to visit every village in the country every two months. Progress was good with the NDC, and a pilot survey was carried out (see #4 below). But signature on the contract was delayed and the NRA was instructed by the Ministry of Health (MoH) to collaborate with the National Rehabilitation Centre (NRC). There were misgivings about this since, with its total lack of any network, the NRC was not on the original list of possibilities: nonetheless, concern with emerging deficiencies in the NDC network (see #4 and #5 below) prompted further investigation of possible solutions broader than through the NDC. Under direction from MoH, the NRA signed an agreement with the NRC at the end of October 2007, with a view to starting the training for the survey in December.



4. Undertake a pilot project to test the systems derived or adopted:

Working with the NDC, the NRA Victim Assistance Unit undertook a pilot project in Sepon and Vilayboury districts, Savannakhet province, during June 2007. The pilot involved training NDC, District Department of Labour and Social Welfare and Department of Education staff in the purpose and method of the survey, role playing and other aspects of the survey, and then visiting ten villages and interviewing 110 victims. This was an invaluable exercise in order to test the information-gathering systems prepared. As a result, the data-gathering forms for the Phase 1 (historical) survey were modified (see #2 above) and many aspects of the proposed survey were improved. In addition, this showed that the NDC network of DLW do not, in fact, visit all villages in their district every two months: in fact, in Sepon, there was no evidence that the DLW had ever visited any villages at all. This required some rethinking for how the survey would be carried out in the light of NDC records of DLW visits, and how the survey could cover in places where the DLW records showed weakness.



5. Adjust the system in the light of the pilot project:

As a result of the pilot project a change was made to the data collection forms (see #2 and #4 above), for the historical part of the survey. Whilst there were aspects of NDC operations that were less than ideal for the purposes of the survey (some NDC DLW made no visits to villages) the matter was removed from the hands of the NRA by the instruction from MoH to use the NRC as the focus for the data-collection part of the survey.

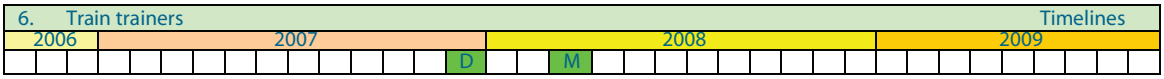
The field experience and discussion with the MoH led to the conclusion that NDC alone might not be capable of undertaking the survey. The NDC is within the Curative Department of the MoH and it was proposed that a wider definition of Curative and Preventative Departments operatives should be defined to carry out the work, and that this definition should be undertaken by the NRC, which would be the main contractor with the NRA, rather than the NDC. This was accordingly carried out and the NRA and NRC entered into a contract for the provision of networking services for data collection. These services, it was agreed, would be modelled on a similar pattern to that proposed with the NDC, namely with the provision of a provincial supervisor (to be known as the Provincial Victim Assistance Technician, or PVAT) in each province, but with two in Champasak, Savannakhet and Luang Phrabang, for a total of 20, each supervising the work of the district-based data collectors (to be known as District Enumerators or DE), one for each of 139 districts.

6. Train trainers:

From 3rd to 7th December 2008, all 20 PVAT were brought into a training centre in Thalat, Phone Hong District of Vientiane Province, for a one-week training on the purposes and functions of the survey and the role of the PVAT in its execution. The training also included such details as how to keep survey accounts and submit them to the VA Unit, how to use GPS device, as well as collecting completed data forms from the DE and cleaning them before despatch to Vientiane.

Once the survey had started, PVAT were brought back to Vientiane at the beginning of March 2008, for a further, three-day, reinforcement workshop at the NRA HQ. This also allowed the NRA to learn of problems and successes early in the survey process.

All PVAT were issued with motorcycles, mobile telephones and GPS devices. The motorcycles were specified in order to allow PVAT to conduct a monthly visit with the DE, and to visit the sites of any new accident reported during the progress of the survey; mobile telephones were to aid communication with the VA Unit at the NRA, as well as with DE, and also to take and transmit photographs of victims or scenes of accidents; the GPS devices were to allow the precise location of all accident sites.



7. Train enumerators:

Between December 20th 2007 and January 30th 2008, the VA Unit carried out seven regionally-based, two-day training sessions with DE from all 139 districts. The trainers were the Victim Assistance Officer and the Victim Assistance Technician, assisted by the PVAT from the relevant provinces. On average, 20 DE trainees attended each training:

- 20th-21st December 2007: training in Pakse for 19 DE from Champasak, Attapeu and Sekong provinces (total of 27 participants, including NRA and NRC, etc)
- 27th-28th December 2007: training in Luang Namtha for 24 DE from Phongsaly, Luang Namtha, Oudomxay and Bokeo provinces (total 32 participants)
- 7th-8th January 2008: training in Phonsavane for 16 DE from Houaphan and Xieng Khouang provinces (total 22 participants)
- 10th-11th January 2008: training in Luang Phrabang for 21 DE from Luang Phrabang and Xayabouri provinces (total 27 participants)
- 17th-18th January 2008: training in Thakhek for 15 DE from Khammouane and Bolikhamxay provinces (total 21 participants)
- 21st-22nd January 2008: training in Savannakhet for 23 DE from Savannakhet and Saravane provinces (total 31 participants)
- 29th-30th January 2008: training in Thalat for 21 DE from Vientiane Capital and Vientiane Province (total 27 participants)

The DE were trained in the methods of the survey, how to approach the Nai Ban or village elders, what information to collect from them, and how to interview victims or those acquainted with deceased or absent victims, and how to fill out the forms: considerable emphasis was put on role-play. There was also training in account-keeping and communicating with PVAT and the NRA HQ.

The training sessions were also an opportunity for equipping all DE with survey forms and stationery.

8. Carry out survey of victims and accidents:

The survey was scheduled to start immediately after the DE had been trained, but there was difficulty in mobilising and distributing funds over the end of the UN financial year. Whilst some small starts were made in data collection, the full scale of the survey, nationwide is officially credited with having started in February 2008. By the time of the meeting of PVAT in early March 2008, 6,588 casualty forms had been received at the NRA, from about 1,227 villages, indicating an average of 5.4 casualties per village. It was then understood that the complete survey of – as was then understood – 10,552 villages could yield a total of between 50,000 and 60,000 casualties in the country.

The rate of around 5 victims per village remained reasonably steady as the survey progressed through the year, but advice from DE and PVAT in the field adjusted the total number of villages to be surveyed. This was due to village amalgamations, either for administrative reasons, or because villages might be moved to make way for works – hydro-electric schemes, mines, plantations etc – and the relocated people settled in an existing village. Eventually, the total number of villages identified by PVAT and DE as existing amounted to 9,583.

There was continual pressure to complete the survey within the period originally allocated – six months. This could not be achieved, for the following reasons:

- The start of the survey – originally planned for October 2007 – was delayed, so that the rainy season (which was early in 2008) made it very difficult to reach remote villages

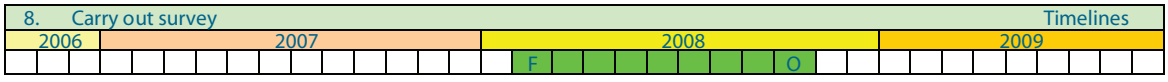
- It was planned that all PVAT should be full-time working on the survey: in the event, none was, and this meant that various functions – especially quality control functions – were not carried out by the PVAT in accordance with the plan and other arrangements had to be made
- The volume of casualties discovered in the survey was about twice the number envisaged during survey planning – which, in turn, was about twice the number previously thought to exist
- The NRA experienced financial problems of one sort and another, and these delayed the transmission of funds to PVAT and thence on to DE, again holding up the implementation of the survey.

As the period of data collection looked to considerably overstep the original six-months period (February-July), pressure was put on all PVAT to secure an early completion. The NRC determined to hold a series of three regional workshops (Luang Phrabang on 3rd July, 28 participants; Pakse on 31st July, 22 participants; and Vientiane on 22nd August, 24 participants), drawing in high-level officials from Provincial Governors' offices as well as Departments of Health and of Labour and Social Welfare, together with the PVAT. These workshops were generally adjudged a success and a new deadline (initially September but extended to October) was placed on the completion of the survey.

