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THE ROYAL GOVERNMENT
Cambodian Mine Action
and Victim Assistance Authority

File N°: 133/CMAA/2009

Phnom Penh, 29 April 2009

Ambassador Jürg Streuli,
President of the Ninth Meeting
of the States Parties to the Convention
Geneva, Switzerland

Excellency,

The Royal Government of Cambodia wishes to present its compliment to the Presidency of the Ninth Meeting of the States Parties to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction and has the honor to submit a request for extension of the deadline for completing the destruction of anti-personnel mines in mined areas.

Attached herewith is a detailed explanation of the reasons for the requested extension as well as the measures to be implemented over the extension period.

The Royal Government of Cambodia avails itself of this opportunity to convey to the Presidency of the Ninth Meeting of States Parties the renewed assurances of its highest consideration.

Respectfully Yours,

Chum Bun Rong
Advisor to Prime Minister
Secretary General of the CMAA

Address: New Building, St.273, Corner 516, Sangkat Toul Sangker, Khan Toul Kork, Phnom Penh. Tel : 023 885 941 , 023 881 492

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The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction

Request

for an extension of the deadline for completing the destruction of anti-personnel mines in mined areas in accordance with Article 5

Submitted to Ambassador Jürg Streuli of Switzerland,
President of the Ninth Meeting of the States Parties to the Convention

30 April 2009

CONTACT INFORMATION:

Organization:	Cambodian Mine Action and Victim Assistance Authority
Secretary General:	H.E. Chum Bunrong
Telephone:	+855 12 907 960
Fax:	+ 855 23 882 265
Email:	cabinet@cmaa.gov.kh

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I- Executive Summary

Cambodia's landmine problem is the result of a protracted sequence of internal and regional conflicts that affected the country from the late 1960s until the end of 1998. The nature of landmine and unexploded ordnance contamination in Cambodia is highly complex. The northwest regions bordering Thailand are heavily affected, while other parts of the country are considered moderate to low. It was original estimated that somewhere around four to six million landmines were laid during conflicts. The country is also heavily affected by explosive remnants of war (ERW) due to aerial bombing and ground battles. Mines and ERW have caused an unacceptable number of casualties, both military and civilian, which peaked at 4,320 in 1996.

Cambodia officially started humanitarian mine clearance in 1992. However, clearance of the Cambodian-Vietnamese border region began as early as 1979. By 1998, demining was at full throttle, with four demining operators, the Royal Cambodian Armed Forces (RCAF), the Cambodian Mine Action Centre (CMAC), Mines Advisory Group (MAG) and the HALO Trust all conducting clearance operations. On 28 July 1999, Cambodia ratified the Anti-Personnel Mine Ban Treaty (APMBT), and the Treaty entered into force on 1 January 2000.

Early in Cambodian mine action, surveys and clearance requests were the means employed to identify areas with landmine contamination. However, when Cambodia began to focus on longer-term development goals, the need for a more systematic and holistic approach to mine action management arose. In order to ascertain and quantify the full scope of the country's landmine problem, a Level One Survey (L1S) was undertaken between late 2000 and April 2002. The completed L1S identified 4,544 square kilometres contaminated with mine and ERW, affecting 6,422 villages – or 46% of all villages. Contamination was suspected in each of Cambodia's 24 provinces. Mines have had a huge negative humanitarian, social and economic impact on Cambodia, leading to mine action being integrated into the Government's major national development strategies and added as an additional Cambodian Millennium Development Goal (MDG9).

Despite the optimistic view that the L1S would provide a clear map of areas containing anti-personnel landmines, it soon became apparent through subsequent technical surveying by operators that there were also other mined areas sitting outside the L1S, and that some of the L1S polygons were unmanageably large. The problems emanating from this situation are widely recognized, and continue to become more clearly understood as time passes. To ensure efficient use of demining resources to target where landmines actually were, an innovative mine action planning mechanism was introduced which facilitates both community and demining operator inputs into prioritization of mine clearance plans (known as the MAPU process). Also relevant to the identification of mine areas to be cleared, and to address risk reduction, is the 2001 introduction of the Community-Based Mine Risk Reduction (CBMRR) network. CBMRR encourages broader community involvement in risk reduction, linking affected communities to other services and contributing to a more precise definition of mined areas.

The last few years have seen an emergence of new, meaningful mine action initiatives. In 2006, an Area Reduction Policy was initiated in recognition that much of the L1S needed to be reclassified. The Area Reduction Policy aimed to develop agreed protocols and standards through which area that was previously classified as suspect, but which had been in productive use without incident, could be reclassified within the national database, based upon appropriate investigation. Taking this initiative one step further, from 2008 to 2009, CMAC in partnership with NPA and GICHD began developing Land Release Protocol and methodology which call for the use of non-technical and technical survey in order to improve the efficiency and socio-economic impact of CMAC operations and respond to the RGC area reduction policy.

As mine action evolved, stronger systems and structures emerged. The RGC has in September 2000 established the Cambodian Mine Action and Victim Assistance Authority (CMAA) to regulate and coordinate mine action activities throughout Cambodia. The CMAA has established various policies and guidelines for the management of the mine action programme in Cambodia.

Key actors in the Cambodian mine action programme are demining operators such as the HALO Trust, MAG, CMAC, and RCAF; stakeholders such as government ministries and agencies, donors, and development partners; NGOs and Community Based Organizations (CBOs); local authorities; and mine-affected communities. Also important to the mine action programme are the beneficiary groups. Together, they form an effective mine action system.

The Cambodian mine action sector has achieved remarkable results from 1992 to 2008, thanks to a combination of all operators' demining activities with efforts from stakeholders in the sector. The three humanitarian demining operators CMAC, MAG and the Halo Trust have cleared 289,580,086 square metres of land across some 7,500 mined areas resulting in substantial socio-economic benefits.[1] In addition, the Royal Cambodian Armed Forces reports the clearance of 170,640,882 square metres. In total, from 1992 until 2008, CMAC, MAG, HALO Trust and the RCAF combined, report having cleared 814,198 APM, 19,109 ATM and 1,740,831 items of ERW as part of their demining activities.[2] Overall, huge amount of suspected land has been released for productive use, including safe resettlement for thousand of refugees and Internally Displaced People (IDP), and allowing the process of social and physical infrastructure reconstruction and development to begin.

Since 1992, operators, guided by their own Standard Operating Procedures (SOPs), have been using two main methods to release suspect mine areas: clearance and survey. The SOPs aim to ensure productivity and quality as well as the safety of the operators' own personnel and those who benefit from their demining activities. In 2005, the CMAA began developing the Cambodian Mine Action Standard (CMAS). The operators are assessed by CMAA's QA/QC teams using the CMAS and their own SOPs. To maintain the highest level of quality clearance operations, demining operators established and employed their own Quality Control (QC) and Quality Assurance (QA) procedures.

However, despite some success, Cambodia is still challenged by the sheer scale of the perceived problem, and the urgency of ensuring precious mine clearance assets are directed to those areas in most urgent need. The considerable improvement in casualty statistics, 266 cases in 2008, down from 4,320 cases in 1996, suggests that allocation of clearance resources has been strategic and effective, yet this does not disguise the fact that there is still uncertainty regarding the remaining suspect area, and that there is still a large problem.

Much initial humanitarian clearance work was done through the time consuming manual method; although the greatest volume of clearance is still achieved by manual demining teams, their efforts have been enhanced with mechanical-assisted demining tools such as brush cutters, demining machines, mine detection dogs (MDD) and explosive ordnance disposal (EOD) assets. Their quick and safe entry into use together with years of demining experience facilitated the increased rate of land release that has been experienced in the last

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[1] These clearance statistics correspond to the sum calculated by CMAA DBU of all operators cleared areas' polygons and APM, ATM and items of ERW destroyed as part of minefield clearance.

[2] These numbers correspond to progress reports provided by demining operators to CMAA DBU. These reports include APM, ATM and ERW collected and destroyed outside cleared mined areas as part of ERW spot tasks and the destruction of caches.

few years. These innovative tools come about as operators search for efficient means through research and development to release land for productive use.

The release of land also occurs at ERW battlefield areas. Resources were also employed to release land contaminated with ERW through the battle area clearance (BAC) technique. This land release could not be successfully achieved without a solid prioritization system (MAPU), and, later, the contribution from the CBMRR grassroots volunteer network.

Because the contamination is so widespread, land release alone cannot prevent mine and ERW casualties, therefore mine marking and mine risk education (MRE) are also key tools. These have been applied since 1993, with support from the CBMRR network since 2001, to prevent mine and ERW casualties by encouraging people to adopt mine and ERW risk-avoidance behaviours.

Cambodia has benefited greatly from sustained and significant contributions from the international community to fund mine action activities since 1992. The overwhelming majority of mine action funding has been directed to mine clearance, but significant contributions have also been made to MRE, victim assistance, mine action governance, integrated mine action programs, and research and development. While Cambodia remains a developing country with great pressure on its National Budget to address a wide range of different needs, the RGC has managed in recent years to increase its budget allocation to mine action. In total, this funding has reached at least 200 million USD from both financial and in-kind contributions.

Cambodia will need an extension to enable meeting the APMBT's Article 5 obligation due to the high level of contamination. However, even within this extension period, adverse circumstances could severely impede Cambodia's efforts. The most critical is the financial factor. Cambodia's mine action programme relies on international funding to exist. Emerging and competing needs elsewhere globally will make it extremely challenging for Cambodia's mine action sector to mobilize enough resources to comply with its international obligations to address the remaining mine and ERW problem.

The contribution of Cambodia's mine action program since 1992 to the social and economic situation of people living in affected areas is considerable. This occurs primarily through the major contributions that mine action makes to reducing the number of casualties, distributing safe land and contributing to enhancing livelihoods for poor and vulnerable people. The implementation of the MAPU planning system, particularly its participatory approach, has led to further coordination and harmonized humanitarian, economic, social and environmental concerns.

Addressing the next 10 years begins with a new effort to quantify the remaining mine and ERW problem. Due to changes such as population movement, land use, etc., it is impossible at present to pinpoint and quantify all the remaining contaminated areas. Therefore, consensus among operators and the CMAA is to undertake a baseline survey starting with the 21 most mine-affected districts with the highest casualty rates. This exercise will take up to 12 months from August 2009 and so will not be completed in time for results to be part of this request for extension. Therefore from the following options an alternatives extrapolation of existing (non LIS) survey data gathered by CMAC was considered the most appropriate for this extension request: (1) do nothing, wait for planned baseline survey completion, (2) use expert opinions and guesses, or (3) make an estimation based on limited samples from empirical evidence (operator survey data). The third alternative is preferred due to the availability of five years worth of empirical evidence gathered by CMAC non-technical survey conducted in selective mine-affected districts. In sum, districts are surveyed, and the level of contamination found at different sites is averaged and projected.

According to this extrapolation of non-L1S survey data, 672 square kilometres of mined and suspected land will need to be released through full clearance, 1,864 square kilometres through technical and non-technical survey, and 2,008 square kilometres through baseline survey. This quantification is for the purpose of planning the next ten years of activities, and will be refined and improved through the baseline survey exercise. The baseline survey will be further beneficial in identifying precise locations to effectively target the deployment of resources. Cambodia commits to revise its workplan annually as additional and more accurate data become available and to inform Meeting of States Parties accordingly.

In the absence of accurate data on the extent of the remaining challenge, CMAA and demining operators consider that CMAC's projection and quantification methodology based on CMAC's survey results in 16 districts constitutes a first basis to develop a preliminary workplan for the Extension Period. CMAA and the operators however believe that the methodology and assumptions could be enhanced. Therefore, CMAA together with the operators will in the coming months continue to review the methodology in order to refine the workplan for the next ten years period in time for the final submission of this Extension Request to be considered by States Parties at the Second Review Conference.

To undertake these release tasks and meet the APMBT Article 5 obligation, Cambodia is seeking a ten-year extension period, commencing in January 2010 and concluding in December 2019. Cambodia's strategy is to eliminate a large amount of suspect areas from the L1S and perform land release through various means, accompanied by other important actions aiming to achieve the vision of 'all known mined areas released by 2020 and having the national capacity in place to deal with the remaining residual threat of ERW'. To achieve this vision, a series of objectives and activities have been set:

- Develop and conduct a baseline survey process to obtain more accurate and reliable information on the remaining landmine contamination problem; a first phase of this process will commence in August 2009 and encompass operator re-survey of the 21 most mine-affected districts
- Release up to 672 square kilometres of mined areas through full clearance using available demining tools (note that this is an extrapolation of possible clearance requirements over the whole country, not just the 21 first phase Baseline Survey districts)
- Release approximately 3,872 square kilometres of suspect areas through survey, including 1,864 square kilometres through technical and non-technical survey methods, and 2,008 square kilometres from the L1S database through the baseline survey method
- Revise the National Mine Action Strategy to support the implementation of Article 5 and that will address all priorities identified by the sector
- Revise Cambodia's Area Reduction Policy and subsequent drafting of CMAS on survey to improve and standardize methodologies used to release land through non-technical and technical survey
- Strengthen the national capacity to manage, coordinate and regulate mine action activities
- Strengthen the capacity to deliver mine action at the national/local level by mine action operators
- Enforce the Land Classification table to ensure uniformity of data reported and incorporated in the national database
- Strengthen and improve the national and local coordination and prioritization for mine action to ensure efficient utilization of scarce demining resources
- Develop a mechanism for survey teams to investigate mine accidents and report mined areas to the national database

- Ensure that RCAF reports complete statistics of clearance undertaken including polygons of areas cleared
- Support the national and community capacity, particularly the commune council members, to deliver landmine risk education activities, victim assistance, mine clearance prioritization and post clearance development
- Address landmine survivors' needs in collaboration with other stakeholders as guided by the National Plan of Action for People With Disability
- Improve linkages between mine action and development activities, to achieve optimum socio-economic benefits of demining
- Increase post-clearance monitoring to ensure clearance benefits the most vulnerable
- Ensuring equal opportunity for men, women, boys and girls and representation of both men and women in mine action services and benefits.

Cambodia envisages, based on its years of demining experience, that substantial financial support will be required. Funding may be sourced from multi- or bi-lateral international contributions and the RGC national budget. Based on CMAC's extrapolation of survey results into a workplan, the implementation of the workplan would require the following financial contribution, (1) land release through full clearance USD 336,165,000, (2) land release through technical and non technical survey USD 93,213,000, (3) USD 4,015,600 land release through baseline survey (4) equipment replacement and acquisition USD 65,009,040, and (5) USD 30,337,552 for coordination, management and training. These requirements will incrementally increase in the first five years, then gradually decrease in the last five years of the extension period. The RGC will seek to incrementally increase its contribution while the need for international support will decrease.

The Cambodian mine action sector is considered to be in an advanced phase of development. All key mine action institutions have been established at the national, provincial and local levels. In terms of demining organizations, both national and international demining operators are well established as are their development partners and generous international donors. They are all well integrated in the functional mine action system.

Over the course of 16 years of demining, Cambodia has developed capable human resources and is able to quickly mobilize additional capacity when required to meet the increased number of tasks; it is projected that at its peak, Cambodia will need around 6,000 demining experts – an increase from its current capacity of over 5,000. These human resources are necessary to operate the demining tools envisaged to be deployed. The increase in the number of tasks and level of productivity will also require additional equipment and materials.

With these institutions and resources, coupled with the established prioritization and coordination mechanisms, Cambodia can ensure the effectiveness and efficiency of its demining operations, and with enough funding can meet the extension deadline.

LIST OF ACRONYMS & ABBREVIATIONS

APM	Anti Personnel Mine
APMBT	Anti Personnel Mine Ban Treaty
ATM	Anti-Tank Mine
AUSAID	Australian Agency for International Development
BLS	Baseline Survey
CBMRR	Community-Based Mine Risk Reduction
CBO	Community Based Organization
CDS	Cambodian Demining Service
CDC	Council for Development of Cambodia
CIDA	Canadian International Development Agency
CMAA	Cambodian Mine Action and Victim Assistance Authority
CMAC	Cambodian Mine Action Centre
CMAS	Cambodian Mine Action Standards
CMVIS	Cambodian Mine/ERW Victim Information System
CRC	Cambodian Red Cross
CSD	Council for Social Development
CSHD	Cambodia Self Help De-mining
DAC	Disability Action Council
DFID	Department for International Development (UK)
DU	Demining Unit
EC	European Commission
EOD	Explosive Ordnance Disposal
ERW	Explosive Remnants of War
FYMAP	Five-Year Mine Action Plan
HIB	Handicap International Belgium
IDP	Internally Displaced People
IMAS	International Mine Action Standards
IMSMA	Information Management System for Mine Action
Km^2	Square kilometre
L1S	Level One Survey
LMS	Landmine Survivor
MACC	Mine Action Coordination Committee
MAG	Mines Advisory Group
MAPU	Mine Action Planning Unit
MoEYS	Ministry of Education, Youth and Sport
MoH	Ministry of Health
MoSAVY	Ministry of Social Affairs, Veterans and Youth Rehabilitation
MRE	Mine Risk Education
NGO	Non Government Organization
NPA	Norwegian People's Aid
NTS	Non-Technical Survey
PMAC	Provincial Mine Action Committee
PMAP	Provincial Mine Action Plan
PWD	Person with Disability
QA	Quality Assurance
QC	Quality Control
RCAF	Royal Cambodian Armed Forces
RGC	Royal Government of Cambodia
SMA	Suspected Mined Area
TS	Technical Survey
TWG	Technical Working Group
UNAMIC	United Nations Advance Mission in Cambodia
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNTAC	United Nations Transitional Authority in Cambodia
UXO	Unexploded Ordnance
VDC	Village Development Committee

DETAILED NARRATIVE

1. Origins of Cambodia's Article 5 implementation challenge

Cambodia's landmine problem is the result of a protracted sequence of internal and regional conflicts that affected the country from the late 1960s until the end of 1998, when the few remaining Khmer Rouge units surrendered and ceasefires were achieved between all warring factions. Whilst all provinces were affected by conflict, it is the strip of north-western provinces bordering Thailand that were the most mine affected, and which remain the major problem requiring further action. The most affected provinces are Battambang, Banteay Meanchay, Pailin, Oddar Meanchey, Preah Vihear and Pursat located in the north and north-western part of Cambodia which in the period 2007-8 accounted for 242 of Cambodia's 254 landmine casualties.

The nature of landmine and explosive remnants of war (ERW) contamination in Cambodia is highly complex. The most heavily affected area is the Cambodian-Thai border region, known as K-5 mine belt, where millions of landmines were laid in the 1980s and which remains the heart of the challenge. While it is densely contaminated, at around 1,000 kilometres long and 100 to 500 metres wide, it is also somewhat well defined. Royal Cambodian Armed Forces (RCAF) sources claim that on average, there are 2,400 anti-personnel mines per K-5 linear kilometre, making it one of the most densely mined areas on the planet.

During the 1980s and seasonally through periods during the 1990s, there was regular fighting in the northwest in general, and around the Cambodian-Thai border in particular. This fighting was driven by a variety of ever-changing political alignments and realignments, and led to many landmine casualties. The number of casualties rose further as hundreds of thousands of Cambodians seeking refuge in refugee camps at the Cambodian-Thai border attempted to navigate their way through the dangerous land. Due to nature of civilian war, there was also scattered fighting around key strategic positions across the country. This resulted in further dense and scattered mine laying campaigns.

Peace came in phases to Cambodia, and this is reflected in the casualty statistics. The repatriation of refugees facilitated by the United Nations Transitional Authority in Cambodia (UNTAC) brought about a partial peace to the country, but it also led to a population explosion in areas adjacent to some of Cambodia's most landmine hazardous areas, again contributing to a spike in casualties.

A range of short but intense conflicts during the mid and late 1990s added to Cambodia's landmine contamination problem. During these conflicts, landmines were laid year after year to establish defensive perimeters as combatants retreated to safe ground to wait out the wet season after annual dry season offensives. These sporadic and overlapping mine fields present a different challenge in that they follow no regular pattern, and there are few if any records relating to their location.

It was only at the end of the 1990s with the final integration of the last Khmer Rouge units that a genuine peace finally took hold in the countryside. Immediately, these previously lightly populated areas experienced significant inward migration because of their proximity to lucrative Thai-border trade and employment opportunities and fertile land. This situation led to a relative surge in populations surrounding the most hazardous Cambodian-Thai border area, with new community members establishing small farms by cutting into forested areas that were frequently suspect. While marking is practiced in Cambodia, livelihoods in these areas have long been so marginal that risk taking is common in the scramble for land and resources. These issues highlight the urgent need to complete the clearance of Cambodia during the extension period.

Cambodia officially started humanitarian mine clearance in 1992. However clearance of the Cambodian-Vietnamese border region started as early as 1979 (it should be noted that one of the female deminers involved in early clearance efforts was recognized as a national hero). By 1998, demining was at full throttle, with four demining operators, RCAF, CMAC, MAG and the HALO Trust all conducting clearance operations.

Since demining began in Cambodia, the country has been very active in addressing all five pillars of mine action[3], particularly adopting the Anti-Personnel Mine Ban Treaty (APMBT). On 28 July 1999 Cambodia ratified the APMBT, and the Convention entered into force on 01 January 2000. On 28 June 2000, Cambodia submitted its initial transparency report, which indicated that there were areas under Cambodia's jurisdiction or control in which anti-personnel mines were known or suspected to be in place. In accordance with Article 5 of the Convention, Cambodia undertook to destroy or ensure the destruction of all anti-personnel mines in these areas as soon as possible but not later than 01 January 2010.