The survey was officially closed at the end of October 2008 and payments to all PVAT were terminated. It took some time, after that, for all completed forms to be collected from DE and passed on to the NRA office. Eventually, 50,136 forms were received from 9,066 villages – about 95% of all of the revised number of villages in the country.

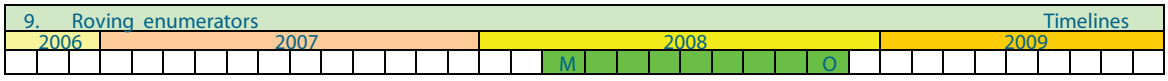
Examination of those districts not completed, and application of the victims-per-village multiplier for the uncompleted villages in those districts, allows a prediction that completion may have yielded a further 1,462 casualties, or a total of 51,598, indicating that we had collected 97% of casualty forms.

Visiting the remaining 517 villages not yet visited is not precluded. There is only a modest difficulty of timeliness, as institutional memories in villages decline: in general, the data to be collected will not change with the passage of time.



9. Roving enumerators:

The original project specification included a small group of roving enumerators, described as local trouble-shooters, assisting enumerators in their work, covering gaps, interviewing victims and witnesses to ongoing accidents (Phase 2 of the survey: see #13 below) and helping to channel information back. The contract between the NRA and the NRC allocated much of this role to the PVAT. However, as it became clear that the PVAT were already in significantly full-time employment, this role was not carried out by them. See #10 and #13 below. Instead, the role was carried out by the Victim Assistance Officer and the Victim Assistance Technician, who each spent about 50% of the survey period travelling in the provinces and working with PVAT and DE to secure a speedy and effective outcome.

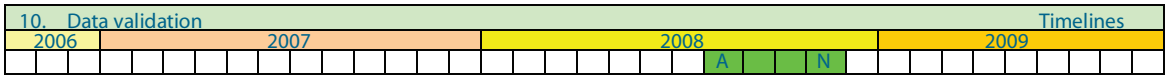


10. Data validation:

It was anticipated that the following validation activities would be undertaken during the course of the survey:

- The PVAT would travel to each district within their purview towards the end of every month and collect completed forms from the DE: the PVAT would sit with the DE and go through each completed form and ensure that each was correctly completed: where there were easily corrected matters (such as village code irregularities) they could be fixed on the spot; some other difficulties would require a revisit to the village to clarify: unfortunately, this did not happen; PVAT collected all forms from DE and took them back to their offices or their homes to verify, where they did not have the benefit of the DE to question
- At the NRA, data would be entered into the database and would then be validated by a validation clerk comparing the screen version with the paper version and certifying it a correct representation: with the adoption of IMSMA, a validation exercise is built into the system; data are first entered into a device named the workbench on the computer, and are then validated by data validation clerks before being finally passed over the workbench and logged onto the database. Because of a lack of earlier checking by the PVAT, with the DE, it was discovered that there was a high error rate amongst forms on the workbench – and even amongst forms that had been verified on the database – so the NRA hired a consultant data verifier whose job was to check every single form received from the field, with instructions on how to handle any errors
- It was originally intended that the roving enumerators would be sent out to undertake a resurvey of a randomly selected 2% of all casualty forms. Since the role of the roving enumerators had been taken on by the PVAT and they were not effectively undertaking the fundamental work for which they were contracted, it was agreed that it would be highly unlikely that they would complete this work: accordingly, the NRA VA Unit hired three Quality Assurance Consultants to undertake the work. Instead of visiting a 2% sample of all casualties, the work was simplified to visiting 2 randomly selected villages in every district in the country . As a result, it was discovered that data collected was reasonably accurate, but there was an under-recording of about 21% of casualties. This occurred because DE arrive in a village without prior notification to the village head and it was only when the DE had left that the village head realised that there were others who should have been on the list, or victims, themselves, heard of the visit and came forward for their names to be registered.

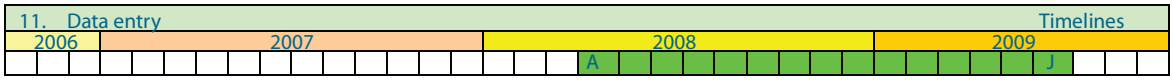
If the figure of 21% is accurate, the true figure of the number of casualties throughout Lao PDR would be about 65,000, rather than 51,593.



11. Data entry:

It was anticipated that the NRA would employ a team of temporary clerks at the NRA to enter data. In the event, the job of data entry has been subcontracted to a company named Cosco, which has been able to deploy a team of ten data-entry clerks on the work. By the end of December 2008, some 37,000 forms had been entered and verified. All forms were finally entered and verified on the database by the end of June 2009.

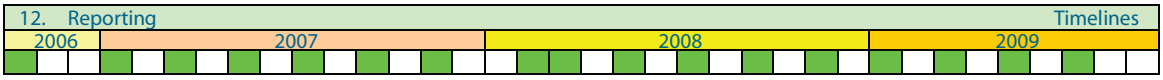
In fact, as stated at #10 above, the data entry is a two-stage activity: the first involves transcribing the data onto the database from the forms. This is done by ten data-entry clerks working at the Cosco office. The completed work is then returned to the NRA office where it is verified on the workbench by a team of four Cosco clerks working on the NRA's computers.



12. Reporting:

- **Progress of the Survey:** Reports on the progress of the survey are delivered every two months to the VA Technical Working Group: there have been VA TWG on:
  - o February 2nd 2008
  - o March 25th 2008
  - o May 27th 2008
  - o August 5th 2008
  - o September 23rd 2008
  - o November 25th 2008
- **Output of Survey:** As the quantity of data on the database has increased, a number of reports has been produced containing projections of the survey results when all 50,136 casualty forms have been entered and verified. These reports include
  - o Number of Casualties over Time
  - o Type of Device Causing Accident
  - o Those Involved in UXO Accidents, by Age, Gender and Occupation
  - o Casualty Activity at the Time of the Accident
  - o Location of Accidents
  - o Provincial Accident Records by Gender and Age
  - o Short-period Results: 1998-2007, Number by Gender and Age
- **Report Specification:** The NRA retained the services of an intern for three months in 2008, Ms Ginevra Cucinotta, who canvassed the views of a wide range of stakeholders and prepared a schedule of specifications of reports required by those stakeholders, both at the national and the provincial levels

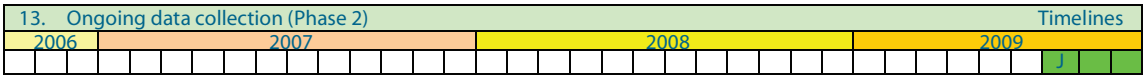
There is a difficulty in preparing and presenting reports: the data from the survey are increasingly logged onto the database, but it is not a simple matter to generate reports. The promised benefits from the database have not materialised, in that it is not possible to drag and drop report specifications from a pre-prepared menu and get the database to generate the report.



13. Ongoing data collection (Phase 2):

When the survey was planned, it was intended that, during the DE's visit to a village to collect survey information, s/he would request the Nai Ban to follow a certain reporting procedure if an accident occurred in the village at any time following the visit. As a result, the PVAT would then visit the village and collect detailed information about the accident. For reasons that are only imperfectly understood, this system has not operated. It is thus the case that the survey has collected information up until sometime during 2008 (at the very latest, October). It is critical that a system be put in place very soon to both fill the gap between the visit of the DE on Phase 1 and the present day, and also to collect information about any continuing accidents as and when they occur.

Such a system has been devised and the people required to implement it (Victim Assistance Phase 2 Enumerators, or VAPE) have been recruited. At the time of writing there are unexpected delays which are holding up implementation. It is hoped to resolve these matters very soon and start the implementation process.



The survey has shown that the true numbers of casualties over the ten-year period 1998-2007 has been about 250 per annum, and that, as was expected, the UXO Lao figures represented only about 45% of this.

3. FINANCES

The Phase 1 Lao National Survey of UXO Victims and Accidents started planning in late 2006 and a budget was prepared in early 2007 and refined over the year. The budget is set out in the following table, together with allocation to individual donors. Note that general NRA overhead expenditure is not included and was supported by UNDP, AusAID and the Government of Switzerland.

No	Activity	Budget ($)*	Expended			Total
			UNICEF	EU	UNDP	
1	Select database	0	0	0	0	0
2	Define information to collect	0	0	0	0	0
3	Select network	0	0	0	0	0
4	Undertake pilot project	1,322	0	0	0	0
5	Adjust the system	0	0	0	0	0
6	Train trainers (PVAT)	4,224	5,689	0	0	5,689
7	Train enumerators	18,592	7,551	8,202	0	15,753
8	Carry out survey	73,054	3,392	102,911	33,325	139,628
9	Roving enumerators	26,064	0	5,358	1,351	6,709
10	Data validation	50,114	0	547	7,526	8,073
11	Data entry	15,226	0	1,093	,883	10,976
12	Reporting	5,000	0	0	5,000	5,000
13	Stationery for survey	3,650	3721	1,084	0	4,805
14	Staff costs	0	25,071	0	0	25,071
15	Regional interim workshops	0	0	3,048	3,134	6,182
16	Miscellaneous	0	0	595	0	595
17	Capital Items	38,300	5,006	0	30,226	35,232
	Total	235,546	50,430	122,838	90,445	263,713

A zero entry indicates no cost to project: costs were carried by other budgets within the NRA supported by UNDP, AusAID and the Government of Switzerland

The survey was conducted through the offices of the 20 (later reduced to 18) PVAT, who each had an imprest account calculated according to the maximum amount that they would need to pay out to the DE in any one month. These amounts were calculated by reference to the numbers of UXO casualties that it was anticipated would be discovered, district by district and province by province. The survey costs were calculated against set payments for each DE:

- For completing a form $0.5
- For travel to a village $2.0
- For DSA (two villages per day) $5.0
- For Village Chief stamp fee $1.0

The imprest accounts were replenished on a monthly basis against detailed and verified statements of expenditure.

The costs of the survey (Item #8 in above table) were as shown in the next table, where the column headed 'Planned budget' is derived from the calculations described above, the 'Total issued' details the amounts paid into imprest accounts in each province, and the 'Total accounted' shows the total of sums accounted for by the PVAT. Rows in red are for provinces which have yet to remit a final accounting. The 14 provinces which have completed their accounts are unable to account for a total of $1,366. The three provinces which have yet to close off their accounts, are outstanding $8,990.

No	Province	Planned budget	Total issued	Total accounted	Issued less accounted
1	Vientiane Capital	3,696	5,119	4,842	277
2	Phongsaly	3,947	7,034	7,034	0
3	Luang Namtha	2,517	3,539	3,539	0
4	Oudomxay	4,693	5,581	3,047	2,534
5	Bokeo	2,647	4,514	4,513	1
6	Luang Phrabang	6,714	8,173	8,146	27
7	Houaphan	7,025	8,291	8,286	5
8	Xayabouri	3,268	5,437	5,437	0
9	Xieng Khouang	7,099	9,018	5,921	3,097
10	Vientiane Province	3,811	8,372	7,944	428
11	Bolikhamxay	2,680	4,103	4,086	17
12	Khammouane	5,626	8,012	7,454	558
13	Savannakhet	12,908	20,275	20,258	17
14	Saravane	6,261	8,719	8,701	18
15	Sekong	2,251	3,760	3,748	12
16	Champasak	6,385	8,336	4,978	3,358
17	Attapeu	2,473	3,957	3,948	9
	Total	84,001	122,240	111,882	10,358

ANNEX 2

STATISTICAL DETAILS
OF THE
CONDUCT OF THE PHASE 1 SURVEY

PROVINCE CODE	NAME	ABBREVIATION	NUMBER OF VILLAGES		CHANGE	
			CENSUS 2005	PHASE 1 SURVEY	NO	%
01	Vientiane Capital	VTC	499	500	1	0.20
02	Phongsaly	PSY	607	578	-29	(4.78)
03	Luangnamtha	LNM	380	372	- 8	(2.11)
04	Oudomxay	ODX	587	499	-88	(14.99)
05	Bokeo	BKO	354	337	-17	(4.80)
06	Luangprabang	LPB	855	833	-22	(2.57)
07	Huaphanh	HPN	784	756	-28	(3.57)
08	Xayabury	XBY	487	476	-11	(2.26)
09	Xiengkhuang	XKH	570	569	- 1	(0.18)
10	Vientiane	VTP	648	556	-92	(14.20)
11	Bolikhamxay	BKX	327	327	0	-
12	Khammuane	KMN	803	686	-117	(14.57)
13	Savannakhet	SVK	1,543	1,022	521	(33.77)
14	Saravane	SVN	724	675	-49	(6.77)
15	Sekong	SKG	253	255	2	0.79
16	Champasak	CSK	924	937	13	1.41
17	Attapeu	ATP	207	205	- 2	(0.97)
	Total		10,552	9,583		(9.18)

NB. The abbreviations used are not official and there may be more authentic versions for some

Province Details				Survey Details			
Code No	Name	Number of districts	Number of villages	Number villages	% villages complete	victims total	victims village
1	Vientiane Capital	9	500	480	96	1,151	2.40
2	Phongsaly	7	578	567	98	523	0.92
3	Luang Namtha	5	372	303	81	1,095	3.61
4	Oudomxay	7	499	499	100	2,899	5.81
5	Bokeo	5	337	337	100	912	2.71
6	Luang Phrabang	11	833	753	90	3,638	4.83
7	Houaphan	8	756	756	100	4,221	5.58
8	Xayabouri	10	476	435	91	881	2.03
9	Xieng Khouang	8	569	566	99	6,840	12.08
10	Vientiane Province	12	556	446	80	1,823	4.09
11	Bolikhamxay	6	327	305	93	1,394	4.57
12	Khammouane	9	686	644	94	2,880	4.47
13	Savannakhet	15	1,022	1,022	100	12,530	12.26
14	Saravane	8	675	675	100	3,746	5.55
15	Sekong	4	255	238	93	1,407	5.91
16	Champasak	10	937	85	89	1,915	2.29
17	Attapeu	5	205	205	100	2,281	11.13
	Total	139	9,583	9,066	95	50,136	5.53

TABLE: PHASE 1 SURVEY DISTRICT STATISTICS

CODE		DISTRICT	VILLAGES		VICTIMS		
Province	District	Name	Number	Surveyed	Number	/village	Projected
VIENTIANE CAPITAL							
01	01	Chanthabuly	37	37	38	1.03	38
	02	Sikhottabong	61	61	74	1.21	74
	03	Xaysetha	52	52	114	2.19	114
	04	Sisattanak	40	40	60	1.50	60
	05	Naxaithong	56	56	120	2.14	120
	06	Xaythany	104	84	545	6.49	675
	07	Hadxaifong	60	60	118	1.97	118
	08	Sangthong	37	37	57	1.54	57
	09	Mayparkngum	53	53	25	0.47	25
Total Vientiane Capital			500	480	1,151	2.30	1,281
PHONGSALY PROVINCE							
02	01	Phongsaly	85	74	50	0.68	57
	02	May	92	92	32	0.35	32
	03	Khua	104	104	165	1.59	165
	04	Samphanh	83	83	144	1.73	144
	05	Boon neua	70	70	53	0.76	53
	06	Nhot ou	87	87	32	0.37	32
	07	Boontai	57	57	47	0.82	47
Total Phongsaly Province			578	567	523	0.90	530
LUANG NAMTHA PROVINCE							
03	01	Namtha	79	60	359	5.98	473
	02	Sing	94	60	300	5.00	470
	03	Long	81	76	55	0.72	59
	04	Viengphoukha	46	46	124	2.70	124
	05	Nalae	72	61	257	4.21	303
Total Luang Namtha Province			372	303	1,095	2.94	1,429
OUDOMXAY PROVINCE							
04	01	Xay	94	94	488	5.19	488
	02	La	50	50	424	8.48	424
	03	Namor	71	71	432	6.08	432
	04	Nga	62	62	266	4.29	266
	05	Beng	64	64	531	8.30	531
	06	Hoon	97	97	405	4.18	405
	07	Pakbeng	61	61	353	5.79	353
Total Oudomxay Porvince			499	499	2,899	5.81	2,899
BOKEO PROVINCE							
05	01	Huoixai	106	106	188	1.77	188
	02	Tonpheung	57	57	114	2.00	114
	03	Meung	33	33	97	2.94	97
	04	Pha oudom	94	94	324	3.45	324
	06	Nam nhu Development Area	47	47	189	4.02	189
Total Bokeo Province			337	337	912	2.71	912
LUANG PHRABANG PROVINCE							
06	01	Luangprabang	121	96	91	0.95	115
	02	Xieng ngeun	74	66	197	2.98	221
	03	Nan	56	56	114	2.04	114
	04	Park ou	56	56	406	7.25	406
	05	Nambak	88	88	781	8.88	781
	06	Ngoi	107	83	455	5.48	587
	07	Pak xeng	64	60	274	4.57	292
	08	Phonxay	61	61	458	7.51	458
	09	Chomphet	68	64	149	2.33	158
	10	Viengkham	96	81	594	7.33	704
	11	Phoukhoune	42	42	119	2.83	119
Total Luang Phrabang Province			833	753	3,638	4.37	3,955
HOUAPHAN PROVINCE							
07	01	Xamneua	111	111	1,104	9.95	1,104
	02	Xiengkhor	59	59	252	4.27	252
	03	Viengthong	71	71	737	10.38	737
	04	Viengxay	107	107	491	4.59	491
	05	Huameuang	77	77	568	7.38	568
	06	Xamtay	188	188	578	3.07	578
	07	Sopbao	68	68	304	4.47	304
	08	Add	75	75	187	2.49	187
Total Houaphan Province			756	756	4,221	5.58	4,221