2. Nature and extent of the original Article 5 challenge: quantitative aspects

Providing an overview of the nature and extent of the original Article 5 challenge is best done in two parts. First, by looking at efforts at the end of the conflict to determine contaminated areas, second with the implementation of a comprehensive Level One Survey.

2.1 Nature and extent of the contamination at the end of the conflict

While it was known in the 1990's that Cambodia was suffering from a significant landmine problem, there was a lack of understanding over the true extent of the problem. The number of Cambodian refugees arriving in the border camps presented worrying evidence that the problem was extreme, as many mine casualties arrived in the camps.

The first efforts to determine the extent of Cambodia's landmine problem were initiated by UNHCR (contracting for a rapid survey, implemented by HALO Trust in 1991-1992) and the United Nations Advance Mission in Cambodia (UNAMIC) in 1991. As UNHCR sought to locate safe areas for the 360,000 Cambodian refugees based in border camps and due for imminent repatriation to Cambodia, the UNAMIC was established with the mandate of assisting the four Cambodian parties to maintain their ceasefire during the period prior to the establishment and deployment of the UNTAC.

During peace negotiations, a commitment was made to returnees that an option would exist whereby they would be provided with two hectares of productive land per family, "*in a District of their choice*". Ability to deliver on this commitment was soon put into question when it was discovered that much of the land available for resettlement was in fact only available because it was suspected or known to be mined. Anxieties were heightened when a 1991 UNHCR survey found that 57% of returnees (about 190,000 people) had declared their intention to resettle in Cambodia's most mine affected province of Battambang, with the majority of the remainder planning to return to other mine affected north-western provinces.

This UNHCR (HALO implemented survey) further found that of 70,000 hectares of available land in Battambang province set aside for allocation to returnees 30,800 hectares was "probably clear of mines", 28,000 hectares "probably mined", and 11,200 hectares "heavily mined".

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[3]5 Pillars of mine action: 1- Removing and destroying landmines and explosive remnants of war and marking contaminated areas, 2- Mine-risk education, 3- Medical assistance and rehabilitation services to victims, 4- Advocating for a world free from the threat of landmines, 5- Destroy mine stockpiles

Such findings meant that mine clearance very quickly shifted from being an 'important issue' requiring significant attention within UNTAC, to becoming the most urgent of issues requiring an immediate and massive response. It was in this context that a decision was taken in 1992 to establish CMAC to ensure Cambodia an ongoing national capacity for mine clearance.

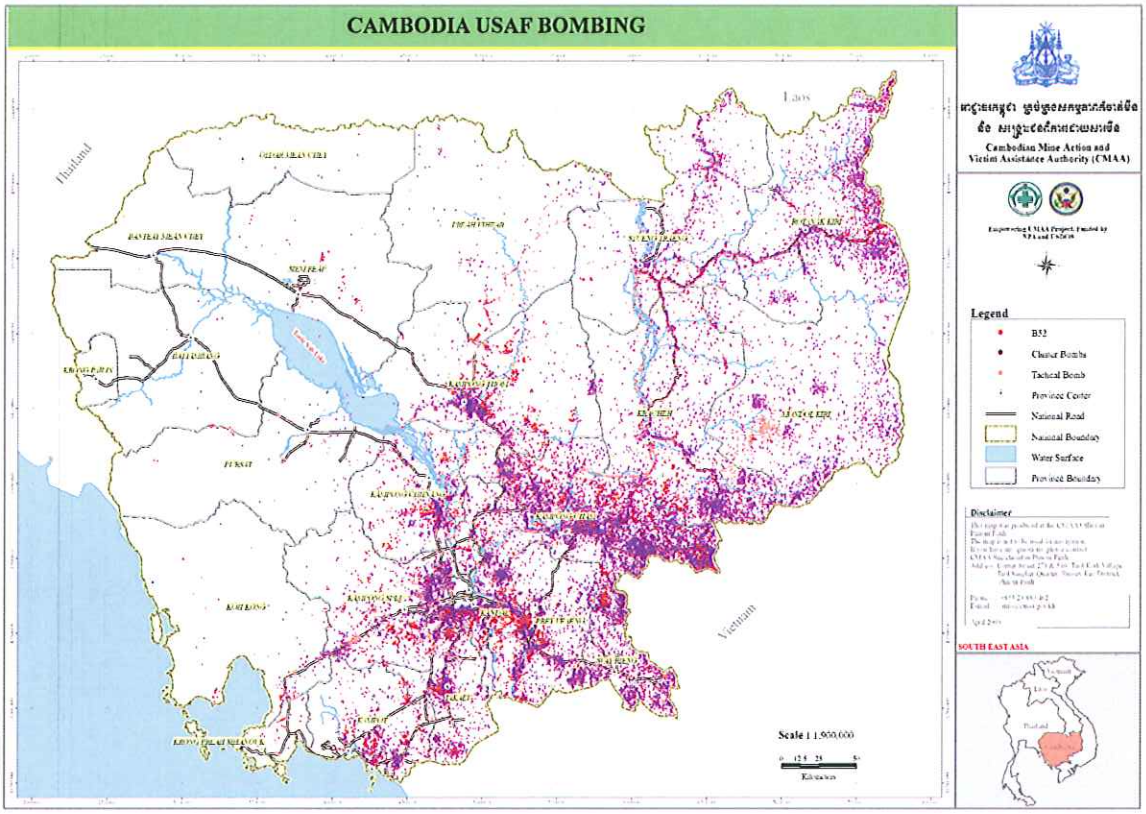
During the UNTAC period (1991-1993), information was collected on the location of around 1,900 suspected mined areas. While this information was always understood to be incomplete, it did provide mine clearance operators with a demining challenge that would occupy them for a decade. In this period, the newly formed Cambodian Mine Action Center (CMAC), as well as MAG and The HALO Trust, were collecting reports of additional suspect areas. In 1992, CMAC commenced recording them in Cambodia's first mine action database.

Other guidance on the extent of the problem was gathered through interviews with key military informants, which indicated that the border area alone likely contained close to 3 million mines, spread over an 800-1,000km arc.

While these data sets were known to be incomplete, they allowed for a broad estimate to enter the public domain that the total number of landmines in Cambodia was somewhere around 4-6 millions.

It is equally important to note that landmines are not the only hazard impacting the lives of million of Cambodians, during the period of October 1965 to August 1973, US war planes dropped 2.75 million tons of bombs on Cambodia, more than the total tonnage dropped by Allies (US, UK, Russia, France) during World War II. The protracted nature of civil war has left Cambodia with millions of ERW scattered throughout the entire country causing unprecedented catastrophic casualties and other broader affects.

Map 1: Cambodia US Air Force Bombing



2.2 Nature and extent of the contamination according to the Level One Survey

With the final cessation of all conflicts and the momentum generated through Cambodia's signing of the APMBT on 28th May 1999, Cambodia recognized the need for its management of mine action to shift from an emergency approach to a more medium term, developmental focus. Quantifying the total mine and ERW threat was regarded as an immediate need and Cambodia commissioned in late 2000, a landmine impact survey, as the 'Provision of a National Level One Survey to the Royal Government of Cambodia' project - funded by the Government of Canada. A Memorandum of Understanding (MOU) was signed between CIDA and CMAC establishing detailed arrangements for cooperation between the two organizations. GeoSpatial International was commissioned as the Chief Executing Agency to assume responsibility for implementation of the Project. The L1S was certified by the UN to meet the standards as defined by the Survey Working Group[4], and the data from the L1S were handed over to the newly established Cambodian Mine Action and Victim Assistance Authority (CMAA).

The Survey was undertaken between late 2000 and April 2002 in an attempt to ascertain and quantify the full scope of Cambodia's landmine problem. Using participatory appraisal methods, all but two[5] of Cambodia's 13,908 villages were visited by trained survey staff who worked with communities to document their understanding of their landmine problem. The completed L1S

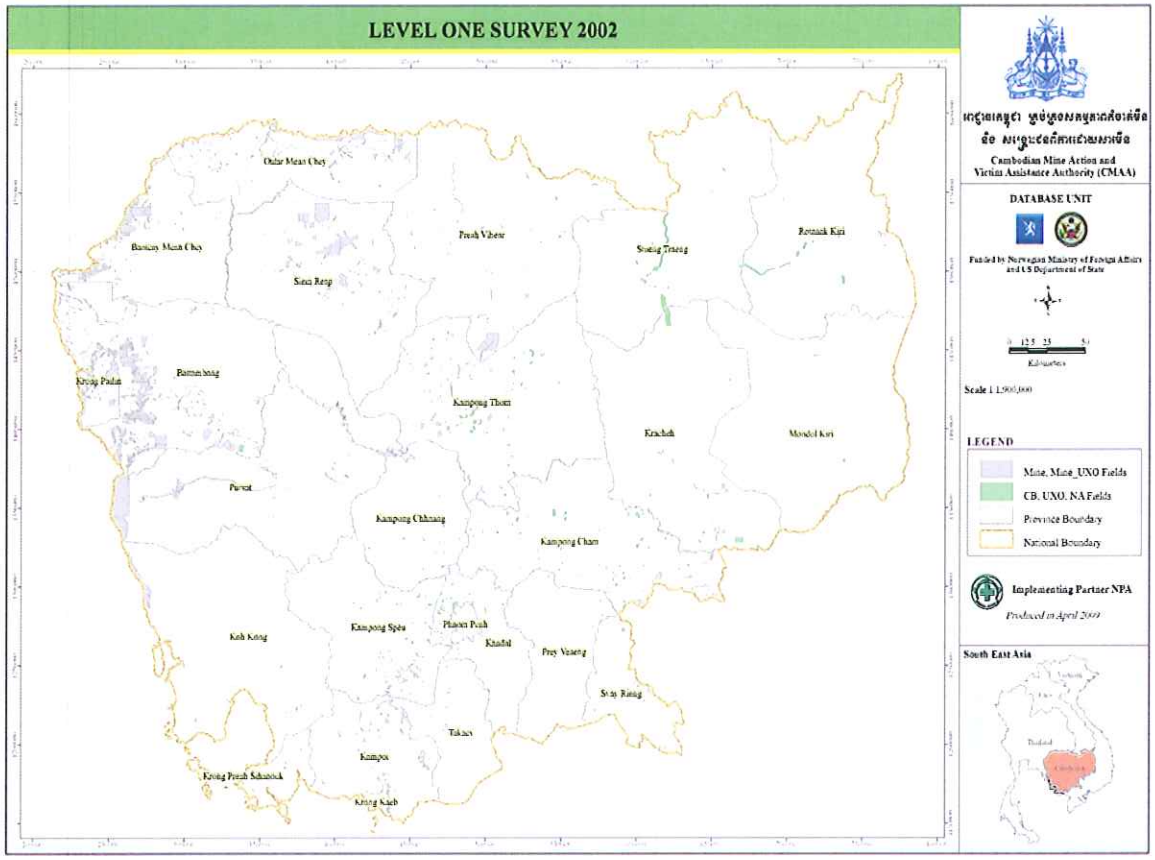
[4] The Survey Working Group (SWG) was established by NGOs, the United Mine Action Service (UNMAS) and the Geneva International Center for Humanitarian Demining (GICHD) to monitor standards and facilitate the international coordination of resources and expert personnel for the completion of the Global Landmine Survey in countries worst affected by landmines.

[5] One village was deemed by Vietnamese authorities to be inside Viet Nam, and the other proved impossible to access.

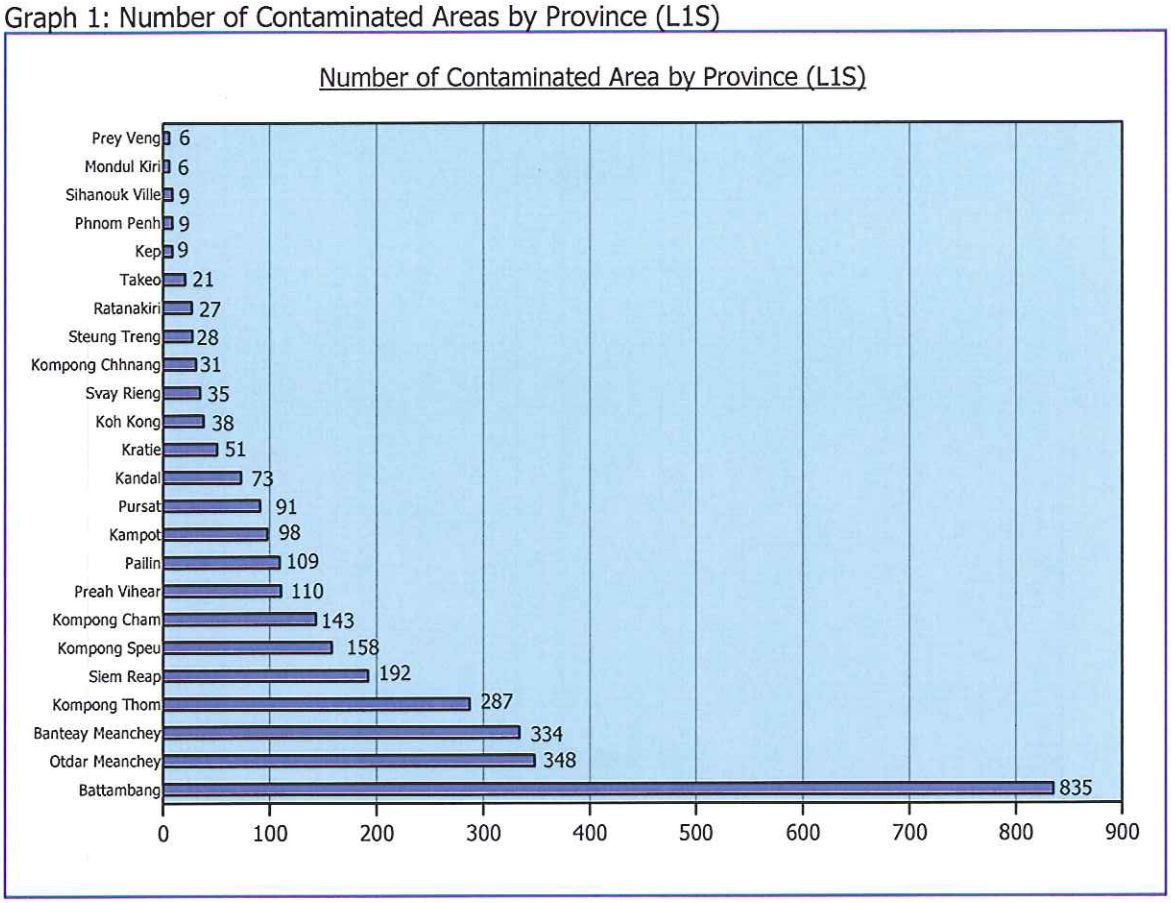
identified 3,066 suspect hazardous areas totalling 4,544 square kilometres (or 2.5% of total landmass) and affecting 6,416 villages – or 46% of all villages. Contamination was suspected in each of Cambodia's 24 Provinces.

It is important to note that this survey did not provide a full reach; it was designed to define the impact on communities and get an overall snapshot of the mine and ERW contamination effects, and was useful in that sense. It did not however define precise mined area boundaries and their characteristics in order to provide sufficient information for the deployment of appropriate clearance resources.

Map 2: Level one Survey Contamination



Graph 1: Number of Contaminated Areas by Province (L1S)



3. Nature and extent of the original Article 5 challenge: qualitative aspects

As for the previous section, the qualitative aspects of the nature and extent of the landmine challenge in Cambodia can be best done looking at the efforts before the L1S was implemented and the results of the L1S in terms of socio-economic impact as well as the casualty rate trends.

3.1. Nature and extent of the contamination at the end of the conflict

Cambodia's mine problem is most easily considered in two distinct periods: pre and post the final ceasefires between the Government and the Khmer Rouge in 1998.

The United Nations Transitional Authority in Cambodia (UNTAC) was established to ensure implementation of the Agreements on the Comprehensive Political Settlement of the Cambodian Conflict, signed in Paris in October 1991. Central to the UNTAC mandate was the 'safe' repatriation and resettlement of 360,000 refugees from camps along the Thai-Cambodian border and other countries, and a commitment that returnees could return to the *place of their choice*, and that families would receive two hectares of land if the location they chose was in a farming area. The preference of the overwhelming majority of these 'returnees' was to be returned to Cambodia's north-western provinces, which were perceived to be safer, since they offered easier access back to refuge in Thailand should hostilities recommence. Unfortunately, these preferred provinces were also the location of the overwhelming majority of the mine accidents that had been occurring in the years leading up to the repatriation.

As UNHCR looked for resettlement options for returnees, the UNAMIC was established by the

Security Council, with the mandate of assisting the four Cambodian parties to maintain their ceasefire during the period prior to the establishment and deployment of UNTAC; and also to initiate mine-awareness training of civilian population. Based on the growing evidence being gathered by the UNHCR/HALO survey in relation to the threat levels of the areas that returnees would be resettled, the Security Council enlarged the mandate of UNAMIC in January 1992 to include a major training programme for Cambodians in mine-detection and mine-clearance and the mine-clearing of repatriation routes, reception centres and resettlement areas. UNAMIC's deployment and expansion was central to the decision that led to the development of a national mine clearance capacity through establishment of the Cambodian Mine Action Centre (CMAC)[6].

The vastly more serious mine problem found by UNAMIC and the experience of the early months of UNTAC meant that the majority of returnees were unable to receive the house and land package promised in the peace settlement. This situation meant that many families had no choice but to settle for 'Option C' which was to be resettled without land, and with only a cash entitlement of USD50 per adult and USD25 per child to re-establish their lives. This situation left the majority of returnees few livelihood options but to forage in nearby forests for food, wood and other forest products. It was also common for returnees to go forth to find and settle on their own land - in an environment where virtually all safe lands were already occupied meaning that vacant potential farmland was very likely to be hazardous area.

Prior to the arrival of UNTAC, mine/ERW casualties had run for a decade at an average of close to 3,000 casualties per year. Unfortunately, casualty trend actually increased during UNTAC and continued to do so for the following four years. Casualties (for the modern era) peaked at 4,320 in 1996 occurring to both military personnel and civilian population, owing to the flaring of conflict between Government and Khmer Rouge forces. However, the figures for this period were also significantly affected by the risk taking behaviour of many returnees and internally displaced persons (IDP) seeking for land and new opportunities to enhance livelihood, brought about by the extreme poverty they were experiencing as they tried to establish their lives in these hazardous areas.

It was during this period that Cambodia became a focus for the International Campaign to Ban Landmines, highlighting the horrific impact that landmines can wreak on a country. The campaign was effective in the Cambodian Government giving unique prominence to mine action within the national system of governance. Mine action became a priority in National Development strategies and a 9th Millennium Development Goal specific to Mine Action was adopted in 2003. In 2004, a Government-Development Partner (Donor) Technical Working Group for oversight of the issue was established.

The year 1998 is an important transition point in Cambodia's mine action history with the final surrender and ceasefire of the remaining Khmer Rouge units meaning that groups would no longer be laying landmines. This, coupled with the fact that Cambodia had become a signatory to the APMBT the year before, meant that Cambodia had committed to constructively address the mine contamination problem.

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[6] In 1992, in recognition of the need for a sustainable national mine action capacity, the Cambodian Mine Action Centre (CMAC) was created under the auspices of the U.N. Transitional Authority in Cambodia (UNTAC). In Annex 1 of the Paris Peace Agreement, one of the UNTAC mandates called for assistance in clearing mines, undertaking training programs in mine clearance and development of a mine awareness program to help educate the Cambodian people. The mission of CMAC was to achieve an atmosphere in Cambodia where people were free of the threat of mines and ERW, thus allowing reconstruction and development activities to take place in a safe environment. In this respect, CMAC was tasked to implement four main programs: mine awareness, mine field information, mine and ERW clearance and training in mine clearance. These programs were carried out according to well-defined priorities. The highest priority concerned humanitarian purposes — with the most immediate concern at the time of CMAC's commencement being the resettlement of displaced persons. The second priority concerned supporting opportunities for economic development, including the expansion of agriculture, rehabilitation, reconstruction and development projects. This second purpose is best viewed in the context of the times, which was a fragile peace with concerns that economic weaknesses could be exploited to reignite tensions.

At the end of 1998, the final surrender and ceasefire of the remaining Khmer Rouge units can be seen as an important transition point in Cambodia's mine action history. Cambodia had become a signatory to the Anti-Personnel Mine Ban Convention in 1997, and through that decision had committed to its implementation.

The final ceasefires also opened access to some of Cambodia's most mine affected areas which up until that time had been inaccessible because of security concerns. The opening up of these areas allowed for a more systematic approach to the problem, and led to clearer recognition of the need for Cambodia to more holistically plan and manage its mine action program.

Around this time, a series of important actions were taken, including Cambodia becoming a State Party to the APMBT on 1st January 2000. In 2000, agreement was reached to conduct a Level One Survey (L1S). And in late 2000, the CMAA was established to provide holistic national leadership to the sector, and to symbolize Cambodia ownership of the problem that had up until then been largely managed by the international community.

Despite all efforts, accident continued. While mine and ERW related accidents occurred more frequently during the transitional end of the conflict (1996-1998); the trend continued to remain high during the reintegration and rehabilitation period (1999-2005); then gradually lower during the development phase (2005-present).