CODE		DISTRICT	VILLAGES		VICTIMS		
Province	District	Name	Number	Surveyed	Number	/village	Projected
XAYABOURI PRIOVINCE							
08	01	Xayabury	101	60	27	0.45	45
	02	Khop	28	28	42	1.50	42
	03	Hongsa	47	47	277	5.89	277
	04	Ngeun	24	24	75	3.13	75
	05	Xienghone	42	42	258	6.14	258
	06	Phiang	57	57	60	1.05	60
	07	Parklai	71	71	52	0.73	52
	08	Kenethao	53	53	13	0.25	13
	09	Botene	39	39	27	0.69	27
	10	Thongmyxay	14	14	50	3.57	50
Total Xayabouri Province			476	435	881	1.85	899
XIENG KHOUANG PROVINCE							
09	01	Pek	112	112	2,160	19.29	2,160
	02	Kham	117	117	1,992	17.03	1,992
	03	Nonghed	110	110	385	3.50	385
	04	Khoune	90	87	883	10.15	913
	05	Morkmay	34	34	129	3.79	129
	06	Phookood	42	42	592	14.10	592
	07	Phaxay	37	37	420	11.35	420
	08	Thathom	27	27	279	10.33	279
Total Xieng Khouang Province			569	566	6840	12.02	6,870
VIENTIANE PROVINCE							
10	01	Phonhong	59	59	340	5.76	340
	02	Thoulakhom	37	37	232	6.27	232
	03	K eo oudom	25	25	18	0.72	18
	04	Kasy	56	40	439	10.98	615
	05	Vangvieng	79	50	72	1.44	114
	06	Feuang	64	39	169	4.33	277
	07	Xanakham	42	42	36	0.86	36
	08	Mad	30	30	114	3.80	114
	09	Viengkham	18	18	59	3.28	59
	10	Hinherb	43	43	182	4.23	182
	11	Hom	47	29	96	3.31	156
	12	Xaysomboun	56	34	66	1.94	109
Total Vientiane Province			556	446	1823	3.28	2,251
BOLIKHAMXAI PROVINCE							
11	01	Pakxane	59	59	160	2.71	160
	02	Thaphabath	33	33	183	5.55	183
	03	Pakkading	51	51	391	7.67	391
	04	Bolikhanh	45	45	210	4.67	210
	05	Khamkeuth	93	73	237	3.25	302
	06	Viengthong	46	44	213	4.84	223
Total Bolikhamxai Province			327	305	1394	4.26	1,469
KHAMMOUAN PROVINCE							
12	01	Thakhek	102	102	297	2.91	297
	02	Mahaxay	70	70	142	2.03	142
	03	N ongbok	56	56	303	5.41	303
	04	Hinboon	166	142	341	2.40	399
	05	Nhommalath	42	42	311	7.40	311
	06	Bualapha	79	62	544	8.77	693
	07	Nakai	58	57	325	5.70	331
	08	Xebangfay	47	47	145	3.09	145
	09	Xaybuathong	66	66	472	7.15	472
Total Khammouan Province			686	644	2880	4.20	3,092
13. SAVANNAKHET PROVINCE							
13	01	Khanthabouly	67	67	507	7.57	507
	02	Outhoomphone	70	70	851	12.16	851
	03	Atsaphangthong	39	39	372	9.54	372
	04	Phine	104	104	1,518	14.60	1,518
	05	Sepone	88	88	1,433	16.28	1,433
	06	Nong	73	73	1,390	19.04	1,390
	07	Thapangthong	42	42	393	9.36	393
	08	Songkhone	95	95	1,387	14.60	1,387
	09	Champhone	97	97	1,287	13.27	1,287
	10	Xonbuly	63	63	614	9.75	614

CODE		DISTRICT	VILLAGES		VICTIMS		
Province	District	Name	Number	Surveyed	Number	/village	Projected
XAYABOURI PRIOVINCE							
	11	Xaybuly	53	53	648	12.23	648
	12	Vilabuly	80	80	855	10.69	855
	13	Atsaphone	56	56	254	4.54	254
	14	Xayphoothong	40	40	337	8.43	337
	15	Thaphalanxay	55	55	684	12.44	684
Total Savannakhet Porvince			1,022	1,022	12,530	12.26	12,530
14. SARAVANE PROVINCE							
14	01	Saravane	163	163	682	4.18	682
	02	Ta oi	55	55	207	3.76	207
	03	Toomlam	62	62	226	3.65	226
	04	Lakhonepheng	84	84	436	5.19	436
	05	Vapy	58	58	291	5.02	291
	06	Khongxedone	99	99	447	4.52	447
	07	Lao ngarm	100	100	740	7.40	740
	08	Samuoi	54	54	717	13.28	717
Total Saravane Province			675	675	3,746	5.55	3,746
15. SEKONG PORVINCE							
15	01	Lamarm	43	43	267	6.21	267
	02	Kaleum	65	65	335	5.15	335
	03	Dakcheung	90	73	414	5.67	510
	04	Thateng	57	57	391	6.86	391
Total Sekong Province			255	238	1,407	5.52	1,503
16. CHAMPASAK PROVINCE							
16	01	Pakse	49	49	42	0.86	42
	02	Sanas omboon	86	81	313	3.86	332
	03	Bachiangchaleunsook	94	48	224	4.67	439
	04	Paksxong	109	60	177	2.95	322
	05	Pathoomphone	107	107	163	1.52	163
	06	Phonthong	103	101	105	1.04	107
	07	Champasack	107	107	80	0.75	80
	08	Sukhuma	81	81	487	6.01	487
	09	Moonlapamok	65	65	255	3.92	255
	10	Khong	136	136	69	0.51	69
Total Champasak Province			937	835	1,915	2.04	2,296
17. ATTAPEU PROVINCE							
17	01	Xaysetha	34	34	550	16.18	550
	02	Sammakkhixay	39	39	218	5.59	218
	03	Sanamxay	50	50	784	15.68	784
	04	Sanxay	58	58	492	8.48	492
	05	Phouvong	24	24	237	9.88	237
Total Attapeu Province			205	205	2,281	11.13	2,281
TOTALFORALLPROVINCES			9,583	9,066	50,136	5.23	52,165

The names of all Districts, and their spelling, are taken from the English rendition of the March 2005 National Census At the time of the Census, the Xaysomboun Special Zone was still in existence: it contained three districts: Saysomboun, Phoon and Thathom. There are anomalies here, such as the spelling of Champasack district as against Champasak province, Xaysomboun SZ vs Saysomboun district. In addition, viengkham and hom districts in Vientiane province are shown without capital initials. All names that are split into two words have a lower case initial for the second word.