The landmine problem faced by Cambodia has been extreme, and has negatively affected the country in several ways. These include:

- Putting further pressure on Cambodia's already weak healthcare system
- Causing psychological trauma for those forced to live alongside such a threat
- Rendering potentially productive land unproductive
- Weakening livelihood options such as cattle raising and foraging for forest products
- Constraining agriculture production
- Restricting safe access to drinking water
- Placing financial and emotional hardship on families needing to care for a landmine survivor
- Blocking physical access to infrastructures, services and markets
- Placing demand for allocation of resources to mine clearance and related services, diverting funds away from other needs such as health and education
- Affecting Cambodia's international reputation, contributing to missed opportunities for the country and its citizens in terms of tourism and trade
- Food insecurity and low income leading people to enter mined areas regardless of the risk, to forage for food or other saleable products, or to pass through to bordering Thailand to seek employment opportunities.

3.2 Nature and extent of the contamination according to the L1S

The L1S implemented during late 2000 and April 2002 intended to: (a) define the problem in terms of scale, type, location, hazard and socio-economic impact, (b) improve national planning by allowing for clear prioritization of resources, (c) foster development of national plans with well-defined immediate, intermediate and end-state objectives, and (d) establish baseline data for measuring mine action performance.

The L1S reported that some 6,416 (46%) out of 13,908 villages in Cambodia were affected. Each of these villages was asked to rate the severity of the impact on a scale from very severe to not severe.

Table 1: Socio-economic impact of landmines on villages (L1S)

Socio-economic impact	Total	Very Severe	Severe	Less Severe
Not enough housing land	1006 = 61.3%	362 = 22.0%	399 = 24.3%	245 = 14.9%
Not enough agriculture land	1406 = 85.7%	767 = 46.7%	444 = 27.0%	194 = 11.8%
Too high human casualties	1283 = 78.2%	243 = 14.8%	258 = 15.7%	782 = 47.6%
Loss of livestock	929 = 56.6%	55 = 3.3%	172 = 10.4%	701 = 42.7%
Difficult water access	790 = 48.1%	47 = 2.8%	112 = 6.8%	631 = 38.4%
Gathering activities	1201 = 73.2%	96 = 5.8%	215 = 13.1%	890 = 54.2%

To more precisely assess the socio-economic effects of suspect areas on the life of village populations, villagers were asked to assess the number of houses, families or villages affected in 14 specific activities.

Table 2: Socio-economic effects of landmines on activities

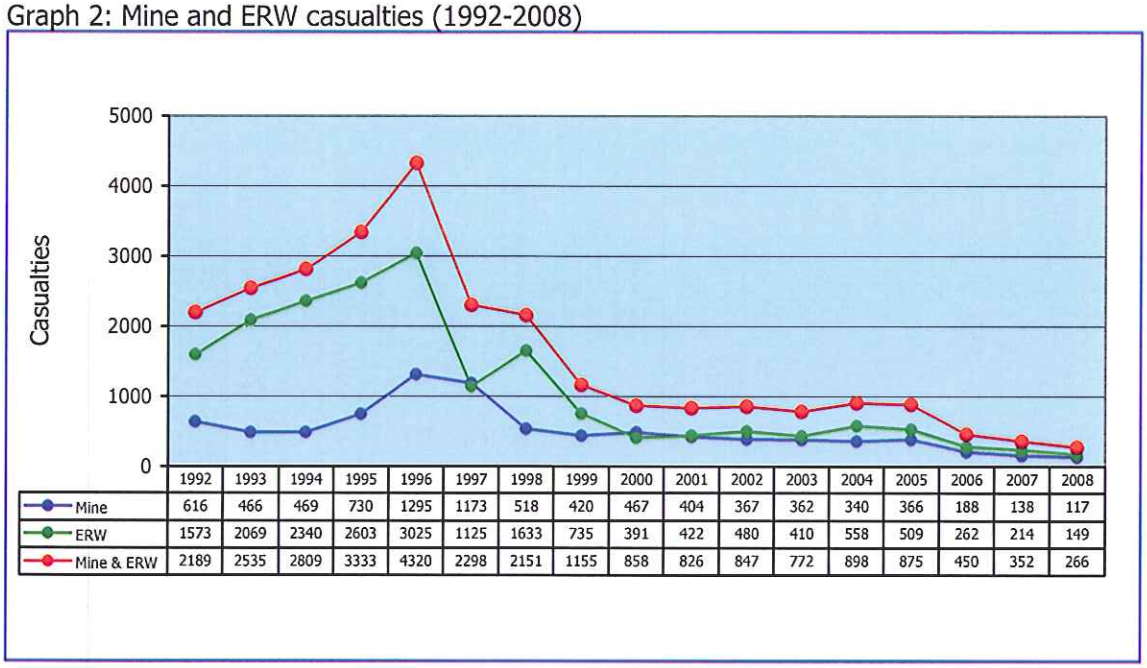
Restricted Access to	No. Areas	% Areas	% Area Surface	Impact
Home	792	26.8	58.8	32,904 Houses
Home construction land	590	20.0	50.5	16,168 Houses
Agriculture land	2,077	70.4	84.5	102,778 Families
Pasture land	1,781	60.4	72.6	105,707 Families
Water sources	1,184	40.1	64.1	84,588 Families
Forests	2,000	67.8	90.9	172,878 Families
School	525	17.8	47.2	44,079 Students
Dams, canals	335	11.3	15.0	1,031 Villages
Markets	439	14.9	41.4	1,334 Villages
Business activities	353	11.9	37.1	596 Villages
Health centre	455	15.4	41.9	1,312 Villages
Pagoda	527	17.8	45.3	1,487 Villages
Bridge	136	4.6	14.6	242 Villages
Neighbouring villages	896	30.4	55.2	2,272 Villages

The most commonly reported restrictions on activities were access to agricultures land, pasture land, forested, and water resources implying that these communities would be further pushed into poverty. Living in a mined area has many negative effects such as impeding access to safe livelihood options, and inflicting great psychological trauma and emotional hardship on individual and families.

In terms of the most direct impact of landmines, Cambodia continues to have one of the highest casualty rates of victims globally. During war times casualty rates were in the thousands. During resettlement rates stayed high as people settled on contaminated land. Due to the scale of contamination, to this day Cambodia still has one of the highest victims' rates globally. These terrifying accidents have a massive physical and psychological effect on victims and their families and communities, not to mention putting further pressure on Cambodia's already weak healthcare system.

The following table is presenting the number of mine and ERW casualties collected by the Cambodian Mine Victim Information System (CMVIS) project managed by the Cambodian Red Cross (CRC) with technical assistance from Handicap International Belgium (HIB).

Graph 2: Mine and ERW casualties (1992-2008)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Mine	616	466	469	730	1295	1173	518	420	467	404	367	362	340	366	188	138	117
ERW	1573	2069	2340	2603	3025	1125	1633	735	391	422	480	410	558	509	262	214	149
Mine & ERW	2189	2535	2809	3333	4320	2298	2151	1155	858	826	847	772	898	875	450	352	266

4. Methods used to identify areas containing / suspected to contain AP mines

A number of survey procedures have been used by different organizations in Cambodia to identify areas known or suspected to contain antipersonnel mines. However, no single consistent uniform sets of procedures have been followed, neither between the different organizations nor over time. As a result, data has been collected in different ways and areas classified in different ways. Furthermore, surveys were designed for different purposes: to define the impact of communities (L1S), to produce well-defined tasks for clearance (HALO survey, some of CMAC's survey), and to capture the areas considered to be minefields by villagers and CMAC (some of CMAC survey).
These efforts produced 5 types of survey reports in the current national data set at CMAA:

Table 3: List of survey reports

Name	Description
Minefield survey	Suspected hazardous area, which is subsequently examined and defined as mine contaminated, following interviews with local information sources, and an analysis of history of conflict in the area. *Produced by HALO since 2002.*
Confirmed minefield	Land not presently used for housing or agriculture and where there is historical and physical evidence of mines. *Produced by CMAC since 1993.*
Suspected minefield	Land not presently used for housing or agriculture and where there is historical evidence of mines. *Produced by CMAC since 1993.*
Residual minefield	Land in use for housing, cultivation or other purposes where there is historical and physical evidence of mines (accident or visibility) within the past 2 years. May have been cleared using local clearance methods by villagers. Low probability of finding mines. *Produced by CMAC since 2002.*
L1S hazard area	Land identified as contaminated or suspected to be contaminated by mines and/or ERW with the objective of measuring the impact on the community. *Produced by GSI/CMAC in 2000-2002, owned by CMAA.*
Work plan tasks	Plots of land to be cleared as requested through the MAPU/PMAC process. *These areas are not included in the CMAA national data set as planned tasks, but are entered as clearance reports if and when completed.*

Certain categories of these reports do not accurately describe the current location and extent of mined areas in Cambodia, in particular reports from the L1S, as it was designed to measure the impact of mines on communities rather than accurately map mined areas. The result of these practices is that the national data set compiled at the CMAA in cooperation with NPA, CMAC, The HALO Trust, MAG and CMVIS by August 2008, contains areas of conflicting information (overlapping areas, conflicting classifications), poor definition of area boundaries (many individual reports include several mined areas with poor description of their location and extent) and lacks many areas that should have been included. The lack of uniform procedures and the problems caused by this are duly recognized by all operators and the CMAA.

The national data set at CMAA includes two more types of reports, which are described in more detail in Chapter 8: (a) Completion reports for cleared land and (b) reclaimed land reports for land in productive used without mine accidents for three years (cf. Chapters 6 & 8 for more details about Cambodia's Area Reduction Policy).

The lack of a Cambodia Mine Action Standard (CMAS) chapter on survey and a set of national forms for reporting mined areas have contributed to this rather unclear situation.

4.1 Survey prior to 2000

Much of Cambodia's early mine clearance tasking during the 1990's occurred in response to relieving the problem at casualty hot spots and in supporting resettlement of the very large refugee population that returned to Cambodia during the UNTAC period. Such was the breadth of Cambodia's mine problem that it was not difficult for operators to locate areas where clearance could be easily justified, or where accidents recently occurred and therefore effective, high humanitarian impact clearance could occur despite there not being a thorough understanding of the full extent and spread of the problem.

During this period, demining operator survey teams, in response to the community clearance requests to clear confirmed or suspected mined areas, conducted general survey or minefield verification to locate and prepare minefields for clearance. The result of this investigation allowed for operators to classify the request areas as confirmed or suspected hazard areas and placed them on clearance task lists. Verification teams at CMAC went further to identify new contaminated areas with leads they obtained from local authorities, armed forces personnel and villagers in an advance preparation for the immediate future years clearance deployment. Mined areas along Cambodian-Thai border were also identified, this was more simplistic as the mine laying patterns were well defined, although undocumented.

As focus gradually shifted from emergency response to planned response through the 1990's, mine clearance effectiveness and prioritization became increasingly important.

4.2 National Level 1 Survey

With the final cessation of all conflicts and the momentum generated through Cambodia's signing of the Anti-personnel Mine Ban Convention on 28th May 1999, Cambodia recognized the need for its management of mine action to shift from an emergency approach to a more medium term, developmental focus. Quantifying the total mine and ERW threat was regarded as an immediate need and a National Level One Survey (L1S) was undertaken between 2000 and 2002 to clarify the full scope and impact of Cambodia's mine and ERW problem. The L1S was intended to: (a) define the problem in terms of scale, type, location, hazard and socio-economic impact, (b) improve national planning by allowing for clear prioritization of resources, (c) foster development of national plans with well-defined immediate, intermediate and end-state objectives, and (d) establish baseline data for measuring mine action performance. The L1S was implemented by GeoSpatial International in partnership with CMAC, it was certified by

the UN to meet the LIS standards as defined by the Survey Working Group, and the data from the L1S were handed over to the newly established CMAA.

The L1S identified and quantified the impact of mines and ERW on communities by community interviews and identification of hazard areas affecting the communities. The hazard areas were reported as either: (a) mined areas, (b) cluster bombs areas, or (c) spot ERW contamination. The main output from the L1S relevant to the extension request is area affecting communities (mined areas above), hereafter referred to as *L1S hazard areas*.

Many L1S hazard areas were reported based on suspicion of mines and their extent was described by a polygon based on information of highly variable quality. The L1S was designed to describe the impact on communities at the time and therefore did not clearly identify known or suspected mined areas. However, there is a widely recognized concern about how well these polygons should be considered as the results of a reasonable effort to identify all areas in which anti-personnel mines are known or suspected to be emplaced. Indeed, many of its polygons were unmanageably large. As an example, the 20 largest polygons total more than 1,300 square kilometres. It also became quickly apparent that large sections of contaminated area had been missed in the Survey (cf. chapter 14).

4.3 Surveys after L1S

The operators continued to field survey teams in order to identify areas to clear. Over the past 15 years, approaches to mine clearance have evolved and changed. In the early phases of mine action, focus was placed on clearance large scale of area for emergency and risk reduction purposes. As mine action methodology and technology improve, resources become scarce, and priorities change, mine action today is conducted in a slightly different way from the first day of demining operations. Today, information, obtained through technical survey, plays a crucial role in determining where to clear, how to clear and when to clear. This is particularly essential in the Cambodian context where landmines were laid by all warring parties and factions mostly in the northwest provinces along the Thai-Cambodian border. Worse than that, there are no records of where the mines were laid, and information on their locations had to be gathered by interviewing villagers and former soldiers and by gathering data on casualties. Very often it is more appropriate to conduct a technical survey when there is no immediate need to clear all the land. The objective in such circumstance is to accurately identify, record, mark and fence the outer edge of the hazardous area, and by doing so release some land for productive use. The process through which the initial area indicated as contaminated (during the general mine action assessment) is reduced to a smaller area is known as area reduction.

All three demining operators namely CMAC, HALO Trust and MAG have been conducting various types of survey. More information on the different types of methodologies can be found under Chapter 8.

4.4 MAPU's

In October 2004, the RGC issued a Sub-decree No. 70/ANK/BK on socio-economic management of mine clearance operations. Based on the Sub-decree, the CMAA issued guidelines on socio-economic management of mine clearance operations in February 2005, revised in November 2006. The Policy Guidelines present concept and roles of concerned institutions and partners in socio-economic management of mine clearance operations. The Operational Guidelines describe detailed activities to be implemented. Sub-Decree No. 70 detailed a bottom up planning process that allowed local communities to participate in the process of identifying suspect mined areas and to contribute to clearance prioritization through the development of Provincial clearance plans that are based on the findings of this bottom up

process. The system is managed by province based Mine Action Planning Units (MAPUs) who work under instruction from a Provincial Mine Action Committee (PMAC).

Sub-Decree No. 70 mandates MAPU's to make field investigation visits to identify mined areas to be cleared and monitor the clearance activities and post clearance in accordance with the national socio-economic guidelines for mine clearance.

The MAPU's do not submit reports and polygons for mined areas to CMAA as a product of the process, but the results of clearance are reported to the national database after clearance is completed.

4.5 CMVIS

The Cambodian Mine/ ERW Victim Information System (CMVIS), implemented by the Cambodian Red Cross and supported by HIB, commenced in 1994. CMVIS trains and deploys a nationwide surveillance network of Cambodian Red Cross Volunteers who report in detail to District Officers on the location, cause and profile of the individual incident. The locations where casualty occurred are then reported in the CMAA national database allowing further refinement of understanding of those areas containing a mine/ ERW threat. CMVIS reports are distributed monthly to a mailing list of interested stakeholders and provide a rapid update of casualty trends to further inform clearance. Both operators and MAPUs use the CMVIS data as a key data set to work from. Confidence in CMVIS has further strengthened since 2006, when stricter application of GPS positioning to accident sites was introduced, thus making casualty data even more reliable than was previously the case.

A large number of accidents occur in areas not yet identified as mined areas or hazard areas by surveys. In the future, all accidents caused by *in situ* mines should trigger a survey team to investigate the accident and report a new mined area to CMAA if there is reason to believe that a mined area exists at that location.

4.6 Limitation of the L1S and need for a Baseline Survey

While the L1S was never originally designed to substitute for detailed investigation of suspect land by trained mine clearance survey teams, in many respects it did, the L1S became the most comprehensive dataset available after the entry into force of the APMBT and the entire L1S polygon data set has been effectively adopted as a National contamination map since to this day it is the only national survey ever to occur.

The RGC considers the L1S hazard areas to present a first national-coverage overview of the extent and location of Cambodia's mine and ERW contamination. However, the L1S hazard areas did not provide a complete and accurate picture of the mine problem in Cambodia, a conclusion based on the following facts:

- The size of the suspect area was massive at 4,544 square kilometres, with several single polygons more than 100 square kilometres in size, and the largest twenty polygons totalling 1,344 square kilometres in total size.
- A significant part of all clearance is directed to areas outside L1S hazard areas. For example, in the 2003 and 2004 Work Plans, 25-30% of clearance occurred in areas that were not recorded in the L1S – these areas were mostly in the conflict areas where a no populated village was established at the time of the L1S. In these remote areas where the conflict had been most intense, villages had been destroyed by the war, and it took time for the villages to be resettled, and hence at the time of L1S, there were few people who had returned, let alone people who were adequately informed to respond to the questions being put by the L1S.

- More than 1 of 3 accidents reported by CMVIS from 2006 to 2008 occurred outside L1S hazard areas. Survey after the L1S has confirmed that extensive mined areas are sitting outside the L1S hazard areas

Based on the L1S weaknesses, the RGC recognizes the need for carrying out a more detailed and focused survey of mined areas in order to identify and define the exact extent of remaining mined and suspected areas in Cambodia and intends to start a Baseline Survey starting in August 2009. The Baseline Survey will be conducted by the three main demining operators (CMAC, MAG and HALO Trust) under the leadership of the CMAA with a focus on the 21 most mine-affected districts[7] first (cf. Chapter 14).

5. National Demining Structures

5.1. Cambodian Mine Action and Victim Assistance Authority (CMAA)

The Cambodian Mine Action and Victim Assistance Authority was established under Royal Decree No. 177 (6 September 2000) with the Prime Minister and Deputy Prime Minister as CMAA President and Vice-President. The CMAA Secretary General is responsible to manage on daily basis all activities related to mine and ERW clearance as well as the assistance to victims of landmines. The establishment of the CMAA reflects the shift from an emergency and early recovery context to a longer-term development focus requiring a holistic approach of the management, planning and coordination of mine action in Cambodia.

CMAA is to regulate and coordinate all mine action activities throughout the country and establish policies and procedures. CMAA is also responsible for the implementation of national mine action strategic plans to enable the integration of the mine action sector into the Royal Government's development plans such as the National Strategic Development Plan, the Cambodian Millennium Development Goals and the Rectangular Strategy.

CMAA is also a focal point for coordination of mine action in Cambodia, through coordination bodies such as the Mine Action Technical Working Group, the Mine Action Coordination Committee, and various Technical Reference Groups.

5.2 The Mine Action Technical Working Group (MA-TWG)

The Mine Action Technical Working Group (TWG) was formerly established by a Government Decree on 19 November 2004. The Mine Action TWG is part of a broader mechanism for enhancing government-donor coordination on aid effectiveness that brings representatives of the RGC and its development partners together as a regular mean of consultation, collaboration and cooperation at the sector level. There are now 19 TWGs established in Cambodia around issues of significant development importance such as education, health etc. Each TWG is to develop a programme in support of Cambodia's Rectangular Strategy and the National Strategic Development Plan, link with other TWGs on crosscutting issues and promote aid effectiveness as per the Paris Declaration and the Accra Action Plan on Aid Effectiveness.

5.3 Cambodian Mine Action Centre (CMAC)

The Cambodian Mine Action Centre (CMAC) was established as a national demining organization in June 1992 by the Supreme National Council of Cambodia. This status was extended by the Royal Decree of November 01, 1993 and a revision approved by the Royal

[7] See list of 21 most mine-affected Districts in Annex 3.

Decree of February 25, 1995, conferred to CMAC the status of a public institution with the legal individual authority placed under the Prime Minister.

On June 21, 1999, a subsequent Royal Decree gave a new status to CMAC by providing a new structure conferring executive responsibilities within CMAC. In 2000, the need to formally ascertain the roles of CMAC Governing Council vis-à-vis the newly created Cambodian Mine Action Authority (CMAA) formally established as a regulatory body, gave rise to the Royal Decree on the establishment of CMAC pronounced on August 07, 2001. This Decree condensed the size of the CMAC Governing Council membership and clarified CMAC's roles as a national institution to provide mine action services for humanitarian and development projects.

CMAC has its main headquarters (HQ) in Phnom Penh, one Centre for Training and Research & Development in Mine Action and Explosive Remnants of War (Siem Reap and Kampong Chhnang), and five Demining Units (DUs) located in Banteay Meanchey "DU1", Battambang & Pursat "DU2", Pailin "DU3", Preah Vihear, Kampong Thom "DU4", Siem Reap & Oddar Meanchey "DU6", and one Eastern Regional Office (DU5) covering 6 Provinces of Svay Rieng, Prey Veng, Kampong Cham, Stueng Traeng, Kra Cheh & Ratanakiri.

CMAC is responsible for implementing mine action in the kingdom of Cambodia with the main focus on executing the following programs:

- Mine/ERW Awareness
- Mine Information and Survey
- Mine/ERW Clearance
- Training in Mine Action

Currently CMAC employs more than 2,300 staff, about 95% are employed as field staff.

5.4 The Royal Cambodia Armed Forces (RCAF)

The Royal Cambodian Armed Forces (RCAF) role in mine action is defined by the RGC. It includes (i) urgent demining in support of government priority projects throughout the country such as roads, airfields, irrigation, resettlement, agriculture, military base and some remote communities, and (ii) strengthening the capacity of RCAF to undertake demining in support of UN Peace Keeping Operations. In the recent years, RCAF has successfully deployed its deminers to participate in the UN peacekeeping mission in Sudan. In 2005, the demining capacity was about 1,310 personnel.

5.5 Police

The General Commissariat General of the National Police is also involved in mine action as part of their core responsibility to maintain safety, security and public order. The national police is mainly involved in ERW reporting aimed at reducing potential casualties and preventing possible terrorism and crime.

The general commissariat of the national police established an ERW working group in 2006 operating in a number of ERW affected provinces. Around 1,000 police officers are engaged at central, provincial, district and commune level and were trained by CMAC on ERW identification and to become resource persons for field operational staff.

5.6 PMAC/ MAPU

In 1999, the RGC initiated a Province based mine action governance structure for local coordination of mine clearance operations whereby local demining requirements are established at the grassroots level. This decentralized system for establishing clearance priorities was later enshrined in a Sub Decree on Socio-Economic Management of Mine

Clearance Operations (SD # 70). Based on the sub-decree, the CMAA issued guidelines on socio-economic management of mine clearance operations on 18 February 2005.

The guidelines were reviewed after two years to reflect the current situation and resulted in a new set of Policy and Operational Guidelines. The Policy Guidelines introduces the concept and the roles of institutions and partners in the socio-economic management of mine clearance operations while the Operational Guidelines describe the set of activities to be implemented.

This priority setting mechanism works through a series of government institutions at various levels starting at the village level, working through the commune, the district up to the provincial level where governors established Provincial Mine Action Committee (PMAC), Mine Action Planning Unit (MAPU) and the Mine Action District Working Group.

- Provincial Mine Action Committees (PMACs) are composed of directors of provincial departments and headed by either a Governor or more commonly a Deputy Governor. The PMAC have the final authority to approve the annual clearance plans (and thus the minefields to be cleared during the next year) and are responsible for ensuring that this plan complies with national and provincial-level development strategies and is derived from a process that is transparent will full participation of local authorities, demining operators and development organizations.

- Mine Action Planning Units (MAPUs) are the technical support unit of the PMACs. They are working groups composed of government officers selected from across different provincial departments, as well as the Governor's Office. They carry out a broad range of roles that include "[coordinating] in prioritization and selection of demining tasks, [ensuring] that demining contributes to risk reduction and development priorities, [developing an] annual demining workplan, and monitoring post clearance land use." There is a total of 8 MAPUs in Cambodia.

- The Mine Action District Working Group (MADWG) is established by the provincial governor in the districts where demining work is greatly required. The composition of MADWG includes members from district line offices and from stakeholders involved in demining activities in the district. The role of the MADWG is to facilitate fair and transparent prioritization and selection of demining tasks and to ensure proper use of demining lands.

The process consists of commune meetings where each village chief presents the village wish list of priority clearance sites to the commune. Village chiefs, CBMRR and members of Village Development Committee (VDC), development agencies, villagers and the commune chief participate in the commune meeting facilitated by MAPUs. Village chiefs confirm what the land will be used for on each site and the development agency can indicate if they have any plans for these sites. After the commune meetings, minefields are investigated. The MAPU, clearance operator, village chief and development agency if appropriate conduct the minefield investigation. They identify the area to be cleared, review the intended beneficiaries and see whether the land is in dispute. They also connect information on accidents that occurred in that area.

Once all minefield investigations have been completed of all proposed sites, there is a District Workshop with the village chiefs, members of the VDC, two people from each commune (commune chief and CBMRR at the commune level), District Governor, development agencies and clearance operators, and the MAPU. During that workshop, the commune meeting and minefield investigations are presented and each demining site is scored using criteria developed by the Province in accordance with the Operational Guidelines. In line with the scoring, each minefield is categorized as "high, medium or low risk". In addition, operators

may present their plans and ideas for priorities as well as their operational capacity. Based upon the available number of demining assets, the workshop participants have to determine which sites from the priorities can be cleared. High-risk sites are first on the list.

Once the task lists are finalized at the District Workshop, they are presented at the PMAC for final approval. The PMAC may also add some of its own priorities to the final list. The MAPU then prepares a list of all approved tasks with the location and name of the operator assigned to each task. It becomes then the responsibility of each operator to prepare its own plan for each site. There is no task dossier or formal tasking order. Demining operators' annual clearance plans are then forwarded to CMAA for inclusion in the database.

5.7 International Demining NGOs

The HALO Trust:
The HALO Trust commenced work in Cambodia in 1991 when it was contracted by UNHCR to undertake a 'fire brigade survey' of the mines threat across the country in order to allow for safe repatriation of refugees from Thailand. HALO began formal mineclearance operations in 1992 and has remained concentrated in the north-western Provinces. Originally establishing operational bases in Banteay Meanchay and Pursat Provinces in 1992 to provide mineclearance support to the emergency relief efforts of UNTAC and the international aid community, HALO's clearance programme has expanded to 1,200 national staff with four permanent operations locations (Kamrieng District of Battambang Province, Malai and Thma Puok Districts of Banteay Meanchey Province, and Anlong Veaeng District of Odtar Meanchey Province) and a programme headquarters in Siem Reap (HALO maintains a small liaison office in Phnom Penh).

HALO's mineclearance efforts have concentrated on casualty reduction through survey and clearance of mined ground impacting on the local population. Today, HALO is working in Battambang, Pailin, Banteay Meanchey, Odtar Meanchey and Preah Vihear Provinces. The back bone of HALO Cambodia is large scale manual mineclearance (100 x 8-lane manual demining sections) complemented by 6 x survey teams, 2 x EOD teams, 4 x mechanical support teams (vegetation cutters, armoured loaders and shovels) and 1 x MRE team. During 18 years of fulltime demining operations in Cambodia HALO has led the introduction to global humanitarian mine action of many important innovations, including One Man One Lane demining, vegetation cutting with armoured brush cutters, deployment of hand held strimmers, and most recently in cooperation with the US Department of Defense the full evaluation and deployment of very latest in dual sensor detectors. These detectors combine the best available metal detection technology with ground penetrating radar, allowing operators to speed up productivity by discriminating between metal signals and metal adjacent to mass which indicates the possibility of a mine.

Mines Advisory Groups (MAG):
MAG started working in Cambodia in 1992 and has since then been providing demining activities to affected communities including manual clearance work, mechanical demining, mine detection dogs, community liaison and explosive ordnance disposal. MAG also built partnership with development organizations to systematically integrate mine action with development activities especially with regards rural development. Since 2006, MAG has supported Cambodia's Area Reduction Policy to identify previously suspected land currently in use by communities. MAG currently deploys 21 Manual clearance teams, seven Explosive Ordnance Disposal teams, one Technical Survey teams, three Tempest scrub-cutting teams, seven Community Liaison teams and three Mine Detection Dog teams.
MAG currently employs around 475 members of staff, working across six provinces: Battambang, Krong Pailin, Banteay Meanchey, Preah Vihear, Kampong Thom and Kampong Cham. Of these, 34% are female and 9% are amputees. MAG Cambodia has pioneered the

locality demining approach, recruiting deminers from the poorest communities, and is working on innovative strategies for more targeted clearance across the whole country.

5.8 Other stakholders:

Village demining: Mine clearance activities by villagers are considered as unsafe practices. It is ultimately a response to adverse environmental and economic conditions by a section of the population that has the ability to draw on existing knowledge and skills, i.e. demobilized soldiers. However, there are also villagers who have no military background but will move mines out of their way because of economic and livelihood necessity. The practice is extremely risky. This type of demining continues to exist despite attempts to discourage it.

Commercial companies: There are several commercial demining companies registered in Cambodia. In addition, there have been also a number of Cambodian deminers and experienced EOD specially contracted to work overseas such as in Lao, Taiwan, and Korea.

International Stakeholders: The key international stakeholders are donors and development agencies such as AusAID, CIDA, DFID, JICA, GTZ; the UNDP and other UN entities such as UNICEF, UNHCR, UNMAS, and UNOPS; other organizations are GICHD, NPA, HI-B; and development parners such as World Vision, CARE, Austcare, CWS, LWF.

National Stakeholders: The main national stakeholders are the Royal Government of Cambodia Ministries, Authorities and Agencies such as the Ministry of Foreign Affairs and International Coopearation (MOFAIC), the Ministry of Agriculture, Forestry and Fishery (MAFF), the Ministry of Interior (MOI) and the National Police, The Ministry of Defense and the Royal Cambodian Armed Forces (RCAF), the Ministry of Water Resources and Meteology (MoWRAM), the Ministry of Rural Development (MRD), the Ministry of Women's Affairs (MWA), the Ministry of Land Management, Urban Planning and Construction (MLMUPC), the Ministry of Education Youth and Sport (MoEYS), The Ministry of Social Affairs, Labor, Vocational Training and Youth Rehabilitation (MOSALVY), the Council for the Development of Cambodia (CDC), APSARA authority, Preah Vihear Authority, Cambodian Red Cross (CRC), and the Disability Action Council (DAC).

Local Stakehoders: These stakeholders include provincial and local authorities (District and Commune Councils), local NGOs, CBOs, CBMRR voluntary network, and community self-help groups

Beneficiary groups: The mine action beneficiary groups are people living in Cambodia, specifically vulnerable people living in mine affected areas, Community Based Organizations and authorities, and private and developmental organizations.

6. Nature and extent of progress made: quantitative aspects

Mined area clearance statistics

Between 1992-2008, the three humanitarian demining operators CMAC, MAG and HALO Trust have physically cleared 289,580,086 square metres of land across some 7,500 mined areas. In the process of clearing mined areas, operators have removed and destroyed 422,688 anti-personnel mines, 4,124 anti-tank mines, and 314,580 items of unexploded ordnance.[8] Considerable progresses have been made as the annual clearance rate has risen from an

[8] These statistics correspond to the total cleared mined area statistics (geographical polygons) as calculated by CMAA DBU. It does not include mines/ERW collected outside cleared areas. See full clearance statistics by operators (1992-2008) in Annex 1.

average of 17.5 square kilometre in the period 2002-2004 to an average of 35 square kilometre in the period 2005-2008.

Table 4: Clearance statistics by operators as calculated by CMAA DBU (1992-2008)

Clearance results 1992-2008	CMAC	MAG	HALO	Total
Total Area Cleared	215,283,075	24,321,902	49,975,109	289,580,086
Total AP Mines	235,493	32,153	155,042	422,688
Total AT Mines	2,966	152	1,006	4,124
Total ERW	265,494	20,699	28,387	314,580

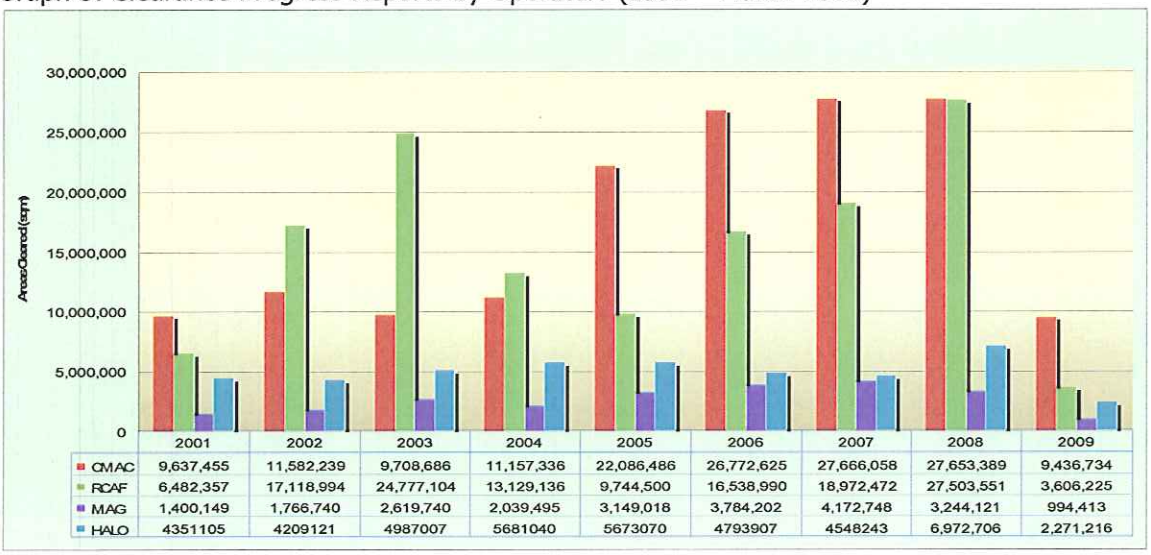
Operators demining progress reports

For the same period, all operators combined report the clearance of 476,504,804 square metres and the destruction of 814,198 antipersonnel mines, 19,108 anti-tank mines as well as 1,740,831 items of ERW.[9] The Royal Cambodian Armed Forces reports the clearance of 170,640,882 square metres, removing in the process 161,636 antipersonnel mines, 8,337 anti-tank mines and 100,168 items of ERW. However, it should be noted that currently the RCAF is not accredited by the CMAA and therefore its clearance activities are not subject to Quality Assurance and Control by CMAA's Quality Assurance teams. In addition, RCAF's reports to CMAA only include clearance statistics and do not provide information on the location where clearance was undertaken and corresponding polygons. However, RGC indicated recently that the RCAF would submit a request to CMAA for licensing of its humanitarian demining activities.

Table 5: Operators' demining progress reports (1992-2008)

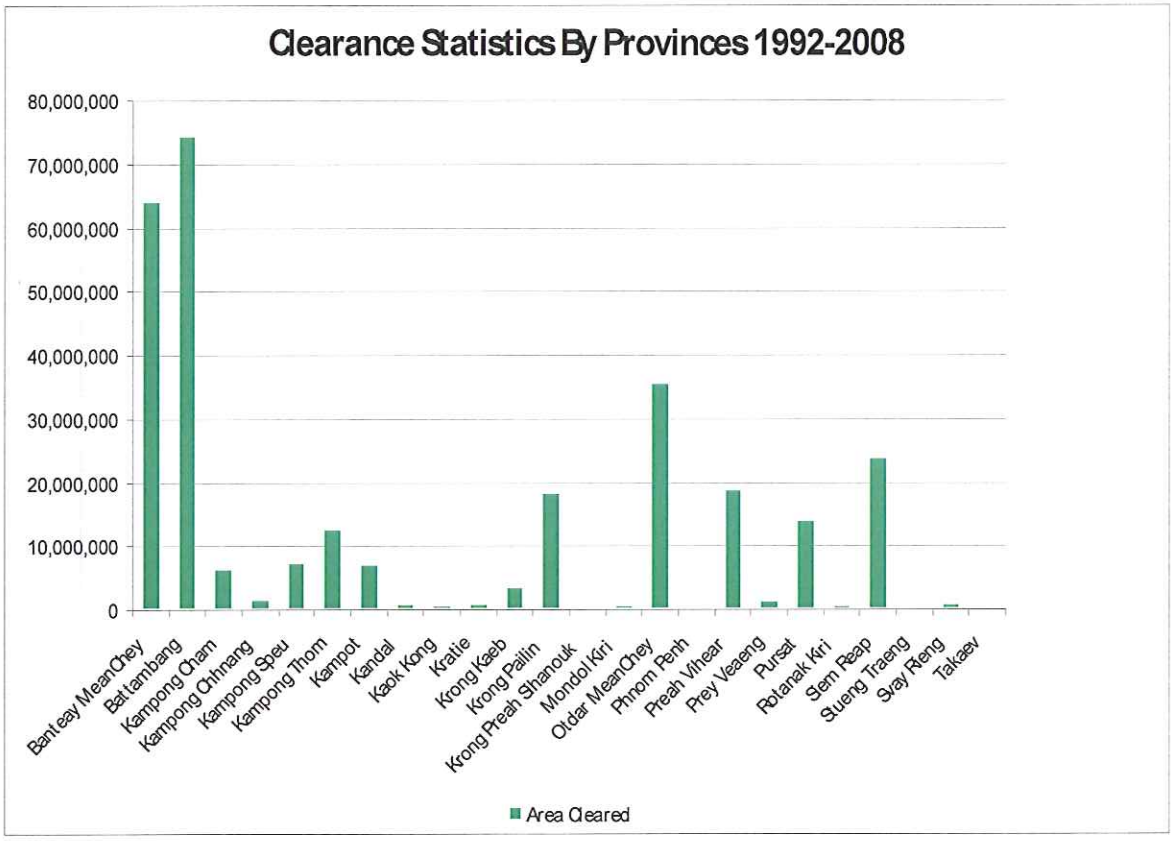
Clearance results 1992-2008	CMAC	RCAF	MAG	HALO	Total
Total Area Cleared	227,368,336	170,640,882	26,433,356	52,062,230	476,504,804
Total AP Mines	404,523	161,636	47,405	200,634	814,198
Total AT Mines	7,657	8,337	585	2,530	19,109
Total ERW	1,370,028	100,168	140,317	130,318	1,740,831

Graph 3: Clearance Progress Reports by Operators (1992 – March 2009)



[9] These data are based on operators' progress reports and include mines/ERW collected outside cleared areas. See full operators demining progress report (1992-2008) in Annex 2. Discrepancies with total cleared area statistics are due to the fact that CMAA DBU calculates the area cleared according to the size of the polygons reported.

Graph 4: Clearance statistics by provinces (1992 – 2008)



Reclaimed Land as per the 2006 Area Reduction Policy

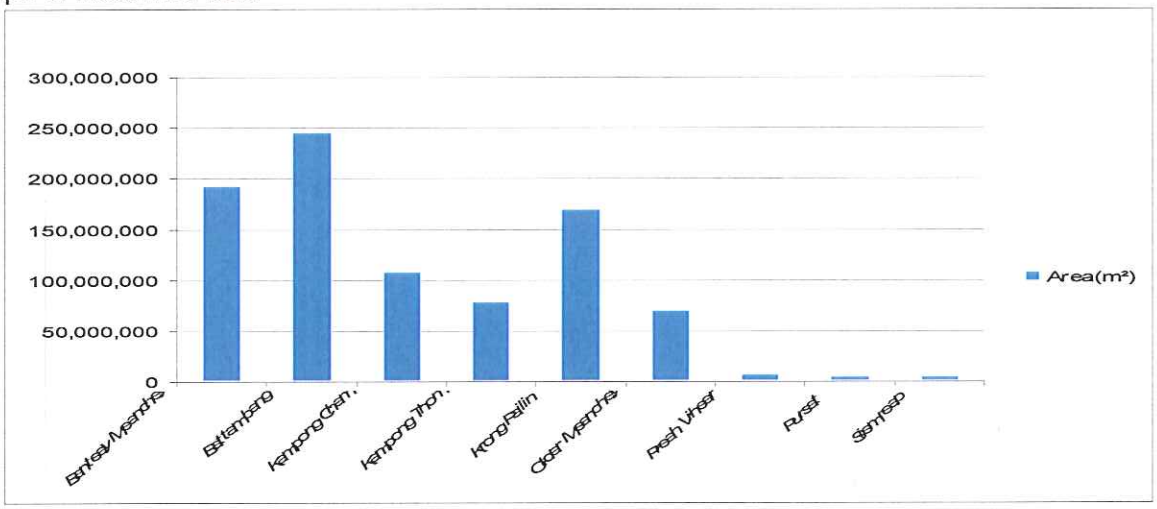
After the termination of the L1S, very rapid internal migration of the population after conflict ceased changed the settlement and use of land quite dramatically. Forest loss, especially in the northwest provinces, in the last few years has been extremely rapid and exceeds several hundred square kilometres. The extent of land reclamation by local people and new settlers – also referred to as informal demining or village demining – is extremely large in the northwest provinces. As a result, it changes the status of current suspected mined areas had to be formally recorded. Thus, in May 2006, an Area Reduction Policy was adopted by CMAA in order to improve the mine clearance planning by targeting clearance on areas posing the greatest risk to communities, and by doing so, recognize previously suspected lands which have been returned to productive use without current evidence of threat by reclassifying and recording them in the national mine contamination database as reclaimed land. Reclaimed land is land that was previously suspected of having a mine hazard, but has been returned to productive use by locals for three years without accident.

Reclaimed land is land where the threat has been reduced to a level that is acceptable to locals, and that due to limited resources; clearance of such land should not be considered, unless there is a particular need to do so. The process of reclassifying previously suspected hazardous land into reclaimed land involves a non-technical survey approach whereby operator staff undertakes community visits to document land use patterns and accident data. Reclaimed land, as defined in the new land classification (see Chapter 14), is considered End State Land by the RGC or land with no obvious threat or contamination by APM, and thus no longer an obligation under Article 5.