ANNEX 3

FORMS USED IN THE SURVEY

Victim Report

Province	District	Village	Accident	Victim

LVIS
MINE/UXO VICTIM REPORT

Use this form to report on an individual victim: use a new form for each victim

1. General Information:

Residence of victim		Village chief name	
Interviewer's name		Interview date	
Interviewee 1: name		Interview date	
Victim s parent ☐	Victim s relative ☐	Victim s parent ☐	Victim s relative ☐
Victim s neighbour ☐	Working with victim ☐	Victim s neighbour ☐	Working with victim ☐
Others (specify) ☐	.....	Others (specify) ☐	.....

2. Personal Details of victim:

Name & family name		Date of birth	
Nickname		Date of accident	
Male ☐ Female ☐	Died ☐ Injured ☐	Father's name	
Single ☐ Married ☐ Widowed ☐ Divorced ☐		Mother's name	
Number of children		Spouse's name	

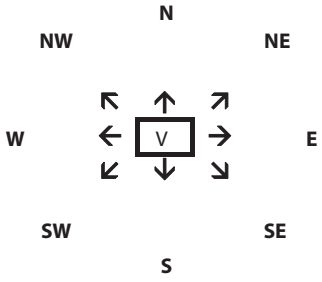
3. Place of accident

Village name	District name	Province .....

Where accident happened :

in house ☐	road outside village ☐	military camp ☐	upland rice ☐
in village ☐	riverbank ☐	government building area ☐	lowland rice ☐
road in village ☐	river ☐	demolition site ☐	pasture ☐
path in village ☐	fish pond ☐	UXO clearance site ☐	forest ☐
path outside village ☐	don t know ☐	other (describe) ☐	

Give direction from village: how far and which direction



4. Others injured or killed in the accident

None	
Injured	
Killed	
Total	

If others were injured or killed in the accident, please give their names below

No	Name and surname	died	injured	No	Name and	died	injured
1.		☐	☐	8.		☐	☐
2.		☐	☐	9.		☐	☐
3.		☐	☐	10.		☐	☐
4.		☐	☐	11.		☐	☐
5.		☐	☐	12.		☐	☐
6.		☐	☐	13.		☐	☐
7.		☐	☐	14.		☐	☐

5. Cause of Accident

Please select from one of the following

1. Making fire	☐	7. Doing nothing exploded beside victim	☐
2. Cutting vegetation	☐	8. Disturbed by animals	☐
3. Collecting food/forest products/wood	☐	9. Bystander/spectator (watching someone handle/tamper)	☐
4. Farming/Gardening	☐	10. Collecting scrap metal	☐
5. Digging	☐	11. Playing (Children)	☐
6. Travelling (but not transporting UXO)	☐	12. Tampering/defusing/dismantling UXO	☐
13. Other…..			

6. Device that caused UXO accident. (See picture)

Big bomb	☐	Mine	☐	Rocket	☐	White phosphor bomb	☐
Small bomb	☐	Mortar	☐	Fuse	☐	Unknown	☐
Bombie	☐	Grenade	☐	Artillery shell	☐	Other ☐ specify	

7. Was the site of accident marked as dangerous?

Yes ☐ : No ☐ ; Don t know ☐ ; If yes, by whom?

.....

8. Victim's Occupation

Before Accident				After Accident			
Child	☐	Student	☐	Child	☐	Student	☐
Soldier	☐	Health worker	☐	Soldier	☐	Health worker	☐
Teacher	☐	Farmer	☐	Teacher	☐	Farmer	☐
Fisherman	☐	Forester	☐	Fisherman	☐	Forester	☐
Government	☐	Labourer	☐	Government	☐	Labourer	☐
Housewife	☐	Miner	☐	Housewife	☐	Miner	☐
Shopkeeper	☐	Unemployed	☐	Shopkeeper	☐	Unemployed	☐
Retired	☐	Scrap metal trader	☐	Retired	☐	Scrap metal trader	☐
Other	☐	(specify)		Other	☐	(specify)	

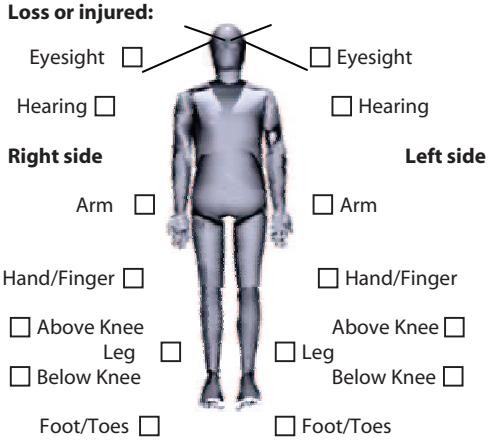
9. If the victim died, indicate location of death:

At place of accident ☐	At home ☐	At health centre ☐
In hospital ☐	Whilst travelling to health facilities ☐	Other ☐ describe .....

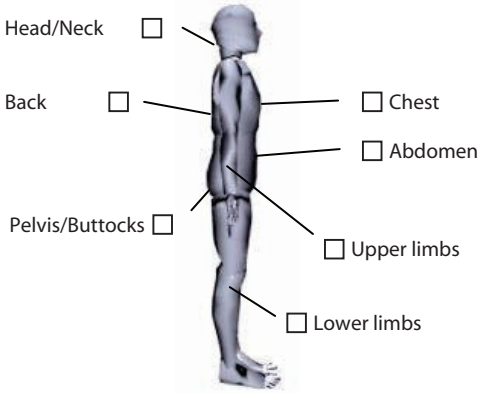
Please stop interview here if the victim died

10. Injuries sustained

Loss or injured:



Other Injuries:



11. Assistance received by the Victim (mark all items received)

Assistance	Organisation	Where obtained	When obtained	Continue to receive
Crutches ☐				Yes ☐; No ☐
Walking aids ☐				Yes ☐; No ☐
Wheelchair ☐				Yes ☐; No ☐
Prosthesis ☐				Yes ☐; No ☐
Orthosis ☐				Yes ☐; No ☐
Physical therapy ☐				Yes ☐; No ☐
Vocational training ☐				Yes ☐; No ☐
Micro-credit ☐				Yes ☐; No ☐
Business advice ☐				Yes ☐; No ☐
Other ☐ (specify)				Yes ☐; No ☐

Any comments:

Please return this form to National Regulatory Authority for Mine/UXO Action, Lao PDR

THANK YOU VERY MUCH FOR YOUR SUPPORT

OFFICE USE ONLY

Date form received	Date data entered
Form checked by	Data entered by

LVIS
MINE/UXO VILLAGE REPORT

1. General Information:

Province	District	Village name
Interviewer's name	Interviewee's name	Interview date
Village chief name	No. of population	

Village s education & health facilities: School ☐; Village first aid kit ☐; HealthCenter ☐; Hospital ☐

2. People killed or injured by UXO in the village

Number of people killed in village	
Number of people injured in village	
Total number affected	

3. List of the casualty.

No	Name of victim	Casualty	Sex	Place of accident	Age at death	Date of accident	Date of death	Interview completed
1		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
2		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
3		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
4		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
5		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
6		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
7		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
8		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐

If you require more rows please turn over and use the form on the back for a larger number of victims.

4. Have there been any of the following activities in your village?

UXO clearance Yes ☐ No ☐ if YES by which organization and when?
.....

MRE Yes ☐ No ☐ if YES by which organization and when? .....

Any comments?