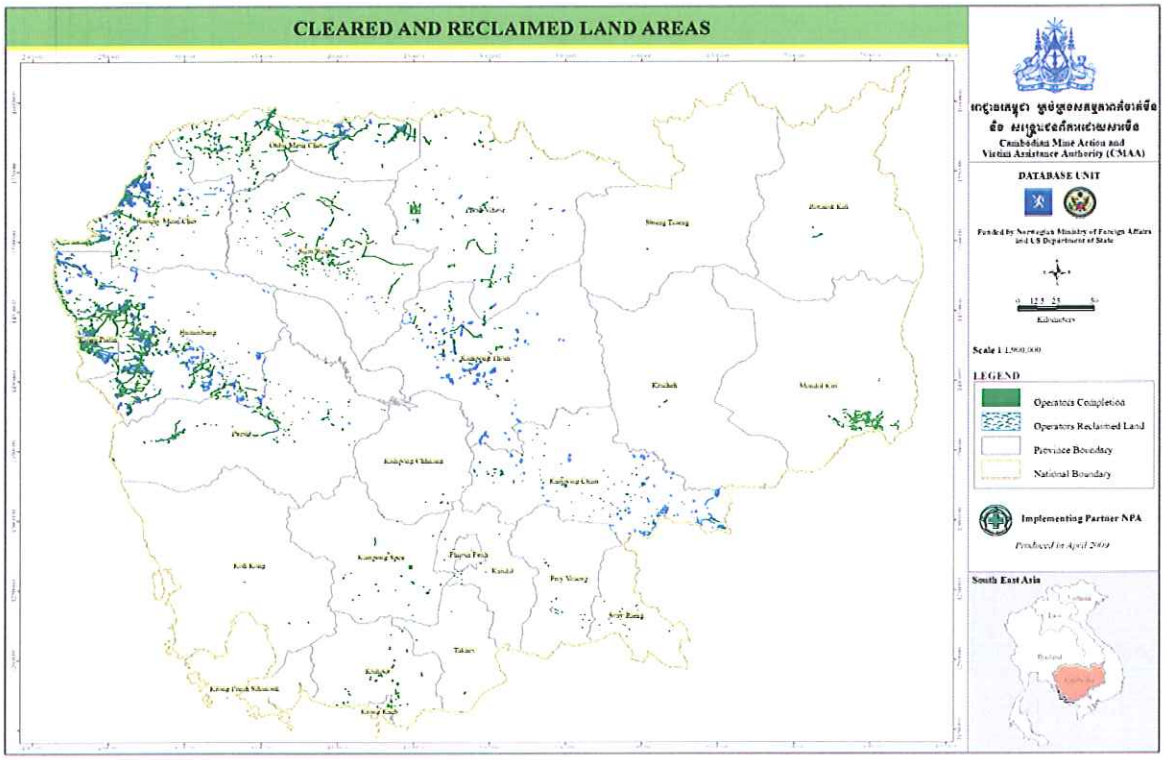
MAG and HALO have reclassified 865 square kilometres of previously suspected land according

to this rule, MAG using the L1S hazard areas as a starting point and HALO also including other areas previously suspected by the communities.

Graph 5: Reclaimed land



Map 3: Clearance and reclaimed land areas



7. Nature and extent of progress made: qualitative aspects

The Kingdom of Cambodia has long been synonymous with the issue of landmines – both in terms of the impact it was suffering, but also for the energy and innovation of the Government and the international community to address the problem. The Royal Government of Cambodia has demonstrated its commitment to concluding Cambodia's mine story in a positive way, and establishing itself as a model for effective and sustained management of widespread landmine contamination. That mine action is clearly articulated and prioritized in National Development plans is evidence of this commitment, including designation of mine action as an additional

Millennium Development Goal requested by the Royal Government of Cambodia to demonstrate its commitment to the issue.

Over the last few years there has been an emergence of meaningful mine action strategies and actions led by the CMAA with the support of mine action practitioners and other stakeholders in the sector. Key strategies put forward by the CMAA include the National Five Year Plan for 2005-2009, the ERW strategy (16 November 2006), the MRE strategic (24 May 2006), the Area Reduction Policy (24 May 2006), the enhancement of the National Database Centre for Mine Action, the improvement of the application of the Socio-Economic Guideline and post-clearance monitoring, the technical reference group for Area Reduction and the National Action Plan for People with Disability.

However, despite these strategic approaches, there remains uncertainty regarding the scale and nature of the remaining challenge and the extent and exact location of Cambodia's vast mine contamination problem. While various initiatives have been put in place to address this weakness, they have only been partially successful, meaning that quantification remains a great challenge to this day.

The scale of Cambodia's mine problem and the total number of suspected mined areas necessitated accurate prioritization of clearance tasks to address these needs. The mine action planning process (MAPU, PMAC) established at the provincial level explained earlier facilitated community participation in prioritizing mine clearance activities for annual work plan, and to ensure a transparent and equitable process for the allocation of cleared land to beneficiaries.

Since 2001, another innovative programme has been implemented by CMAC called Community Based Mine Risk Reduction (CBMRR). CBMRR emerged in recognition of the need for mine risk education and to link the affected communities with other services and to develop a more community-oriented approach in severely affected communities, in order to allow for more people and more types of people to be reached over a longer and more sustained period of time. Through the engagement of MAPUs and CBMRR with a cross section of people, human capital has been built within mine affected communities for management of all aspects of mine action, including integration of community perspectives in setting tasks.

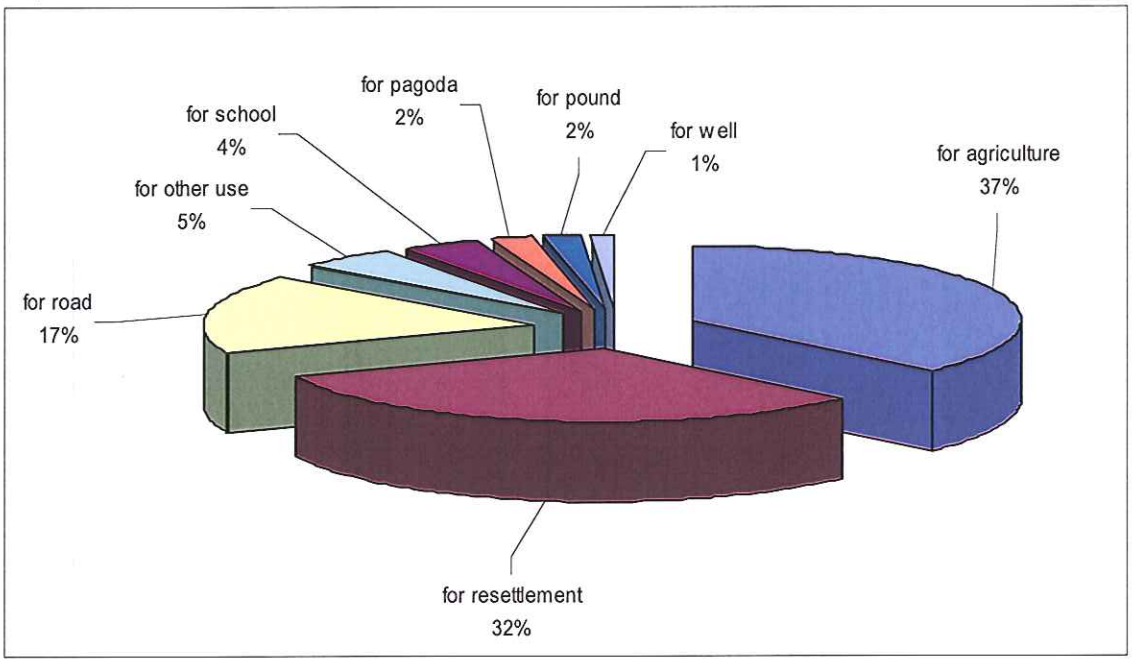
Mine clearance operations were prioritized according to the dual objectives of (i) rendering the land safe for development purposes (housing, agriculture, roads, schools, reconstruction, etc.) and (ii) dramatically reducing the casualty rate. These objectives also reflect the findings of the L1S, which showed that the most severe socio-economic impact of landmine contamination on villages was primarily related to accessing land for housing and agriculture purposes, and villagers' concerns about the high number of casualties. Moreover, financial constraints in an environment of unacceptably high casualty numbers have meant that clearance has focused on addressing the urgent needs of casualty hot spots. The sharp reduction in casualty rates in recent years is evidence that the clearance planning processes that are in place are effective.

As a result, the past 16 years of demining have achieved extensive socio-economic benefits allowing poor and rural communities access to services and markets, land for resettlement and agriculture, irrigation and road infrastructure, access to services by people living with disability including mine/ERW victims. Demining activities have also enabled the construction of schools, community centres, health centres, and access to sources of water. Moreover, casualty numbers have fallen substantially.

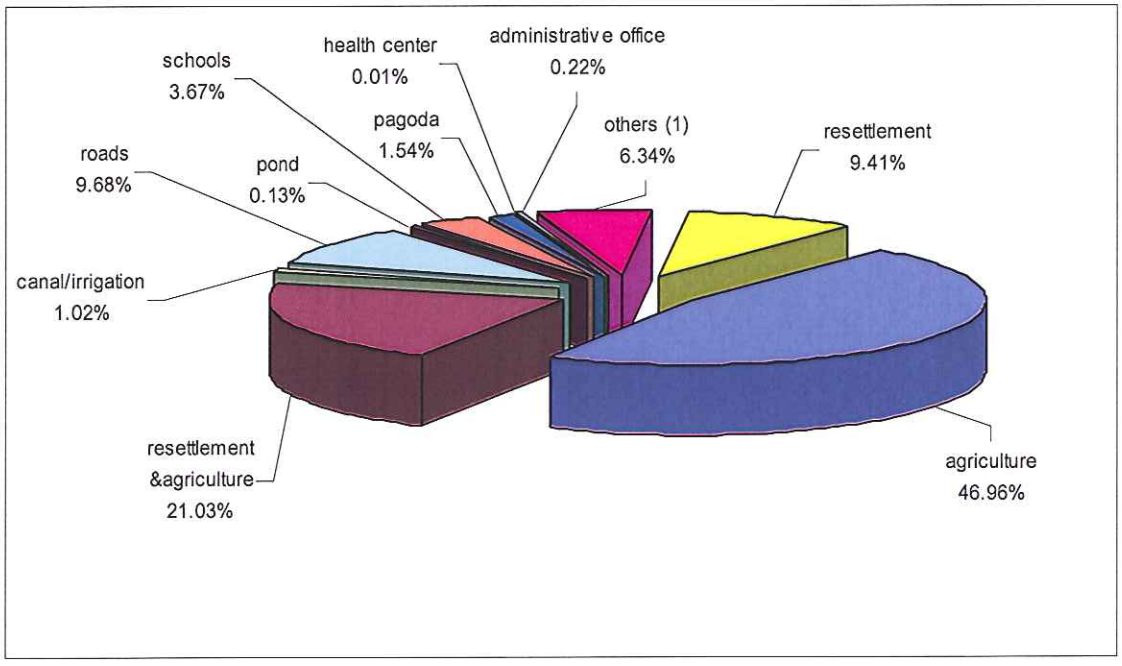
The success of the prioritization processes is clearly demonstrated in the pre or post-clearance land use statistics provided by operators. Nationwide data show that from 1992 to 2008, two-thirds of all clearance activities were targeting agriculture and resettlement purposes, while roads represented around 10 to15 per cent of post-clearance land use. It should be noted that

these statistics are reflective of locally identified priorities and vary from province to province. In Siem Reap for example, where many of Cambodia's ancient temples are located, land is more likely to be cleared for tourism purposes, while in the fertile province of Battambang, more land may be cleared for agricultural purposes.

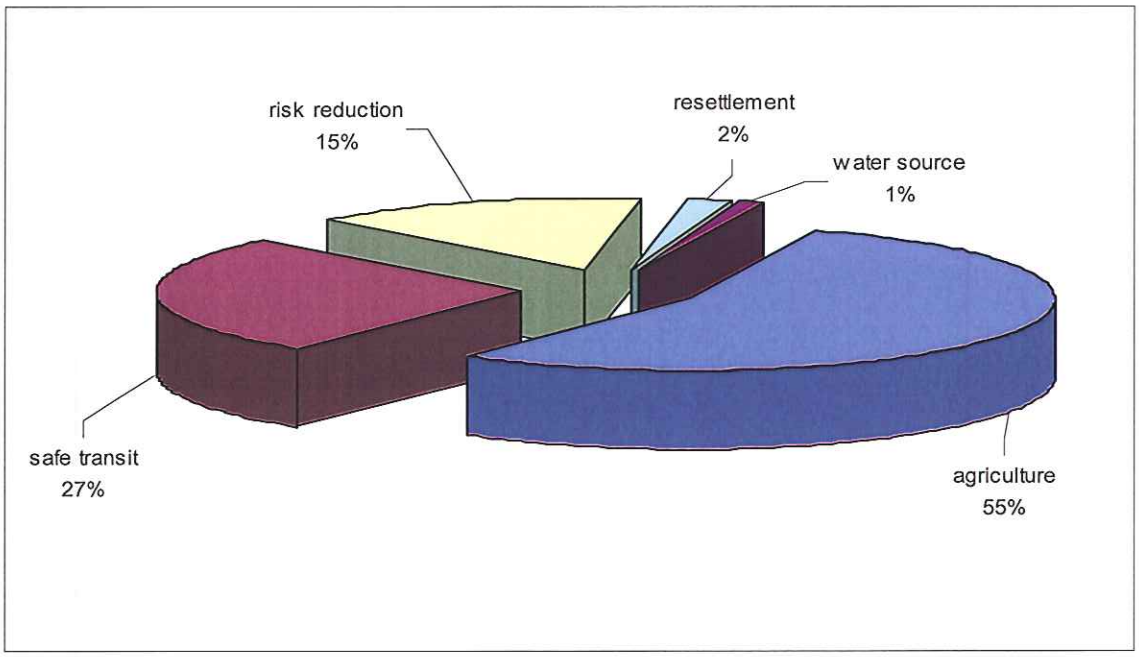
Graph 6: MAG post-clearance land use statistics 1992 to 2008



Graph 7: Sample of socio-economic reports by CMAC

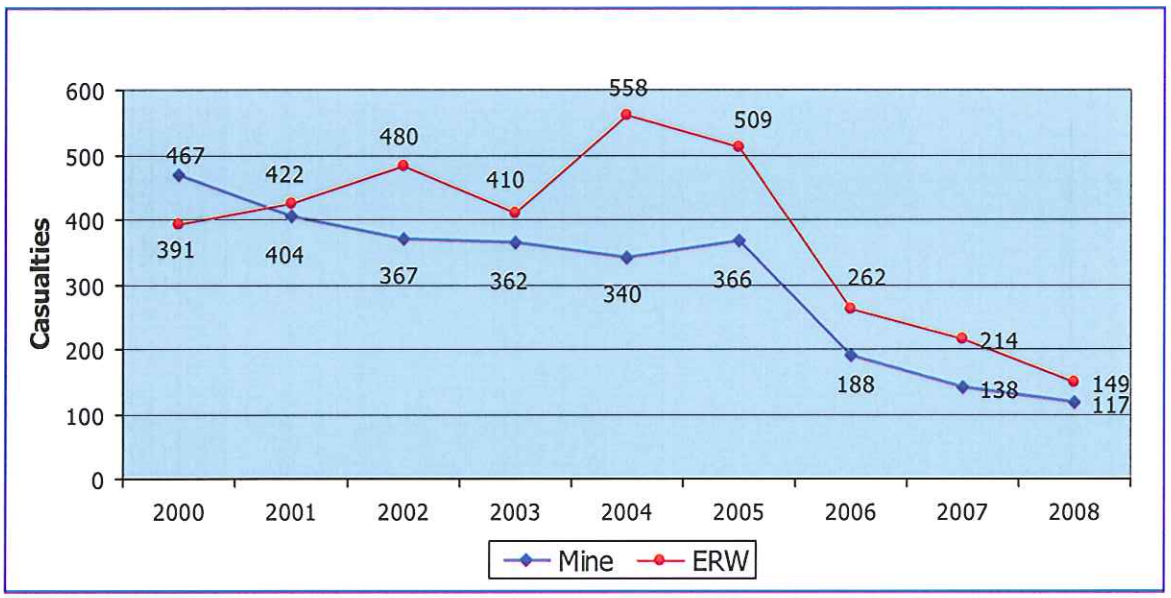


Graph 8: HALO post-clearance land use from 2008 completed tasks



While Cambodia still experiences unacceptably high mine/ERW casualty rates, the situation has drastically improved over recent years. From a peak of 4,320 casualties in 1996, casualty rates levelled in the early 2000s at around 850 casualties per year. Over the past three years, there have been further significant decreases in casualties, with the 2008 casualty figure of 266 representing less than 10 % of the 1996 figure. Furthermore, mine accidents are now lower proportion of the total casualty count as the frequency of ERW injury raises.

Graph 9: Mine & ERW casualties 2000-2008

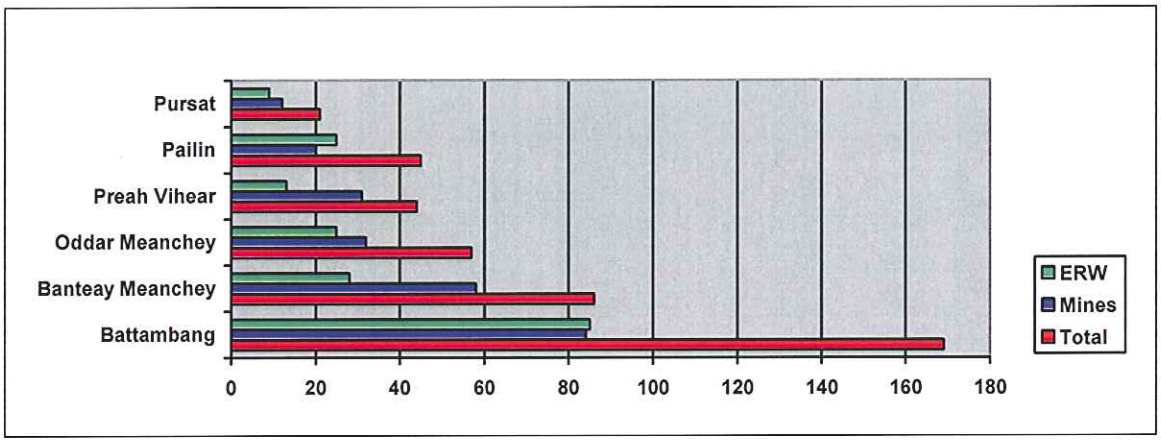


The areas most affected by landmines in Cambodia prior to the 1998 ceasefire were sparsely populated. However, the arrival of peace saw many people returning to areas that had previously been rendered unsafe because of the conflict. The region also experienced a rush of poor people seeking opportunities (and land) inside these very dangerous areas. While all effort was made to mark all known minefields, the severe poverty faced by many led people to

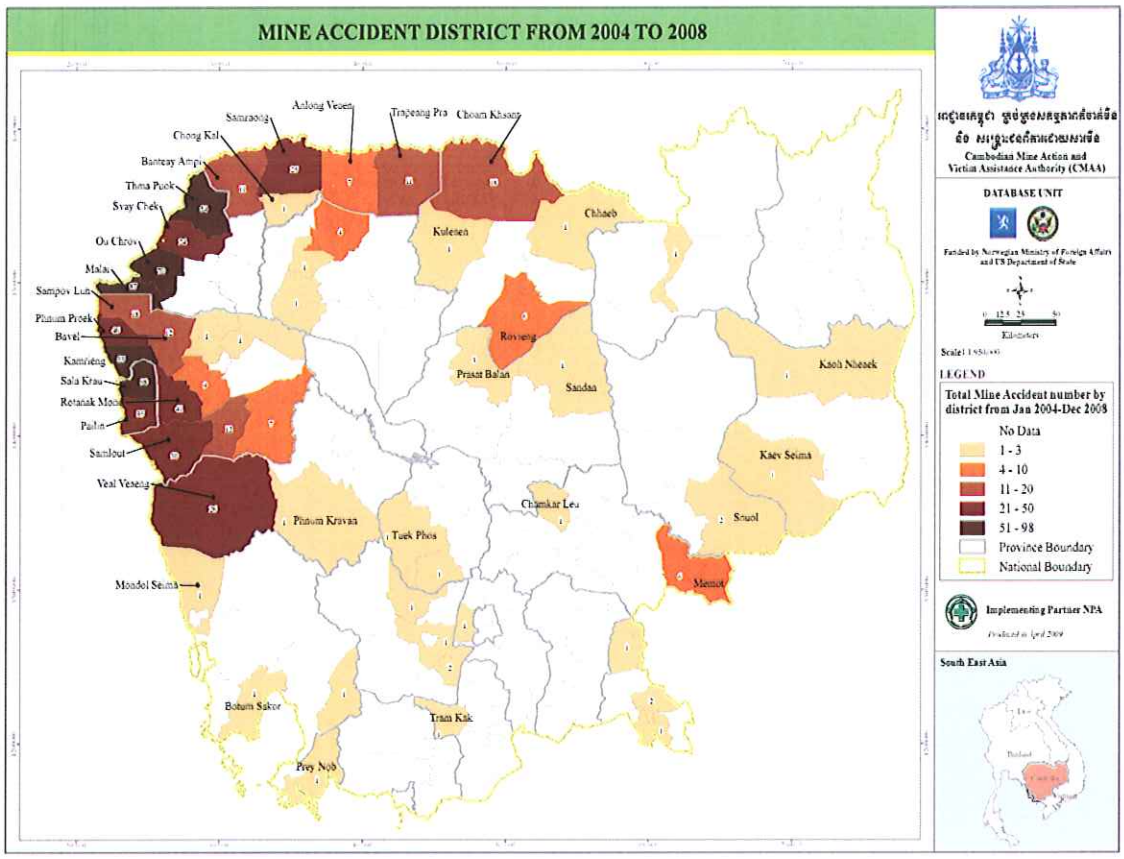
knowingly enter suspect areas, since they regarded the 'risk' to be acceptable given their extreme poverty. Extensive mine risk education and marking programmes were put in a place in an attempt to redress this problem.