THANK YOU VERY MUCH FOR YOUR SUPPORT

OFFICE USE ONLY

Date form received	Date data entered
Form checked by	Data entered by

5. List of casualties (continued)

No	Name of victim	Casualty	Sex	Place of accident	Age at death	Date of accident	Date of death	Interview completed
9		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
10		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
11		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
12		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
13		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
14		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
15		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
16		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
17		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
18		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
19		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
20		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
21		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
22		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
23		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
24		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
25		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
26		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
27		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
28		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
29		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
30		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
31		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐
32		Injured ☐ Killed ☐	Male ☐ Female ☐					Yes ☐ No ☐

ANNEX 4

NATIONAL REGULATORY AUTHORITY (NRA)
VICTIM ASSISTANCE UNIT
NATIONAL SURVEY OF UXO VICTIMS AND UXO ACCIDENTS
SUMMARY OF QUALITY ASSURANCE CONSULTANTS' REPORTS ON THE QA SAMPLE SURVEY

1. BACKGROUND AND METHOD

The NRA VA Unit undertook a survey of all UXO Victims and Accidents between February and October 2008, using a network of District Enumerators (DE) recruited by the NRC of the MoH. The survey was intended to cover every village in the country (10,552 according to the NSO; 9,583 according to DE/PVAT). Each DE was instructed to contact the Nai Ban (Village Chief) of the village and to collect the names and contact details of all UXO casualties in the village, both living and dead. The DE then interviewed as many of the casualties as possible, or interviewed people close to the casualty if the casualty was dead or absent.

Standard form in surveys such as these is to undertake ground verification by doing a repeat survey of a small sample of the original interviewees. Ideally, a 1% or 2% sample of the respondents should have been randomly drawn from the entire population of respondents. However, the task of visiting randomly distributed casualties was perceived as too large and a compromise was adopted whereby a repeat survey would be carried out in two villages in each district surveyed. This would entail a total of some 278 villages and yield a higher sample than the 2% of respondents.

The surveyors for this verification activity would be entirely independent of the NRC and the original survey team, and be under the direct control of the NRA VA Unit. The NRA, therefore, recruited three Quality Assurance Consultants (QAC) and trained them at the NRA office on how to carry out their tasks. In order to simplify the assignment further, QAC were instructed to work with PVAT in the relevant provinces and with DE in their districts. In particular, the DE accompanied the QAC to the villages to be resurveyed, having the advantage that they could show them the way and help to transport them, and introduce them to the Village Chief. Of course, there were the obvious dangers of bias being introduced.

Villages to be resurveyed were selected using a random number generator against the village codes for each district. Two villages were pre-selected for each district, together with a third to act as a reserve in the event that one of the villages was inaccessible or had yet to be surveyed by the DE. In the event, some of these pre-selected villages were not used for the sample survey, since it was said that they were very remote or totally inaccessible. In these cases further villages were selected by the NRA VA Unit using a random number generator.

Acronyms used

DE	District Enumerators	PVAT	Provincial Victim Assistance Technicians
MoH	Ministry of Health	QA	Quality Assurance
NRA	National Regulatory Authority	QAC	Quality Assurance Technicians
NRC	National Rehabilitation Centre	UXO	Unexploded Ordnance
NSO	National Statistical Office	VA	Victim Assistance

2. RESULT OF THE DATA VALIDATION AND COMPARISON

The table gives the records of the results, summarized by province only. More detailed results can be provided at the district level, for those districts covered. The QAC also resurveyed all of the victims in the survey villages; no comparison of the resurvey results for casualties has yet been made with the original survey.

No	Province	Districts		Villages		Victims Surveyed		Variation	
		Total	Validated	Sample	Validated	DE	QAC	No	%
1	Vientiane C	9	9	18	18	60	69	9	15
2	Phongsaly	7	7	14	14	40	75	35	88
3	Luang Nmth	5	5	10	10	37	42	5	14
4	Oudomxay	7	2	14	4	34	40	6	18
5	Bokeo	5	5	10	10	33	48	15	45
6	Luang Pbng	11	6	22	12	101	178	77	76
7	Houaphan	8	6	16	12	86	102	16	19
8	Xayabouri	10	0	20	0	0	0	n.a.	n.a.
9	Xieng Khng	8	5	16	10	131	160	29	22
10	Vientiane P	12	12	24	24	121	132	11	9
11	Bolikhamxay	6	4	12	8	24	24	0	0
12	Khammouane	9	4	18	8	19	23	4	21
13	Savannakhet	15	15	30	30	350	390	40	11
14	Saravan	8	5	16	10	39	50	11	28
15	Sekong	4	2	8	4	27	23	-4	-15
16	Champasak	10	10	20	20	76	96	20	26
17	Attapeu	5	5	10	10	127	127	0	0
	Total:	139	102	278	204	1,305	1,579	274	21

3. INTERPRETATION

The coverage of the validation survey was less than planned: the QAC traveled to 204 villages as opposed to the planned 278, and did not travel to any villages at all in Xayabouri. This diminishes the validity of the results, but not substantially. We have still covered in excess of 2% of the villages and about 3% of the casualties.

The results tell us that, during the main Phase 1 survey, we have achieved a considerable under-recording of the total number of UXO casualties in Lao PDR. The main reason appears to be that Village Chiefs have been the biggest source of information about UXO casualties: they have given the best information that they could to the DE during the main survey, but have then remembered other victims after the DE have departed. The visit of the QAC has allowed them to furnish the whole picture.

If we take the statistics here as representative, then there is an under-recording of 21%. Given an anticipated 53,000 casualties from the main Phase 1 survey, this could indicate a true total of some 67,000.

Once we have finished the data entry for the casualties collected in the main survey, we shall enter the results for the QA survey and compare them for the villages concerned. We need to test against such hypotheses that those covered initially in the first stage were (a) mainly people who died, or (b) mainly accidents from a long time ago. If those hypotheses were shown to be true, then the impact of the under-recording will be minimal.

4. SURVEY MANAGEMENT

There were three QAC: one was allocated to northern provinces, one to central provinces and one to southern provinces. Initially, the validation survey was expected to take place over a three month period. However, in view of slow progress, this was extended to four months.

QAC, after briefing in Vientiane, were sent to their areas of work: it was planned that they would return to the NRA office for one week every month, in order to report back on progress and receive advice on problems, and collect funds for the next phase of their work. But these returns to Vientiane became extended, chiefly because of the difficulties experienced in releasing funds for their continuing work. Overall, this was the major reason for the shortfall in performance.

Whilst in the field, the QAC report good cooperation with PVAT, DE and Village Chiefs.

In the original survey, the DE invariably arrived in the villages unheralded. This meant that the Nai Ban had to search his or her memory for all of the casualties from the village. This is a complex matter since there could be casualties who had moved out of the village and others who had moved in: in both categories there could be those who had died since the accident, quite apart from all of those casualties who had died during the accident. It is not surprising, therefore, that the passage of time had allowed Village Chiefs to reflect and to come up with further names of casualties.

In addition, after a DE has called at a village and the news spreads about the survey, some people who were omitted present themselves to the Village Chiefs and register as UXO casualties.

The message here is that Village Chiefs, acting as a village spokesperson and clearing-house in such surveys, can respond more effectively if they are forewarned of the survey.

We have not yet investigated the reasons for over-recording, but anecdotal evidence from the QAC cite such events as victims of other accidents being brought forward and represented as UXO casualties.

5. FINANCES

Expenditure on the survey validation was as below:

No	Name	DSA (Kip)	Other (Kip)	Total (Kip)	Total $
1	Mr. Somchai	13,040,424	5,692,800	18,733,224	2,178
2	Mr. Saifon	13,040,424	4,811,500	17,851,924	2,076
3	Mr. Bouasone	13,040,424	6,467,600	19,508,024	2,268
	Total:	39.121.272	16,971,900	56,093,172	6,522

REPORT BY BOUNTAO CHANTHAVONGSA

EDITING AND FURTHER RERPORTING BY MIKE BODDINGTON

20TH JANUARY 2009

ANNEX 5

PRO FORMA UNDERTAKING
BETWEEN
THE NATIONAL REGULATORY AUTHORITY
AND
[NAME OF ORGANISATION]

The National Regulatory Authority (hereinafter the NRA) undertakes surveys from time-to-time to establish circumstances relating to individual victims of accidents with unexploded ordnance (UXO). In general, the survey materials are used collectively rather than individually. However, in order to render assistance to individual victims the NRA may release details collected from or about such individuals to organisations having a legitimate interest in the victims and which, it seems to the NRA, may bring improved welfare to such victims.