From a gender perspective, the overwhelming majority of mine accident victims are male. In the 2007-2008 period, 85% of all 618 mine/ERW casualties were male, with 32% of the total being boys under the age of 18. Geographically, the northwestern provinces are the most affected, with 466 of the 618 casualties coming from the string of seven provinces bordering or nearest the Thai border.

Graph 10: Casualties in North-Western Provinces 2007-2008



Map 4: Mine accident districts (2004-2008)



8. Methods and standards used to release known/suspected areas

8.1 Release of land through clearance

In Cambodia, the traditional approach to release land known or suspected to contain mines has been through full clearance. CMAS Chapter 6 relates to "Clearance requirements – demining" and aims to ensure that "the beneficiaries of humanitarian demining programmes are confident that cleared land is safe for their use. This requires management systems, clearance procedures and well-documented QA/QC processes which are appropriate, effective, efficient and safe. It must also be established that cleared land is appropriate for its intended use through consultation with the beneficiary community and the PMAC, MAPU and CMAA".

Mine Action organizations operating in Cambodia have applied the full demining toolbox available with the aim of removing the landmine threat. Tools used include manual demining teams, MDD's, mechanical assets, as well as Battle Area Clearance (BAC) and Explosive Ordnance Disposal (EOD) assets. These "tools" are generally used to complement each other to ensure an efficient and cost effective clearance effort.

Cambodia has also been at the forefront of the mine action industry with regards to research, development and trial of new and more efficient clearance equipment and techniques. Cambodia and its operators have also been proactive in inventing and taking into use new methodologies and techniques in regards to clearance efforts. This has led to a steady improvement in clearance output and efficiency.

Each operator in accordance with their own structures deploys different clearance techniques complemented by their own corresponding SOPs. Manual clearance has been the core of each

operator's activities, including RCAF. While manual clearance SOPs differ slightly between operators, suspected land is released using manual means, which involves deminers using their basic demining tool kits, including mine detectors (metal detectors). Each organization organizes their team differently. For example, CMAC organizes its manual clearance teams according to the type of task required. For larger demining tasks, two or more platoons are grouped together as 'demining site'; for medium size tasks, normal or mobile platoons are deployed; for smaller tasks which are 1 hectare or less, the Community Mine Clearance teams (CMC) are deployed; and for small hot spots like opening access to water sources, the Technical Survey for Clearance teams (TSC) are deployed. In many circumstances, several demining tools are deployed jointly for gain optimum productivity and safety.

Supporting manual clearance is increasingly done with mechanical assisted demining tools (such as brush cutters and push and swing type demining machines), Mine Detection Dog (MDD) and EOD assets. Their speedy entries allow for quick land release as experienced in the last few years. These innovative tools come about as operators searched for efficient means to release land to productive use.

The extent and complexity of the mine laying in Cambodia (and political stability, ease of access since 1998) has led to its use by operators and supporting research institutions as an environment in which to test and experiment with new mine action technologies. Of these, probably the most significant in recent years has been the HALO evaluation and deployment of the dual sensor detector HSTAMIDS (Hand-held STand-off MIne detection System) in cooperation with the US Department of Defense. These dual sensor detectors combine the best available metal detection technology with ground penetrating radar, allowing operators to speed up productivity by discriminating between metal signals and metal adjacent to mass which (indicates the possibility of a mine). HALO began the full evaluation of this system in Cambodia in April 2006, and is now fielding more than 30 HSTAMIDS units. In 2008 MAG and then CMAC also began evaluation of the system.

Land known or suspected to be mined is not the only type of contaminated land being released in Cambodia. The nature for the past armed conflicts calls for clearance of massive ERW laid scattered throughout the whole country. As aforementioned, Cambodia suffered from massive bombing campaign by the US as well as the indiscriminate deposit of ERW left scattered as the result of ground fighting. This required clearance assets to respond to reactive calls to remove and destroy ERW; but also to proactively clear or release former battle land.

8.2 Release of land through survey

CMAC's survey

Since 2005, CMAC has undertaken a comprehensive resurvey of eight districts. Eight more districts are also close to completion. This survey process has been effectively used by CMAC to release L1S hazardous areas, or parts of these areas.

This resurvey has identified new mined area boundaries and classification based on new information. In this process large areas identified as hazardous areas by the L1S were found to not be areas containing AP mines. Other areas, not mapped by the L1S, were identified to be suspect hazardous areas and have as such been added on to national mine contamination database. CMAA has updated the national mine contamination database with the new CMAC survey information. This information supersedes the L1S information in these districts. The positive result is that large areas previously suspected to contain AP mines have been released from suspicion and are therefore considered not to be dangerous due to the presence or suspected presence of APM.
During CMAC's survey process land in use with suspicion of mines is classified and mapped as

residual minefields. If no accidents occur during a following three-year period, with productive use, this land is then reclassified by what CMAA defines as reclaimed land, see below.

CMAC as the main national demining operator commenced its operations by using a number of survey tools before the introduction of the L1S - Minefield Survey Teams (MST) to conduct limited general survey, Minefield Verification Team (MVT) to verify minefields, and Minefield Marking team (MMT) to mark minefields for clearance. The first two did not conduct clearance; however they released suspected land through non-technical means. MMT on the other hand conducted limited clearance in the process of minefield marking. MMT was also deployed to clear of small hot spots, tasks that were not suited for larger team (platoon). In later years after the completion of L1S MMT team were converted to become Technical Survey Clearance Team (TSC) conducting the same function as MMT. While MST and MVT became Technical Survey Teams (TST); they performed technical survey to reduce minefield to precise boundaries and define the level of threat for clearance to take place more efficiently, but more importantly through their technical survey works, they have release substantial suspected land from L1S since 2004. It is important to note that beside releasing suspected land from the L1S, CMAC non technical survey has also found and record newer suspected mined area. It was the NTST work that assists assessing of the remaining threat as described in section 14.

HALO Trust survey

HALO currently deploys 6 x general survey teams in Cambodia. The primary role of HALO Cambodia survey teams is to provide programme senior management with the information they require to prioritize ground for clearance and to draw up annual work-plans in conjunction with the provincial MAPU/PMAC process. This information includes the location, total area, approximate boundaries, mine type and density, terrain, accessibility, land-use and proximity to the nearest habitation of every mined area within the relevant district(s). Systematic survey has allowed Location Managers and programme senior management to select tasks for the workplan from a comprehensive list of known mined areas. For long-term planning 'negative' information – (about areas where is little risk of a mine accident) - is just as important as 'positive' information about existing mined areas; in Cambodia, negative information principally means the survey of reclaimed land – defined as land covered by the L1S, or otherwise suspect, that has been hand-planted for three years or machine ploughed three times without accident or incident. HALO Cambodia survey teams have been mapping, recording, and reporting on reclaimed land since 2005 (see below). A secondary role for HALO survey teams is to provide the demining supervisors and field officers with sufficient on the spot information to plan and commence clearance of a workplan task.

Cambodia's Area Reduction Policy

As mentioned in Chapter 6, due to the extent of the extent of land reclamation by local people and new settlers – also referred to as informal demining or village demining – is especially in the north-west provinces. CMAA adopted in May 2006 an Area Reduction Policy to improve the mine clearance planning by targeting clearance on areas posing the greatest risk to communities, and by doing so, recognize previously suspected lands which have been returned to productive use without current evidence of threat by reclassifying and recording them in the national mine contamination database as reclaimed land.

The process of reclassifying previously suspected hazardous land into reclaimed land involves a non-technical survey approach whereby land that was previously suspected of having a mine hazard, but has been returned to productive use by locals for three years without accident. Reclaimed land, as defined in the new land classification (see Chapter 14), is considered End State Land by the RGC or land with no obvious threat or contamination by APM, and thus no longer an obligation under Article 5.

Improving and standardizing land release through survey

CMAA is in the process of planning to revise its Area Reduction Policy. CMAC has developed a land release concept. This new system considers land release through survey and will be used as a basis for developing a national land release policy and a CMAS chapter on land release using the different survey methodologies. This will enable operators to release land without undertaking full clearance in areas where survey can gain enough information to remove the claim of a suspicion of mines in an area.

The tradition of use of clearance as the only method to release land has led to large areas being cleared by certain operators without finding any mines. In most cases the perceived threat had been based on inaccurate or incorrect survey, or simply not enough information on an area to refute a claim of mines.

Land release is the process of changing the status of known or suspected mined areas (or parts of those areas) to end state land which is released from the suspicion of mines through non-technical survey, technical survey and/or clearance resources.

A suspected hazardous area, or parts of it, can be released through survey by gathering enough information to be able to say with a high degree of confidence that there is no evidence of mines. While there is always residual risk present in mine action (even after full clearance as mines might be deeper than the set clearance depth, outside the boundaries, or just missed by clearance operations), well-defined criteria and a credible well-documented process can assure 'all reasonable efforts' have been undertaken before land is released. In Cambodia, suspected hazardous land will not be released without the above being in place. Approval should be reached from the landowner and the local community that they accept/understand what has been done and that there is no obvious threat in using the land. Land released through survey or clearance is considered end state land with no known threat due to mines or ERW.

The Baseline Survey that CMAA and the three operators have agree to undertake in the field from August 2009 (cf. Chapter 14) will record mined and suspected areas and classify them accordingly into the various sub-categorization of A (Mined Areas) or B (Residual Threat) land (cf. Annex 4). When the baseline survey is completed in a district, previously suspect hazardous areas are superseded by the results from the baseline survey and will consequently not be part of the updated national mine contamination database. I.e. the new baseline survey will replace and render obsolete old survey information. The full process of land release (non-technical survey, technical survey, and clearance) will be applied to the known or suspect hazardous areas as defined by the baseline survey.

9. Methods and standards of controlling and assuring quality

Quality Assurance (QA) and Quality Control (QC) within most de-mining operations are deemed to be a very important part of the entire process. In Cambodia, CMAA's Regulation and Monitoring Department (R&M) is responsible for the regulation of all mine action activities undertaken within the country.

The CMAA R&M Department is responsible for the writing and publishing of all Cambodian Mine Action Standards (CMAS) chapters as well as for accreditation and licensing of all mine action operators who apply for a license to undertake any mine action activity within country. The CMAA R&M Department maintains regular QA site visits to all accredited operators where they may suggest improvements or clarification on certain aspects of what is witnessed. In addition

the QA teams have the authority to suspend de-mining sites where they feel serious safety violations have occurred, and have done so in the past.

The QA teams of the R&M Department are fully accepted by the operators. The QA teams are mine minefield police but they fulfil a vital role in ensuring site safety for the deminers and adherence to IMAS for the UN, CMAA, the donors, the Operators and more importantly for the beneficiaries who will inherit the land.

Currently CMAA are responsible for its own QA recruitment, training and deployment. There are four x two man teams who monitor the accredited demining operators licensed to work in Cambodia. Teams plan field visits, of which 99% are announced. The QA team have a selection of QA checklists (which follow the IMAS guide) covering Manual/Mechanical/Survey assets as well as a MDD checklist. The QA teams also have an accident/incident investigation role.

Accredited operators up to date are CMAC, the HALO Trust, MAG, BACTEC South East Asia, Milsearch, CSHD, and CDS. To date only one operator has had its accreditation and license withdrawn by CMAA, and one asked for its accreditation and license to be suspended due to difficulty in winning contracts.

In 2005, Cambodia commenced the process of development of Cambodian Mine Action Standards (CMAS), informed by the UN's International Mine Action Standards (IMAS), but reflective of Cambodia's history and situation. The Cambodian Mine Action Standards (CMAS) were established as the regulatory framework for all mine action activities in the Kingdom of Cambodia with CMAA responsible for drafting, reviewing and updating of the CMAS. The aim of the CMAS is to assist CMAA, national agencies and international agencies to establish technical guidelines and Standard Operating Procedures as a clear frame of reference for use in Cambodian mine action activities. CMAS also provide the basis for the development of legal contracts between donors and implementing organizations.

The chief aim of the CMAS is to improve safety and efficiency in Cambodian mine action by providing guidance, by establishing principles and, in some cases, by defining national requirements and specifications. They provide a frame of reference, which encourages the sponsors and managers of mine action programmes, and projects to achieve and demonstrate agreed levels of effectiveness and safety. Currently there are 29 Chapters of CMAS, of which 14 are approved or finalised.[10]

Assuring the quality of demining work is the responsibility of each demining operator. It is the foundation of building confidence in the demining work itself. Each type of demining activity required working quality control (QC); hence quality control procedure is inclusive in all clearance SOPs. QC is being internally implemented by all mine clearance teams prescribed under the operator SOPs. This task is usually performed by the various levels of leadership during clearance processes, by team members, team leaders, and unit managers.

Demining operators also have their own QA systems. Usually, these QA teams are attached to the operators' main offices and are dispatched on a scheduled and a spot (surprise) check basis to monitor demining operations on the ground.

The drive to assure excellent quality has led the National Demining operator 'CMAC' to have its operations certified in 2004 and remain certified to date under ISO quality standard (ISO 9001-2000). Both standard quality assurance and controlling are being exercised at operator level and quality assurance is implemented at the CMAA level.

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[10] See Annex 5 for the full list of CMAS

10. Efforts to ensure the effective exclusion of civilians from mined areas

Mine Risk Education has been a constant activity throughout NW Cambodia since 1993, aiming to encourage people to adopt mine/ERW risk avoidance behaviours to prevent mine/ERW injures. Since 2000, Mine Risk Education has been coordinated by the MRE Unit of the CMAA and implemented through both government and non-government service providers. Organizations such as CMAC, Cambodian Red Cross (CRC), UNICEF, CARE, The HALO Trust, Handicap International Belgium (HIB), MAG, and the Ministry of Education, Youth and Sports (MoEYS) have all been active in MRE since the early 1990s - the Cambodian Red Cross has been active since the early 1980s.

MRE has been required to evolve along with the quickly changing communities that the information is directed at. Population movements, scrap metal prices, changing risk patterns, and other trends have all forced adaptation of the message. From mass media campaign such as the use of billboard, radio and TV spots to employment of a community based mine/ERW risk reduction strategy; and from incorporation of MRE messages into school and development programme to law enforcement; all these have been successfully employed to meeting the changing of community and social landscape.

In January 2008, the Mine Action Technical Working Group decided to conduct an external evaluation of MRE activities under the coordination of the National Mine Risk Education Technical Reference Group led by CMAA. It concluded, "the MRE sector in Cambodia has been remarkable in adapting its response to the different phases. Overall, coverage has been good with the most affected areas targeted. The program has also been effective in raising awareness and knowledge of risk avoidance strategies. However, messages while relevant in the early stages of the program are less relevant in the current context and need some revision to ensure they are more contextually specific." [11]

In Cambodia context, affected communities have been included in MRE programmes through the CBMRR initiative as noted before. Cambodia acknowledges that effective MRE is based upon careful and ongoing assessment of the needs of the affected communities with involvement of existing community structures and local authorities in prioritizing tasks for mine action programmes. The planning of MRE should be linked to demining, victim assistance and community development programme planning. Based on this guiding principle, Cambodia's long-term strategy for mine/ERW risk education is to gradually transfer skills and knowledge to the local communities.

The CBMRR programme has been designed to serve that purpose. The affected communities are empowered to recognize, manage and address the mine/ERW problem with their own means, through task identification and prioritization, with the support from the demining operators and development partners through the PMAC/MAPU process. Through teams of volunteer network (Mine/UXO Committee or MUC) based at village/commune level and their respective District Focal Point (DFP), MRE can mobilize a very high participation by the affected communities themselves, thus building up the community's capacity and commitment to risk reduction and strengthening the community functions and networks.

One of the main indicators of the sheer volume of mines laid in Cambodia, and one of the single greatest justifications for continued, targeted humanitarian mine clearance is the simple fact (reported consistently by CMVIS over many years), that more than 75% of all mine victims recorded had received Mine Risk Education at some point prior to their accident which

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[11] J. Durham, Evaluation of the Mine Risk Education Program in the Kingdom of Cambodia

indicates that communities continue to observe risk behaviours due to the pressure of accessing land for livelihood activities.

11. Resources made available to support progress to date

Cambodia has benefited greatly from sustained and significant contributions from the international community to fund mine action in Cambodia since 1992. The calculations listed below are based on donor reports, and reflect funding of a range of different mine action activities. The overwhelming majority of mine action funding has been directed to mine clearance, but significant contributions have also been made to mine risk education, victim assistance, mine action governance, and integrated mine action programs.

Despite pressures on the national budget due to competing needs, Cambodia has successfully managed in recent years to increase its budget allocation to mine action. The government's contribution includes support to mine action related activities undertaken by CMAA, CMAC, RCAF, the Police and the Ministry of Social Affairs, Veterans and Youth (MoSAVY). In addition, the Government has been able to make in-kind contributions to mine action through waiving import duties on humanitarian demining operators' mechanical and technical equipment, being imported into the country.

Table 6: Annual Funding obtained for Mine Action related activities (million USD)

Contribution	2000	2001	2002	2003	2004	2005	2006	2007	2008
International[12]		21	27.3	17	41.7	25.6	29.6	30.8	
RGC		n/a	n/a	0.8	0.8	1.23	1.23	1.8	1.8

It should be noted that in addition to the budget allocated to support operations as mentioned above, Cambodia also received from donors in-kind contributions through the provision of multi million dollars worth of equipment, both through bilateral and multi-lateral channels. Equipment provided includes metal detectors, vehicles, IT equipment, demining machines, research and development activities and other mine-clearance related equipment. These are instrumental in increasing demining safety, efficiency and productivity as part of Cambodia's effort to speed up its demining activities.

In addition to the provision of equipment, Cambodia also received generous technical assistance from the international community to build and strengthen the technical capacity of demining operators as well as strengthening CMAA to conduct and manage mine action effectively. This also accounts for a considerable amount in the mine action budget.

Other resources devoted, particularly by the local authority and community involvement contributing to the successful execution of the last 16 years mine action programme are difficult to quantify, however, they continue to be an extremely valuable contribution.

12. Circumstances that impede compliance in a ten year period

Several circumstances have impeded compliance in period 2000-2010. The first and foremost challenge for Cambodia has been the sheer scale of the problem as compared to available resources and capacities. From official statistics, in the past 16 years of effort and commitment

[12] Clear information on funding levels is difficult to get, and rarely at the disposal of the host Government. These figures represent those reported by the Landmine Monitor, following their annual process of interviewing all key stakeholders.

Cambodia has addressed only parts of its full problem. The number of mines destroyed, size of areas cleared, number of mine victims and the size and abundance of areas still known or suspected to contain mines demonstrate that the mine problem of Cambodia was – and still is one of worst – if not the worst – in the world.

Most mine action experts agree that Cambodia still has a lot of demining to complete in the next ten to twenty years if demining technologies and methodologies are to remain the same and the available resources are not increased. Therefore innovative technologies and methods, including releasing land through surveys, coupled with sufficient funding is needed to help solve the problem. Without these two elements, the remaining problem will remain a great challenge for Cambodia.

While donor contributions to mine action have been consistently generous throughout the ten year period, the truth is that they have never been sufficient to meeting the actual need that exists, let alone the critical mass necessary to achieving full compliance. Given this situation, Donors and Operators have chosen to direct most precious resources to the northwest of the country in an attempt to focus their resources on casualty reduction. The financial factor will continue to be a challenge for Cambodia in the next ten years.

Cambodia has experienced strong levels of economic growth, but widespread poverty in much of rural Cambodia (caused by a wide range of factors) means that there are competing forces seeking support from an already stretched National Budget. Government contributions to mine action have increased, however they remain only a small proportion of the total budget required to maintain the mine action sector at current levels, let alone the resourcing needed to achieve full compliance. Paradoxically, the ability to mobilize donor support for the sector is undermined by the sector's success. As casualty rates decline sharply, some donors have taken decisions to redirect resources to other sectors which they determine have greater need.

Long term planning for mine action is problematic given the erratic nature of mine action funding. This situation contributes to resources not being allocated to clarification of lower priority suspect areas given that donors demand that operators are directing funds to high priority areas.

13. Humanitarian, economic, social and environmental implications

The contribution of Cambodia's mine action program to the social and economic situation of people living in affected areas is considerable. This occurs primarily through the major contributions that mine action makes to 1/ reducing the number of casualties and 2/ distributing land and livelihoods to poor and vulnerable people.

There are positive links between mine action and economic returns. According to a cost-benefit analysis study on mine clearance operations in Cambodia in 2005,[13] mine action is contributing substantially to the Cambodian economy and the country in general. Analysis of the 2004 clearance programme indicates a benefit cost ratio (BCR) of 0.38, implying that benefits are in general 38% higher than the costs, on basis of an average clearance cost rate of USD 0.9 per square metre (some demining operators costs such as CMAC's are below 50 cents per m^2). The internal rate of return based on the same assumptions will be 14%. The benefits amount to about USD 37 million in total, distributed with 80% on clearance for development and 20% on reduced human loss. Roads and bridges make up the largest parts with 45%, even though such clearance tasks only comprise 19% of the total area cleared. Smaller size tasks related to

[13] Cost-benefit analysis of mine clearance operations study was conducted by Bjørn Gildestad in 2005.

irrigation canals also contribute considerably. For agricultural land the situation is inversed, it constitutes as much as 65% of the cleared area while making up only 28% of the benefits. The benefits from renewed access to more direct road links can be considerably larger that the costs required for clearance. Clearance of roads and bridges could thus be undertaken even in cases of relatively high cost levels. The benefits of access to wells for local water supply, schools and health stations are easily justified for clearance, on the basis of the reduced travel time and travel costs for the community members including students.