This Undertaking is issued to [name of organisation] which has requested the NRA to provide the individual victim information specified in Attachment A hereto. The terms under which the information is released are set out below. By his/her signature to this Undertaking, the nominated representative of [name of organisation] signifies agreement to these terms and conditions, which are binding on all members of the organisation.

TERMS

1. Information released by the NRA to [name of organisation] is to be used for the purposes specified in Attachment B hereto only and for no other purpose
2. In the event that [name of organisation] wishes to use the information released for purposes other than those specified in Attachment B hereto, a separate agreement will be necessary
3. With the sole exception of circumstances set forth in §4 below, no information released to [name of organisation] under this Undertaking will be passed to any third party, not a party to this Undertaking, whether an organisation or an individual
4. Exception to §3 above is where information derived from the information released has been processed in such a way to remove any possibility of identifying any individual UXO victim named in the information

This document has the following Attachments which form a part of this Undertaking

A. Schedule of Information Requested
B. Reason for Requesting Information (including uses to which the Information will be put).

Signed	Signed
Director	Nominated Representative
National Regulatory Authority	[Name of organisation]
Date	Date

ANNEX 6

PEOPLE INVOLVED IN THE WORK OF THE VA UNIT

The work of establishing the Phase 1 Lao National Survey of UXO Victims and Accidents has involved very many people, in planning and execution. Since first planning in 2006, the survey has benefited greatly from many meetings – formal and informal – including those of the Technical Working Group. We express our gratitude to all who have participated and, if we unwittingly leave anyone out, we apologise most sincerely:

AFESIP: Didier Bertrand

AusAID: Warren Hoye, Sounisa Soundara, Kathryn Sweet, Dulce Carandang Simmanivong, Mone Sysavath

Basic Needs: Chantheravady Choulamany, Vannaphone Manibod,

CARE: Alexandra Maclean, Nami Nelson, Khemphone Phaokhamkeo, Malihack Phounesana

COPE: Bounlanh Phayboun, Theptheva Phetsavan, Ruth Baker, Jo Pereira, Sybounheuang Sansathit

Danish Red Cross: Jorgen Kristensen

European Union: Henry Prankerd, Francesco Straniero, Josephine Kalinauckas

Geneva International Centre for Humanitarian Demining: Alan Arnold, Simon Berger

Handicap International (Belgium): Luc Delneuville, Chris Woods, Vithit Chanthasiri Kim Warren, Phetdavanh Sounthonnavong

Japanese Embassy: Jun Yoshida

Lao Disabled People's Association: Bounvien Louangnot, Davina Dressler, Holly Miller, Nouenta Latsavongxay, Somphet Akhavong, Amanda Ruelas

Lao Red Cross: Mrs Aikham, Olivia Leclair

Lao Women's Union: Thoummaly Vongphachanh

Lao Youth Union: Sibountham Choomaly

Mines Advisory Group: Ruth Bottomley, Lisa Ognjanovic, Jamie Franklin,

Ministry of Health, Curative Department: Dr Phisith Phoutsavath, Dr Chapheth Phothilath, Dr Bouavanh Sensatith, Solivong Lasavanh, Dr Siprasert Ladparkdy,

Ministry of Health, Extended Programme of Immunisation: Dr Anonh Xeutvongsa

Ministry of Health, Mental Health: Bounhome Kanthavong

Ministry of Health, National Dermatology Centre: Dr Bounma , Dr. Lithnalone, Dr Hongda Bouthony

Ministry of Justice: Santisouk Phantahnalay

Ministry of Labour and Social Welfare: Boouneuang Sidavong, Bounphamith Somvivichith,

National Regulatory Authority: Professor Chanphomma Vongsamphan, Dr Maligna Saignavongs, Somnuk Vorasarn, Thongphone Keosayadeth, Tim Horner, Phil Bean, Viengprasith Thiphasouda Mingkhouankham Sisavath, Sommay Saysondeth, Khammoungkhoun Southivong, Thongdy Phommavongsa, Vilaisack Vongsayachan, Phommachan Khamanichanh Phouviengsavanh Keosouphan, Bounpheng Sisavath, Ian Thomas, Beat Schoch, Kerryn Clarke, John Fenech, Michael Inthavong, Nanthavongsa Vongthanom, Urs Grischott, Bounleuam Sisongkham, Bouavieng Phaulatsamy, Bouaphet Phommavong, Thippavan Sikounnavong, Daovieng Darasavath, Khamphet Fonglamay, Bounnan Ratthanavong, , Franki McClure, Saysomvang Souvannavong, Thipphachanh Syluckham, Khamnouta Homsambath, Lasoy Phiphak, Phitmala Phaythoumphon, Khamla Somboun, Somchai Chengvang, Bouasone Chanthamith, Sayfone Soukhavath, Panee Prikeo

National Rehabilitation Centre: Dr Thongchanh Thepsomphou, Thonglith Sihabandeth

Norwegian People's Aid: Stephen Pritchard, Rune, Arlene, Charles Frisby

Oxfam Australia: Khamlouang Keoka. Manivanh Suyavong

Phoenix Clearance Ltd: Jim Harris, Yai Sayavong

POWER International: Sarah Hodge, John Ferchak, Richard O'Brien, Gregory Cathcart

Swiss Demining Foundation (FSD): Nigel Orr, Tony Fish, Joseph Huber, Stephanie Sparks

UNDP: Mariko Harada, Veratsamay Visonhavong, Stephane Vigie, Deputy Resident Representative

UNICEF: Amy Delneuville, K. Khouhathong

UXO Lao: Khampane Lathsavong, John Dingley, Dr. Thongsavanh Vongmany

World Education/Consortium: Nancy Jiracek, Barbara Lewis, Soutchai Luangvisa, Bounsong Phouthavong, Vongdala Vongphachanh, Phadsada Chanthavong

NRC/NRA Survey Field Personnel:

No	Province: PVAT or DE Name	District
01	Vientiane Capital	
01.0	Mr. Somsanouk Vongxay	(PVAT)
01.01	Mr. Sipasert Phongsisattanak	Naxaythong
01.02	Mr. Kongchai Bounxauy	Sangthong
01.03	Mr. Thanomsap	Sikhod
01.04	Mr. Kongxay Vannalak	Pak gneum
01.05	Mr. Khamtan Vongphachan	Chanthabouly
01.06	Mr. Phouthone Phetsompou	Saythany
01.07	Mrs. Eksouvanh Souvanhnasing	Sisattanak
01.08	Mr. VanniNgom Launglath	Saysetha
01.09	Mr. Saman Inthavong	Hadsaifong
02	Phongsaly	
02.0	Mr. Siphone Khounsa Nga	(PVAT)
02.01	Mr. Thongdy A	Gnot ou
02.02	Mr. Khamchan Nousao	Bounneu
02.03	Mr. Bounlang	Bountai
02.04	Mr. Dr Somsert Bouddy	Phongsaly
02.05	Mr. Vannasin	Samphan
02.06	Mr. Khampheng Dalasone	Kha
02.07	Mr. Khamchan	Mai
03	Luang Namtha	
03.0	Mr. Sichan Phanouchan	(PVAT)
03.01	Mrs. Chanthanome	Sing
03.02	Mr. Bounsi Vilay	LNT
03.03	Mr. Phetsmone	Long
03.04	Mr. Bounpan	Viengphoukha
03.05	Mr. Bounkhong	Nalae
04	Oudomxai	
04.0	Mr. Khamving Hongdala	(PVAT)
04.01	Mr. Khamxay	Sai
04.02	Mr. Bounthaen	La
04.03	Mr. Luangpeng	Namor
04.04	Mr. Chantha	Gna
04.05	Mr. Bounmy	Bang
04.06	Mr. Xayhoun	Houn
04.07	Mr. Hongkham	Pakbang
05	Bokeo	
05.0	Mr. Kardkeo Sangdao	(PVAT)
05.01	Mr. Southin	Hauyxay
05.02	Mr. Phommachan	Tonpheung
05.03	Mr. Phonekeo	Pha oudom
05.04	Mr. Apao	Paktha
05.05	Mr. Dethsomxay	Meng
06	Luang Phrabang	
06.0(a)	Mr. Sisaart Chittaphone	(PVAT)
06.0(b)	Mr. Ni Ngom Kammavong	(PVAT)
06.01	Mr. Vilavong Lathsavong	LPB
06.02	Mr. Thongvan Simanychack	Chomphet
06.03	Mr. Si art Panyasak	Pak Ou