A significant additional and very positive (but not often reported) economic implication of large scale mine clearance is the amount of money paid out by operators in the form of staff salaries. The mine action sector has employed over 4,000 national staff for more than a decade, so that a conservative estimate of total USD entered into the Cambodian economy in the form of mine action salaries during 1998 – 2008 will be in excess of USD 86 million; over the full 18 years+ it may amount to over USD 150 million, 90% of it paid out to demining staff of relatively humble origin, many of whom were recruited from the most impoverished districts of the mine-affected north-western provinces.

A needs assessment undertaken by an International NGO (Austcare) in 2005 suggested that presence of landmines are a key cause leading to the insufficient livelihood and poverty among the rural poor living in mine affected areas especially in communities bordering Thailand particularly the provinces of Battambang, Banteay Meanchey, Oddar Meanchey and Pailin. Insufficient livelihood leads to food insecurity, then to hunger, and hunger forces poor and vulnerable people to foraging for food and to find forest by products in mine affected forest; or scavenging for scrap metal for sale. This risk taking behaviour may lead to becoming a mine/ERW casualty which often results in perpetual poverty and hardship for the family. The study also found that lack of market, poor job availability, lack of capital, lack of vocational skill, and agriculture constraints are also some of the leading causes of the inadequate livelihood.

Agriculture constraints are the result of the limited land for farming which is in turn often due to land still being contaminated with landmines. Therefore, by clearing land for agriculture and allocating that land to poor people, community needs can begin to be met. By clearing access to services and market mine action can help prevent humanitarian catastrophe and its flow on social impacts.

The social impact of a mine accident goes much further than the physical injuries inflicted. Women and children suffer from a mine explosion, whether they are directly injured or their spouse or parent is a mine casualty. Women are often the primary care-giver, or become the principal income earner or head of the household if their partner is killed or injured in a landmine explosion. For the child of a mine casualty, the impact on the economic situation of the family often results in children losing the opportunity to gain an education, and forcing a child to look for employment to support the family.

Medical care at the time of the accident, as well as the costs related to ongoing care commonly force families into debt, which in turn can lead to landlessness – in other words a spiral of economic and social implications. This is reinforced by research undertaken by the Jesuit Service Cambodia in the provinces of Battambang, Oddar Meanchey, Banteay Meanchey, Siem Reap, and areas surrounding Kampong Speu where interviews with 1,663 survivors revealed that 71% did not have adequate housing; 7% had no house at all; 45% had to travel more than five minutes to get water for drinking and washing; 89% reported food insecurity; 32% had no land for housing or cultivation; 28% received a government pension; 50% had a "job" (including rice farming); and the children of at least 46% did not go to school.

The sharp reduction in casualty numbers in Cambodia has therefore positively affected many more people than are reflected in the raw casualty statistics.

The other side of the 'mine action coin' is the positive social and economic contribution made through allocation of demined land to disadvantaged poor families. The 'MAPU system' provides Cambodia a clear and widely understood system for allocating mined land to beneficiaries, based on criteria detailed under the Sub Decree on Social Land Concessions which outlines the circumstances under which state owned private land can be distributed to poor people who lack land for residential and/or family farming purposes. Since a lot of mined land is officially state owned in Cambodia, demining becomes an important vehicle for application of the Social Land Concessions Sub Decree, which allows for allocation of cleared land to beneficiaries. Decisions regarding post clearance beneficiaries are clearly determined prior to clearance commencing.[14]

14. Nature and extent of the remaining challenge: quantitative aspects

14.1 Best available data as of March 2009

While policies and implementation plans for both the Baseline Survey and a system for land release are advanced and progressing well, it will not be possible for the impact of these important policies to be reflected in this Extension Request at this point in time. In other words, these policies cannot contribute to reducing the very large suspect area that remain on the national database from the L1S and other subsequent surveys that have found extensive suspect areas outside the L1S at the time of submission of this Request.

The result of this situation is that the remaining challenge, based on the best available data available in March 2009, presents a suspect area that all in the sector know is a massive, inaccurate and highly distorting snap-shot of what work is still to be done. Stakeholders also believe that the overall suspect area can be reduced through the application of enhanced and adequate policy and approaches (e.g. Baseline Survey, Policy on Land Release). However, at this point in time, the overall suspect area constitutes the best available data for Cambodia.

The information presented below represents the process for determining the best available data in March 2009 for quantification of the remaining challenge, and is based on the following methodology:

1. All surveyed mined area polygons that were identified and recorded before the conclusion of the L1S in 2000-2 have been abandoned, and are not considered to be part of the remaining challenge

2. Where CMAC has completed a resurvey of an entire district after the L1S, the TS polygons of confirmed, suspected and residual minefields replace all L1S polygons in that district

3. Where CMAC has completed a resurvey of an entire district, and/or HALO Trust have also conducted survey, the remaining challenge is made up of the CMAC survey polygons in addition to HALO Trust survey polygons where HALO Trust polygons do not overlap the CMAC polygons

[14] There are legal uncertainties related to beneficiary tenure over demined land allocated under the Social Land Concessions Sub Decree, which the Royal Government is now attempting to address.

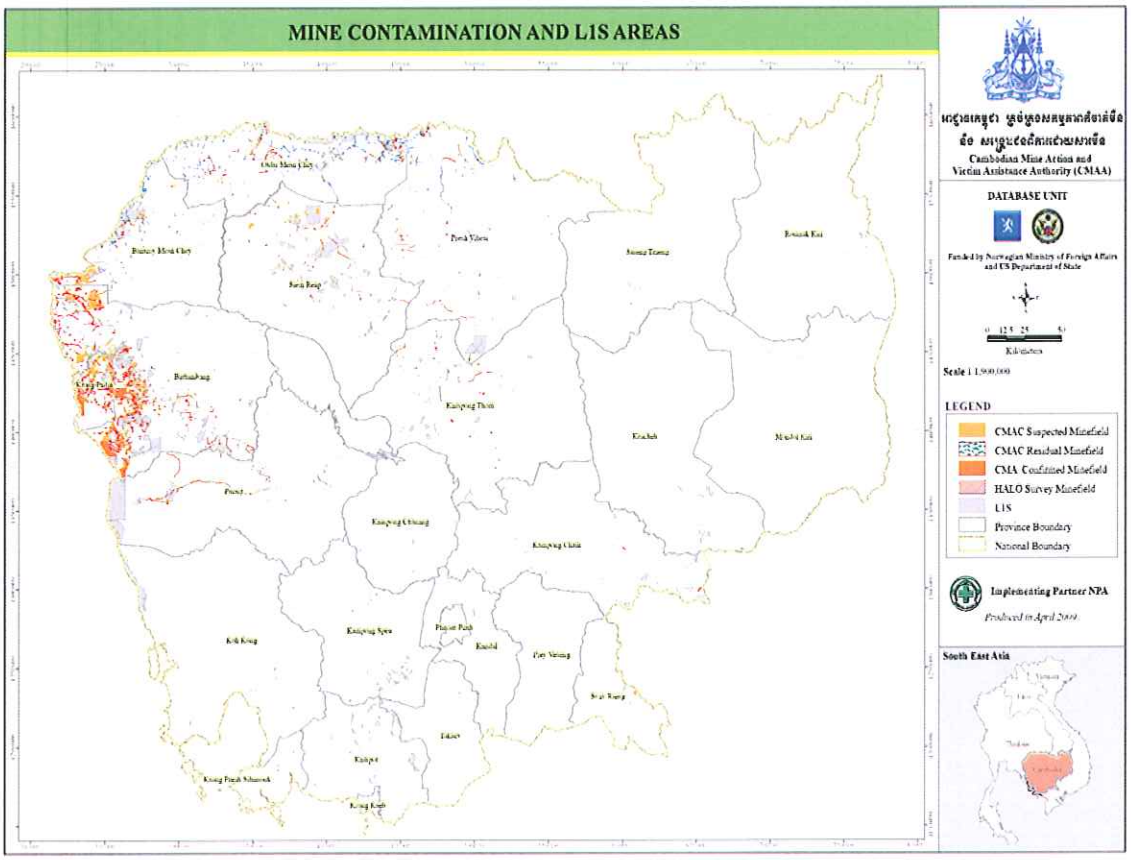
4. All HALO Trust survey polygons outside L1S and CMAC survey polygons are added to the remaining challenge

5. In districts where CMAC survey is incomplete, the L1S polygons should be considered the remaining challenge. If there are surveyed polygons identified by the HALO Trust, that sit outside the L1S they should be added onto the L1S polygons

6. If cleared area polygons and/or reclaimed land polygons overlap with L1S polygons, the remaining challenge is the L1S polygons subtracted overlapping area of the cleared area polygons and/or reclaimed land polygons

Running through these steps on the national mine action data set gives a total of size of the remaining challenge to be 3,867 square kilometres covering 122 districts.

Map 5: Remaining mine contamination and L1S suspected hazard areas



Province and district maps and statistics showing the current situation is provided in Annex 7.

14.2 Defining a new baseline

In November 2008, CMAA convened a meeting of the Mine Clearance Technical Reference Group, comprising CMAA, CMAC, MAG, HALO Trust, NPA and other interested mine action stakeholders. The meeting purpose was to consider the various challenges posed by the Extension Request and to begin development of a National Mine Action Strategy (which has not been completed at this point in time).

In terms of the nature and extent of the remaining challenge, it was openly acknowledged at this meeting that there are several difficulties associated with Cambodia still being unable to accurately quantify the total suspect hazardous area needing to be programmed into the

Extension Period. Operators have focused their efforts on the casualty causing north-western provinces, and believe they have a 'good, general' understanding of the needs that exist there. However it was accepted that for the majority of the country where little or no clearance has occurred, that despite its many known weaknesses, the best available remains the L1S undertaken in 2002.

In the search for a meaningful way ahead,, an agreement was reached that the three leading operators, under direction from CMAA, would initiate a baseline survey of the 21 most mine affected districts[15] in Cambodia. Importantly, it was agreed that this baseline survey would occur using common standards, protocols and procedures. These 21 districts were responsible for 93.1% of all mine accidents in the five years up until 2008. They are all already well known to operators, and it is therefore believed that a very clear picture and plan can be developed from the survey results to guide allocation of the majority of mine clearance resources during the Extension Period.

It is important to note, however, that this Baseline Survey first phase of the most mine-affected 21 districts will only provide up to date empirical planning data for these districts. In order to produce genuinely accurate data for the whole country, all remaining mine-affected districts will eventually need to be re-surveyed.

Table 7: Mine Accident and Casualty Data (2004 - Dec 2008)

Location	Casualties by number	Casualties as a percentage	Accidents by number	Accidents as a percentage
Inside 21 baseline Survey Districts	1060	91.6%	762	93.1%
Outside 21 baseline Survey Districts	89	8.4%	53	6.9%

Furthermore, these deliberations on the baseline survey have led operators to agree on the types of land to which demining resources should be directed over the next ten year period, as well as recognizing the need to identify appropriate approaches to eliminate the very large areas of land that are currently labelled as suspect as a result of the L1S and subsequent surveys, but which appear not to present any obvious threat or evidence of APM, given that they have commonly been in active production for several crop cycles, without accident.

Difficulty in aligning and comparing the different suspect area types identified by different Operators given their use of varying standards and classifications has caused Cambodia some problems in the past, particularly in diluting the impact of the mine action planning process. As a response, CMAA has worked closely with operators and NPA to develop a land classification table with clear and agreed definitions (cf. Annex 4):

Classification A: Mined Areas
Classification B: Residual Threat
Classification C: End State Land

This land classification is firstly designed to clarify the nature of the remaining threat. However it is also regarded as a very important tool in supporting prioritization and allocation of clearance resources. It is agreed across the sector that effective prioritization of mined areas for clearance must incorporate the technical knowledge of operators, and this new approach will help overcome the weaknesses of the existing mine action planning process, which had at times sidelined operator knowledge in order to ensure communities the chance to freely

[15] See list of 21 most affected districts in Annex 3

identify suspect areas and prioritize clearance. While communities and operators commonly reached the same conclusions regarding prioritization, there were instances of precious clearance resources being deployed on low threat land because 'that was the community priority'. Categorization of land along the proposed classifications will be integral in determining the allocation of demining resources to clearance tasks. The current national prioritization policy (Sub Decree # 70) will be revised to ensure that clearance occurs in priority on known mined areas polygons coming from the baseline survey (A Land). This will require modification of the 'MAPU Process' so that MAPUs are obliged to utilize the baseline survey results when working with communities. However, MAPUs will also manage a safeguard process that allows communities the opportunity to raise additional suspect areas that the baseline survey might not have picked up, or to request clearance on areas deemed by the baseline survey to be lower threat (B Land), should there be a compelling need for such clearance to occur. Such areas would go through a review process to determine whether they needed to be added to the baseline survey results and included in current or future mine clearance plans. Eventually all land classified by the Baseline Survey as mined (A Land) or as presenting a residual threat (B Land) should be released following survey or clearance activities before RGC is in a position to declare completion of its Article 5 obligations.

The preparations for the baseline survey are underway for a field deployment of trained technical survey staff planned for early August 2009. The survey will be conducted by the three main operators, using fully standardized survey protocols (adopted as the new national standard) and imparted through a formal survey retraining program. The model for this baseline survey will be developed in such a way that it can be easily extended to other areas in later phases. Furthermore, a new national standard baseline survey form (to be jointly field tested by the operators) will ensure consistency among operators' survey teams during the baseline survey. The CMAA Quality Assurance Department will validate the entire process from initial training to final results. CMAA's database unit will enter all survey forms reported by operators into the National Database.

The Baseline Survey will record only mined or suspected areas and classify them accordingly into the various sub-categorization of A (Mined Areas) or B (Residual Threat) land. The Baseline Survey' results will supersede the L1S in the database and therefore Cambodia has decided not to record or document former L1S or suspected areas being superseded or cancelled by the Baseline Survey. Cambodia's Article 5 obligations apply for all areas containing or suspected to contain APM and classified as A or B land. Land classify as C or "End State Land" constitute reclaim, cleared or surveyed land with no evidence of mine contamination and therefore C areas are no longer considered as a mined area.

14.3 Best estimate of what remains to be done

As mentioned above, it is not possible at this point in time to reduce the very large suspect area that remains from the L1S and other subsequent surveys that have found extensive suspect areas outside the L1S.

It is Cambodia's firm commitment to significantly eliminate the remaining suspect area over the period of the requested extension. The following approaches are being considered:

- Carry out the baseline survey of all mine affected districts and starting with the 21 most mine-affected districts
- Use the results of the baseline survey, to provide a more accurate extrapolation of possible future national clearance requirements and to improve Cambodia's workplan
- Survey and clarify the 20 largest L1S polygons, which total a suspect area of 1,344 square kilometres (some are which are inside the 21 districts and will be therefore covered by the Baseline Survey)

- Revise Cambodia's Area Reduction Policy in order to develop a new national policy and corresponding standards for releasing land through survey.
- Efficiently release land through clearance and survey according to a well established prioritization system

However, the reality remains at the present moment that there is great uncertainty regarding the size of the remaining suspect area, and only a limited understanding of the specific detail of where that clearance needs to occur until the above can be completed.

In order to best quantify the remaining problem today in Cambodia for planning and strategy purposes there are a couple of options. The L1S could be used; we could continue as in the past to rely solely on expert opinion and guesswork; or we could use the limited sample of one operator's existing survey data - empirical evidence - to make a gross national estimate of remaining contamination and the required response.

Although there is agreement that the CMAA and operators led Baseline Survey is the best option going forward, at the present time, projecting based on empirical evidence of existing survey data collected by operators is the only alternative to using LIS data when seeking a more accurate quantification of the remaining problem for the purpose of this Extension Request.

Obviously there are several limitations recognized by the sector as follow:

- Dataset: with a limited sample – it may be argued that this model of analysis is limited due to the small data set (only 16 districts, some incomplete, out of 185 districts), or bias towards districts in highly contaminated provinces etc.
- Survey Methodology: based on a general non-technical survey which can not precisely define the boundaries of mined areas and therefore some of the polygons may have been large and too broadly classified. As a result, districts surveyed by CMAC considered in that exercise will be re-surveyed by the Baseline Survey teams.
- Projection methodology: with more time and expertise, the calculation could include more variables (nature of the terrain, type of contamination, victims etc.) which could likely enhance accuracy
- In addition, large parts of the K5 mine belt are in areas that are inaccessible and therefore the true extent of suspected is difficult to assess and determine

Research conducted by CMAC over an extended period from 2004 to 2009 through technical and non technical survey teams has led to formulation of a simple model to estimate the remaining challenge. As an overview, the level of contamination found at different sites in resurveyed districts is averaged and projected. The results of this analysis were also used to develop the CMAC five year strategy (2009-2013). This opinion was drawn based on a sample of survey data conducted by CMAC in 16 landmine affected districts. These results are of course not intended to identify locations or prioritization of contaminated areas, but to give a general indication of the level of contamination remained in country.

The model estimates that 672 square kilometres remains mined areas to be released through full clearance, 1,864 square kilometres remains to be released through technical and non-technical survey, and an estimated 2,008 square kilometres are to be released through cancellation of database entries.

CMAC's Technical Survey SOP 03 (2003) describes the CMAC's survey as "an in-depth survey to identify locations of the minefields present in a village so that the landmine problem can be defined for mine clearance planning. The results of the technical survey provide information for the PMAC/MAPU and the Mine Action Authority to be used for risk reduction planning" and classifies suspected hazard areas after the completion of the survey as:

1. Confirmed mined area (Minefield which is not presently used for housing or agriculture and where there is historical and physical evidence of mine presence
2. Suspected mined area (Minefield which is not presently used for housing or agriculture for which there is historical evidence, but no physical evidence of mine presence)
3. Residual mined area (An area presently used for housing, cultivation or other uses where there is historical and physical evidence of mines (accident or visibility) within the past 2 years, prior to the arrival of the TST. Such an area has been cleared using local clearance methods by villagers. In most cases a residual minefield is suitable for MDD clearance due to limited vegetation, high metal contamination and low probability of finding mines)

CMAC's survey was conducted district based ranging from the most contaminated to the average contaminated districts in the country. It took into consideration multiple information sources including L1S data to arrive at the survey decision.

At the completion of each of the surveyed district (some districts was only partially completed), information was tabulated and assessed. It was found that all three of the above mentioned classifications existed in all of the surveyed areas, but more interestingly they also existed inside and outside of the L1S polygons. This experience on the ground has led CMAC to strongly believe that L1S data is not an accurate representation of the total remaining problem for similar reasons so described in previous chapters. However, it is a good indicator and benchmark of the remaining problem.

The empirical study has experimented with two methods. The first one used a method of clustering provinces according to their similar level of risk; the other employed an average percentage projection across all provinces. Both methods have yielded very close results.

Using the L1S data as a base, the quantified survey outputs resulted from the CMAC survey found that contamination do exist inside and outside of L1S contaminated areas (polygons). These quantified results were added together (both inside and outside of L1S) and divided by the L1S base figure in the survey districts/areas. The percentages discovered were averaged, and this average was applied to the overall countrywide L1S data (4,544 square kilometres) to arrive at the level of contamination assumed to be remained.

A similar method is used to calculate percentages of each of the three classifications to be applied to the newly assumed figure to arrive at a figure representing confirmed mined mine area, suspected mined area and residual mined area.

The survey and subsequent calculation result in 55.8% (see table 7 and 8) of L1S figure still remains to be the problem. Meaning on average by district only 55.8% of the L1S area was found to be contaminated.

Hence countrywide projection is 4,544 km^2 x 55.8% = 2,536 km^2.

Table 8: Estimated Contaminated Area

L1S area (km^2)	**Average percentage contaminated (See Table 9)**	**Best estimate known/suspected mined area (km^2)**
4,544	55.8%	2,536

Table 9: CMAC Survey data

District	L1S area (km²) (A)	Mined area inside L1S (km²) (B1)	Mined area outside L1S (km²) (B2)	Total Mined area (km²) (B)	Total Mined area as % of L1S area (B/A)
Malai*	56.3	24.7	29.0	**53.7**	**95.4%**
Rotonak Mondol*	197.5	41.8	83.9	**125.7**	**63.6%**
Samlout*	169.9	53.4	112.9	**166.3**	**97.9%**
Botum Sakor*	0.3	0.1	0.1	**0.2**	**84.8%**
Samraong*	16.1	1.8	6.0	**7.9**	**49.0%**
Svay Leu*	45.6	3.1	1.2	**4.3**	**9.4%**
Angkor Thum*	16.9	0.6	1.3	**2.0**	**11.6%**
Banteay Srei*	52.2	2.4	1.1	**3.5**	**6.7%**
Kamrieng	62.3	14.5	37.6	**52.2**	**83.8%**
Phnum Proek	19.9	3.2	12.2	**15.4**	**77.2%**
Sampov Lun	130.2	10.5	87.3	**97.8**	**75.1%**
Pailin	126.5	38.0	42.4	**80.4**	**63.5%**
Sala Krau	187.3	34.4	93.3	**127.7**	**68.2%**
Varin	171.0	10.6	13.1	**23.7**	**13.8%**
Srei Snam	13.6	0.6	10.7	**11.3**	**83.0%**
Angkor Chum	23.9	0.0	2.3	**2.3**	**9.7%**
					55.8%

As aforementioned, it was found that all three classifications existed in all surveyed areas. Table 9 and 10 illustrates the finding as 27.5% of the survey result is found to be as confirmed mined area, 57.1% as suspected mined area and 15.4% as residual mined area.