No	Province: PVAT or DE Name	District
10	Vientiane Province	
10.0	Mr. Khamla Keovongsa	(PVAT)
10.01	Mrs. Phaly Sivongphan	Phone hong
10.02	Mr. Chantha Sihalath	Keo oudom
10.03	Mr. Phomma Xaygosy	Thoulakhom
10.04	Mrs. Saykham Orlaboun	Viengkham
10.05	Mr. Khamphery Simoukda	Hinheub
10.06	Mr. Khen Inthavone	Feung
10.07	Mr. Daophone Ounkeo	Sanakham
10.08	Mr. Thoum Baochan	Vangvieng
10.09	Mr. Sengchan Hongkham	Kasi
10.11	Mr. Koulor	Xaysomboun
10.12	Mr. Yangpaovang	Hom
11	Bolikhamxay	
11.0	Mr. Somphien Thammavongsa	(PVAT)
11.01	Mr. Vilaylak Xayyavong	Pakading
11.02	Mr. Buathong	Khamkert
11.03	Mr. Phet Phalanthong	Viengthong
11.04	Mr. Maikham	Borlikhan
11.05	Mrs. Phaisavang	Paksan
11.06	Mrs. Khamphouy	Thaphabath
12	Khammouan	
12.0	Mr. Inthavong Keo onkhai	PVAT
12.01	Mrs. Bounthavy	Thakek
12.02	Mr. Chanpheng	Sebangfai
12.03	Mr. Khampien	Gnommalath
12.04	Mr. Khamserm Xai Outhone	Nakai
12.05	Mr. Bounyasith	Nongbok
12.06	Mr. Keunta Sisomphou	Mahaxay
12.07	Mr. Chandy Sisombath	Saibouathong
12.08	Mr. Boun Air Keoboutdy	Boualapha
13	Savannakhet	
13.0(a)	Mr. Bounlap Phamisithong	(PVAT)
13.0(b)	Mr. Khamphai Duangdy	(PVAT)
13.01	Mr. Phousa Nga Xayyalath	Kaisone
13.02	Mr. Khambor Chantha chack	Phalanxay
13.03	Mr. Visien Saensombath	Sayphouthong
13.04	Mr. Thonglien Soulivong	Saybouly
13.05	Mr. somdeth Phanthavongsa	Nong
13.06	Mr. Lamphone Sibounhuang	Vilabouly
13.07	Mr. Bounbuang Phothilath	Xonbouly
13.08	Mr. Khamdeng Phetsalath	Outhoumphon
13.09	Mr. Ngasameu Tanvongphan	Artsphangtong
13.10	Mr. Somphan Thepphonxay	Sepone
13.11	Mr. Xayyasak	Songkhone
13.12	Mr. Somsak	Artsphone
13.13	Mr. Sengthong	Thapangtong
13.14	Mr. Ketkesone	Phin
13.15	Mr. Phanomesak	Champhone

06.04	Mr. Khamlai	Nam Bark
06.05	Mr. Bounmeung	Gnoi
06.06	Mr. Somnuk Banyasith	Vinegkham
06.07	Mr. Bounmy Vannalath	Paksang
06.08	Mr. Khamsi Naunsaloy	Phoukhoun
06.09	Mr. Thong Chanpathoum	Xieng Gneun
06.10	Mr. Somsanith Bounthachit	Nan
06.11	Mr. Chanthaly	Phonxay
07	Houaphan	
07.0	Mrs. Lounthong Homsisombath	(PVAT)
07.01	Mr. Xiengbounmi	Xamneu
07.02	Mr. Phonesavanh	Houmeung
07.03	Mr. Daophet Seng Aloun	Xiengkhor
07.04	Mr. Phonevilay Phommasork	Add
07.05	Mr. Thinphone	sobbao
07.06	Mr. Nivong	Xamtai
07.07	Mr. Sengkeo Boupphapasith	Viengxai
07.08	Mr. Phouthong Sengmany	Viengthong
08	Xayabouri	
08.0	Mr. Chanpasert Khamphanpheng	(PVAT)
08.01	Mr. Chattakone Phonesavanh	Khop
08.02	Mr. Chanthaly Khanthayot	Xienghone
08.03	Mr. Somchai Pengsengkeo	Gneun
08.04	Mr. Chansy Phommaly	Hongsa
08.05	Mr. Saisavin Khamphouvong	Sayabouly
08.06	Mr. Vong Vilayphone	Phieng
08.07	Mr. Khamtan Thanavanh	Paklai
08.09	Mr. Lamphai Midikone	Thongmixay
08.10	Mr. Sousanxay Phetthanavanh	Keanthao
09	Xieng Khouang	
09.0	Mr. Khamsavang Chantharasy	(PVAT)
09.01	Mr. Sinxay	Pek
09.02	Mr. Teuy	Khoun
09.03	Mr. Phetsmone	Kham
09.04	Mr. Thai Ya	Nonghet
09.05	Mr. Bounthan	Phoukout
09.06	Mr. Vanxay	Phaxay
09.07	Mr. Somvang	Thathom
14	Saravan	
14.0	Mr. Somkhit Thongkhamsouk	(PVAT)
14.01	Mr. Keosoda Khoummavong	SRV
14.02	Mr. Phoutthavong Nanthalath	Vapi
14.03	Mrs. Many Xayyachak	Lakhonepeng
14.04	Mr. Khammany Sengphet	Khongse don
14.05	Mr. Intong Chongkhamchan	Tumlan
14.06	Mr. Sisavath Boutdavong	Lao Gnam
14.07	Mr. Phoumin Hosonghuang	Samauy
14.08	Mr. Khamkhet Keovongsod	Ta oi
15	Sekong	
15.0	Mr. Khamphaen Soulivong	(PVAT)
15.01	Mr. Phoumy	Lamam
15.02	Mr. Ikeo	Kaleum
15.03	Mr. Thongkham	Dakcheung
15.04	Mr. Seng Athith	Thateng
16	Champasak	
16.0(a)	Mr. Viengxay Siphommalangkoun	(PVAT)
16.0(b)	Mr. Phuangmala Phalanasy	(PVAT)
16.01	Mr. Souvanh Sisoupha	Pakse
16.02	Mr. Phouvanh Chor laphan	Khong
16.03	Mr. Khamdy Phongpasong	Pathoumphone
16.04	Mr. Bounpone Phothilath	Mounlapamok
16.05	Mr. Buaxay Doneviseth	Champasak
16.06	Mr. Nikhom Chalernsouk	Soukhouma
16.07	Mr. Buaphanh Phomthavy	Phonthong
16.08	Mr. Bounleum Phanthavong	Paksong
16.09	Mr. Soulin Keothanongsak	Bachieng
16.10	Mr. Phanmaly Buahuang	Sanasomboun
17	Attapeu	
17.0	Mr. Phettamone Keoviengkham	(PVAT)
17.01	Mr. Bounma	Saysetha
17.02	Mr. Ban Year Lang	Sanamxay
17.03	Siviengsong	Sanxay
17.04	Mrs. Vongvilay	Samakixay

NOTES ON POPULATION CALCULATION

Reliable sources of population data for the different countries are not readily available: some very round, and undated, figures are given in the Congressional Record (1975) (*op cit*), where no figure is given for N Vietnam: figures for each country have been sourced from Wikipedia, Nationmaster, Wolfram Alpha, for various years, and these have been used to determine the average of 1965 and 1970 populations. A cross-check is available by taking the French colonial census for 1921 and the CIA World Factbook estimated 2009 population for each country and applying the annual growth rate derived between the two to establish populations for the three countries in the period of the conflict:

Country	1960	1965	1970	1975
Vietnam	33,382,831	36,809,100	40,587,026	44,752,703
Laos	2,096,920	2,365,617	2,668,744	3,010,714
Cambodia	5,328,319	5,901,167	6,535,601	7,238,243

For further information, please contact:

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