Table 10: CMAC Survey result by district (2004-2009)

		Confirmed mined area			Suspected mined area			Residual mined area		
District	**Total Mined area (km²)**	**Inside L1S (km²)**	**Outside L1S (km²)**	**% of total Mined area**	**Inside L1S (km²)**	**Outside L1S (km²)**	**% of total Mined area**	**Inside L1S (km²)**	**Outside L1S (km²)**	**% of total Mined area**
Malai*	53.7	2.9	1.7	**8.5%**	18.0	18.5	**68%**	3.8	8.8	**23.5%**
Rotonak Mondol*	125.7	26.5	61.9	**70.3%**	9.8	10.7	**16.3%**	5.5	11.3	**13.3%**
Samlout*	166.3	36.9	89.1	**75.8%**	8.2	19.4	**16.6%**	8.2	4.4	**7.6%**
Botum Sakor*	0.2	0	0.1	**33.2%**	0.1	0.0	**66.8%**	0	0	**0%**
Samraong*	7.9	0.2	0.9	**13.3%**	1.6	4.5	**77.2%**	0.1	0.7	**9.4%**
Svay Leu*	4.3	0	0.0	**0%**	2.7	1.2	**90.5%**	0.4	0	**9.5%**
Angkor Thum*	2.0	0	0.2	**8.4%**	0.6	1.0	**83.5%**	0	0.1	**8.1%**
Banteay Srei*	3.5	0	0.0	**0%**	1.7	0.6	**65.8%**	0.6	0.6	**34.2%**
Kamrieng	52.2	1.7	3.9	**10.7%**	11.5	28.1	**75.8%**	1.4	5.7	**13.5%**
Phnum Proek	15.4	1.3	5.0	**41%**	0.4	1.3	**11.4%**	1.5	5.9	**47.6%**
Sampov Lun	97.8	0.9	0.1	**1%**	6.5	50.3	**58.1%**	3.1	36.9	**40.9%**
Pailin	80.4	35.6	37.2	**90.6%**	1.4	3.2	**5.7%**	1	2	**3.7%**
Sala Krau	127.7	17.4	43.2	**47.4%**	11.7	34.2	**35.9%**	5.4	15.9	**16.7%**
Varin	23.7	0.3	3.2	**14.9%**	10.0	9.2	**80.9%**	0.3	0.7	**4.2%**
Srei Snam	11.3	0.5	1.6	**18.6%**	0.1	9.0	**80%**	0	0.1	**1.4%**
Angkor Chum	2.3	0	0.1	**6.1%**	0.0	1.9	**81%**	0	0.3	**12.9%**
				27.49%			**57.1%**			**15.41%**

Table 11: CMAC Survey result by district (2004 – 2009) applied for best estimates

Contaminated L1S (km²)	**Confirmed mined area (average %) (Table 10)**	**Confirmed mined area (km²)**	**Suspected mined area (average %) (Table 10)**	**Suspected mined area (km²)**	**Residual (average %) (Table 10)**	**Residual mined area (km²)**
2,536	**27.5%**	**697**	**57.1%**	**1,448**	**15.4%**	**391**

This yield 2,536 square kilometres contaminated area remains as a new target figure. Of this, 697 square kilometres of confirmed mined area that is used as an estimate for the area most likely requiring full clearance. Furthermore 1,448 square kilometres were classified as suspected mined area, and 391 square kilometres as residual mined area: they require a combination approach to their release including technical and non-technical survey methods.

When a mined area is classified as confirmed, suspected or residual, various combinations of approaches to release the land can be applied. These include full clearance, technical and non-technical survey across the full available toolbox (including mechanical, manual clearance and mine detection dogs).

In the case of confirmed minefield, evidence observed by CMAC and shared among experts suggests that 30% of confirmed minefields can be released through technical and non-technical survey. The remaining 70% would require full clearance using the demining toolbox. In the case of suspected or residual minefields, operators' experts opinion suggest that an average of 10% of these areas will require full clearance method of some sorts, whereas the rest can be released through non-technical survey and technical survey with integrated demining tools.

As a result, the estimated size of land to be released through the application of full clearance is 672 km²; increasing land release by technical and non-technical survey estimation to 1,864 km². Therefore it is estimated that 2,008 square kilometres of the L1S will be superseded in

the database through the baseline survey expected to be initiated by the CMAA (see table 12). As mentioned these numbers are just indicative projections for planning, as more data become available, more accurate estimations can be made.

Table 12: Demining area estimates

Description	Size (km²)	Remarks
1. Original problem		
Level One Survey	4,544	Completed in 2002, officially endorsed by RGC
2. Classification of remaining problem based on calculated quantification		
Confirmed	697	For full clearance
Suspected/Residual	1,839	For further Technical Survey and Non Technical Survey
3. Ways of addressing the remaining problem		
Release (full clearance)	672	70% of Confirmed areas + 10% of Suspected & Residual areas
Release (TS+NTS)	1,864	30% of Confirmed areas + 90% of Suspected & Residual areas
Release (BLS)	2,008	Superseded in database through Baseline Survey
Total:	**4,544**	

For the purpose of this Extension Request, Cambodia sees that the above basic quantification method based on their empirical research and survey experience in different areas across the country as the most appropriate and presents the best available estimates at the present time.

The workplan to be submitted as part of this Request will be based on this quantification model but will be revised on regular basis when additional and higher quality data become available as a result of survey and clearance activities.

Although, this projection methodology is deemed to be the most appropriate and reliable option for Cambodia at this time, it can be further strengthen and fine tuned over time through involvement of field and statistical experts. Therefore, CMAA together with the operators will in the coming months continue to review the methodology in order to refine the workplan over the next ten years period in time for the final submission of this Extension Request.

15. Nature and extent of the remaining challenge: qualitative aspects

The November meeting of the Mine Clearance Technical Reference Group, chaired by CMAA, determined to focus the majority of all mine clearance on the 21 Districts where 93.1% of all accidents have occurred over the past five years. Remaining resources will be allocated to the clearance of high priority minefields outside the 21 districts (based on humanitarian or development urgent requirements) and to the completion of the Baseline Survey in the remaining mine affected districts.

Within the Land Classification system (cf. Annex 4) used to guide the Baseline Survey will be sub-classifications that will delineate land either as:

Classification A: Mined Areas
Classification B: Residual Threat
Classification C: End State Land

Within each classification band sub-classifications will further clarify the nature of the threat, and the impact that the threat has upon communities. The classification will help demining

operators allocating the most appropriate resources according to the type and nature of the threat.

The result of the Baseline Survey will be to direct future clearance plans, including the application of methodologies to release land through technical and non-technical survey approaches that will allow further refinement of suspect areas requiring manual clearance.

Importantly, the Baseline Survey will be a valuable contribution to the ongoing strengthening of the CMAA Database Unit capacity, and in empowering CMAA capacity to better coordinate national mine action planning and resource mobilization. Already, there is much improved cooperation between Operators and CMAA DBU, and this will consolidate into the future as the Database Unit works closely with Operators to validate and consolidate new information with existing datasets.

Other important agreements reached in relation to the Baseline Survey, include sector agreement that Survey results will fully supersede the L1S results, and that the Baseline Survey will allow CMAA to play a more central and appropriate lead role in the collection and macro data analysis in order to support national level resource mobilization and allocation.

With current and additional capacity, demining operators are hoping to implement full survey of the 21 districts starting in August 2009 until end of 2010. The results of the Baseline Survey will greatly clarify needs and resourcing questions in the most affected Districts and allow for detailed work plans to be developed in those important locations.

Once survey of the 21 Districts has been completed, Cambodia will continue the process in order to cover the remaining 164 Districts, and eventually clarify the status of the remaining suspect areas identified through the L1S. Also, as mentioned earlier, Cambodia is in the process of reconfiguring its Area Reduction Policy in order to improve and standardize the release of land through survey mechanisms. (cf. Chapter 08).

In late 2008, CMAC undertook a survey of Siem Reap province that is comparable in approach to the proposed Baseline Survey. The impact of this survey was to rapidly reduce the size and number of L1S polygons. Siem Reap was a strategic province to initiate this Survey in, since it is a province where the most recent fighting occurred, has some very large L1S polygons, but is a province where few accidents have occurred. It is also a Province where almost all viable land is in productive use. While the CMAC survey is not yet 100% complete, preliminary figures suggest that the L1S has been reduced by 95% based on the deployment of 5 teams over an 8 months period covering 11 districts. A similar post-survey property may be applied to other areas of similar nature.

While the results of the Baseline Survey still need to be compiled, it is anticipated that the following approaches will follow on from it:

- In Banteay Meanchay, Battambang and Pailin provinces, targeted manual clearance and other demining tools will continue to occur to address high density mine concentrations – much of it considered part of the K-5 mine belt and war time strategic defense spots.

- In Oddar Meanchay and Preah Vihear provinces, in addition to targeting manual clearance and other demining tools to address high density mine concentrations – much of it considered part of the K-5 mine belt and war time strategic defense spots efforts will also need to focus on addressing the threat posed by the less well understood conflicts of the late 1990s, including more detailed investigation and response to 'in use' and 'abandoned' route alignments, which pose a significant threat to the many

migrants entering this province because of both anti-personnel and anti-tank mine threat.

- In various provinces, the mine action planning process will continue to demand consideration of areas of indeterminate threat for clearance. In these areas, operators will ensure thoroughly investigate the area using technical and non technical survey procedures as appropriate, to ensure that unnecessary clearance does not occur.

16. Amount of time requested and rationale for this amount of time

The Kingdom of Cambodia is seeking a ten year extension, commencing January 2010 and concluding December 2019, on the basis that:

- Even though the remaining area requiring clearance cannot yet be accurately quantified, there is sufficient understanding of the remaining threat to suggest that Cambodia will require all of the ten year extension period to address its remaining AP landmine problem.

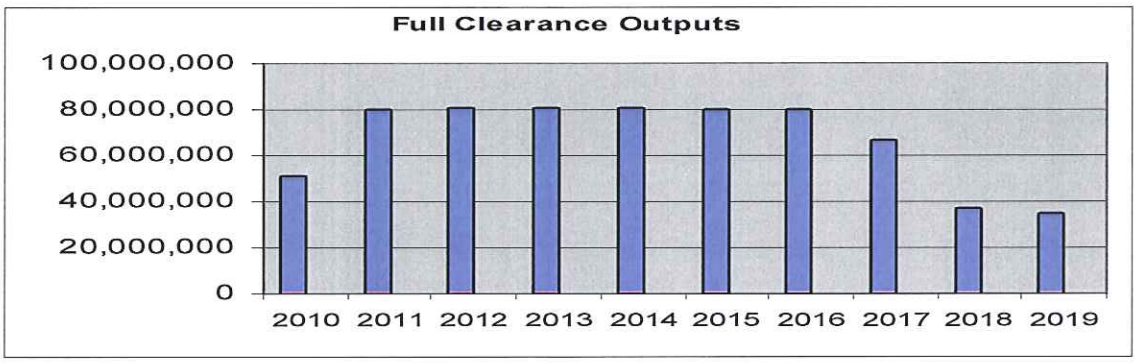
- In order to achieve full compliance, Cambodia will need to systematically address every suspect area identified through the L1S. However, the Royal Government of Cambodia is determined that this should proceed slowly and strategically and not occur at the expense of known clearance needs in higher priority areas where accidents still occur frequently.

- On the basis of CMAC preliminary empirical assumption of the remaining threat described in section 14; the CMAC historical productivity records for each of the tools available in its demining toolbox; and its expert opinion. As noted earlier, these assumptions will be further reviewed in the coming months to refine the workplan outlined in Chapter 17 before submission of RGC final Extension Request to be considered by States Parties at the 2009 Review Conference.

- Sufficient funding will be allocated to clearance and other related operations

The following graph illustrates the projected demining outputs Cambodia intends to achieve in order to meet the Article 5 extension within 10 years time frame.

Graph 11: Full Clearance Outputs



17. Detailed Workplan for the Extension period

Detailed work planning is problematic at this point in time, however it is anticipated that the range of initiatives described above will quickly allow for a more precise and achievable workplan to be developed within the next twelve months. Furthermore, as additional and more accurate data become available on the extent of the remaining mine problem, Cambodia will revise its workplan accordingly and provide regular updates to the annual Meetings of States Parties. Moreover, as per Article 7 of the APMBT Cambodia will continue to report on its progresses towards achieving Article 5.
For now the best available current estimates (cf. section 14) will be used as a basis for planning. However, based on the limitations of the survey and projection methodologies used (cf. Chapter 14.3), RGC believes that the workplan can be further refined by integrating more comprehensively other operators' knowledge and experience in the coming months which could result in a revised workplan and corresponding funding requirements to be included in the final Extension Request.

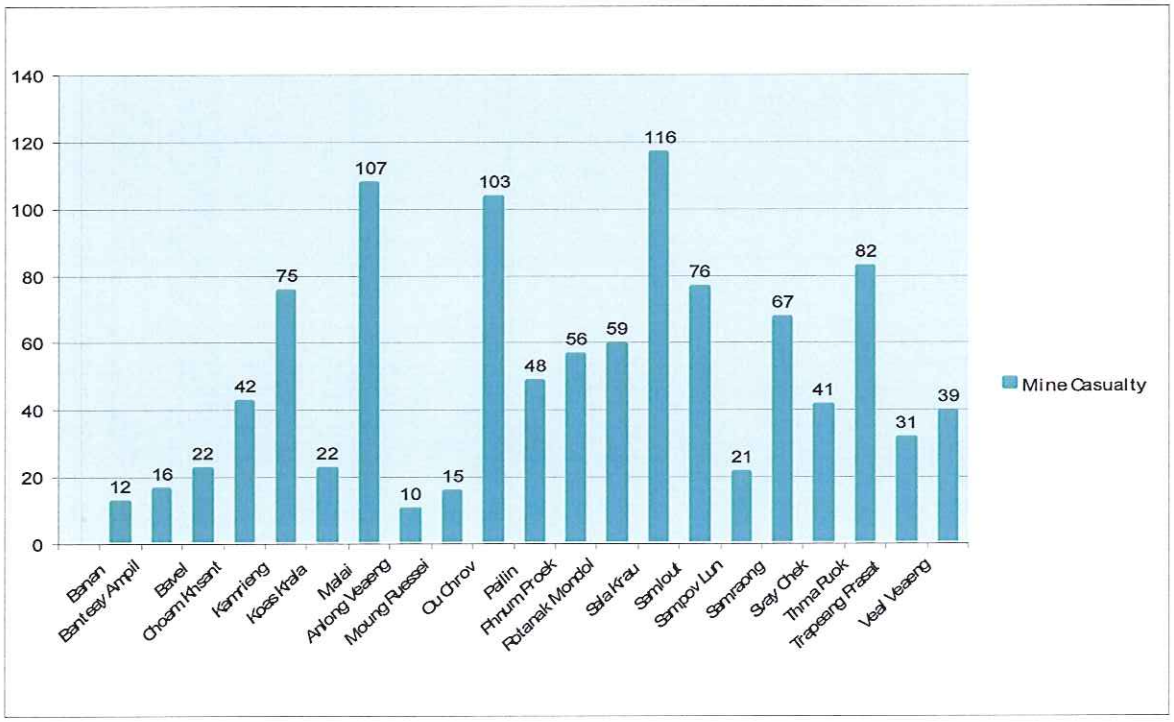
In order to meet the obligations under Article 5, an ambitious vision was set that *'All known and suspected mined areas released by 2020 and national capacity in place to deal with remaining residual threats by explosive remnants of wars.'*

Addressing these areas and meeting the set vision, the following approaches and timelines can be presented as an indicative workplan for the Extension Period:

1. The conduct of a Baseline Survey

As a starting point, CMAA recognized the importance of developing and conducting a countrywide baseline survey to obtain more accurate and reliable information on remaining landmine contamination. This survey will be implemented throughout the mine affected districts identified in L1S. The first phase will be conducted in the top 21 most contaminated districts (cf. Annex 3: List of 21 districts) which spread across six provinces.

Graph 12: Casualty rates in the 21 most affected districts



The second and subsequent baseline survey phases will take on the remaining mine affected districts. This will eventually allow an accurate quantification of the level of contamination across the country.

The aim is to complete baseline survey of first 21 districts in 2010 and remaining districts by 2012 while at the same time establish and strengthen the national database capacity and information management system to support baseline survey. Effort will be made (1) to assess large size L1S polygons both in and outside of the 21 priority districts, and (2) to ensure accuracy and reliability of survey datasets by having baseline survey quality management team working alongside survey teams, if required. The process will be closely coordinated among mine action operators, key stakeholders (including MAPU) and the affected communities while at the same time strengthen their capacity to understand, use and disseminate survey information.

The proposed baseline survey results, as agreed by all operators, will supersede the L1S information. This in a way will release land areas previously identified as suspected under L1S, but found not to be contaminated. This means that any L1S polygons or portion thereof that is not overlapping with the new baseline polygon will be superseded.

2. Land release through non-technical and technical survey

The Baseline Survey will support the commencement of a process to release or reclassify land based on knowledge gathered through the Survey process.

As mentioned earlier, CMAA is in the process of reconfiguring its Area Reduction Policy in order to enable operators to release land without undertaking full clearance in areas where survey can gain enough information to remove the claim of a suspicion of mines in an area.

For now the best available current estimates (cf. section 14) will be used as a basis for planning. It is estimated that 1,864 square kilometres of suspected and residual mine area will to need to be released through technical and non technical survey method with integrated demining tools (including manual clearance, mine detection dogs and demining machines). Another 2008 square kilometres of suspect area will be superseded in the database through the baseline survey.

The 1,864 square kilometres of low threat areas are expected to be found all across contaminated districts. This will entail the release through technical and non technical survey methods by demining operators of some 186 square kilometres of suspected and low treat areas per year. This process will require continue strengthening operators' survey capacity and resources (including integrated tool box) and strengthening the national database system to capture all dataset from survey and clearance report accurately.

3. Release through clearance

The mine action operators will cooperate during the extension period to ensure that the majority of their resources are dedicated to resolving the mine problem within 21 most affected districts. It is recognized that this will require unprecedented coordination and cooperation across the Government, Operators, Donors and Development organizations.

Within these 21 focus districts, it is further proposed by CMAA and Operators that the overwhelming majority of clearance be focused on Classification A 'Mined Areas' – land that presents compelling evidence of protective, defensive, or denial mine laying patterns. However, prioritization of clearance within and across these 21 Districts will occur through a Provincial mine action planning process (PMAC/MAPU) that will allocate clearance assets according to

needs. This process will be implemented by Provincial MAPU staff and Operators, and will require sign off from Provincial Mine Action Committees (PMAC).

The goal set to clear 672 square kilometres will require an annual clearance of approximately 80 square kilometres, starting from 2011. This can be achieved, by deploying increased demining resources; improving demining technologies and tools; enhancing toolbox integration, inclusive of mine detection dogs, demining machines and manual deminers; enhancing demining capacity and skills through improved methodologies/SOPs and training; and overall coordination and prioritization. The planned increase in utilization of the demining machines is seen to be an important factor which will contribute to the overall achievement of the set vision for the next ten years. These demining machines will contribute substantially to the full clearance and technical survey efforts.

4. Key important activities need to be introduced to achieve this strategic vision:

- Revise the National Mine Action Strategy to support the implementation of Article 5 and that will address all priorities identified by the sector
- Revise Cambodia's Area Reduction Policy and subsequent drafting of CMAS on survey to improve and standardize methodologies used to release land through non-technical and technical survey
- Strengthen the national capacity to manage, coordinate and regulate mine action activities
- Strengthen the capacity to deliver mine action at the national/local level by mine action operators
- Enforce the Land Classification table to ensure uniformity of data reported and incorporated in the national database
- Strengthen and improve the national and local coordination and prioritization for mine action to ensure efficient utilization of scarce demining resources
- Develop a mechanism for survey teams to investigate mine accidents and report mined areas to the national database
- Ensure that RCAF reports complete statistics of clearance undertaken including polygons of areas cleared
- Support the national and community capacity, particularly the commune council members, to deliver landmine risk education activities, victim assistance, mine clearance prioritization and post clearance development
- Address landmine survivors' needs in collaboration with other stakeholders as guided by the National Plan of Action for People With Disability
- Improve linkages between mine action and development activities, to achieve optimum socio-economic benefits of demining
- Increase post-clearance monitoring to ensure clearance benefits the most vulnerable
- Ensuring equal opportunity for men, women, boys and girls and representation of both men and women in mine action services and benefits.

Budgetary Projections

Effort needed to achieve the above required uninterrupted financial support in 4 main budget lines, (1) full clearance, (2) technical survey and non-technical survey, (3) baseline survey, (4) equipment, and (5) coordination/ management:

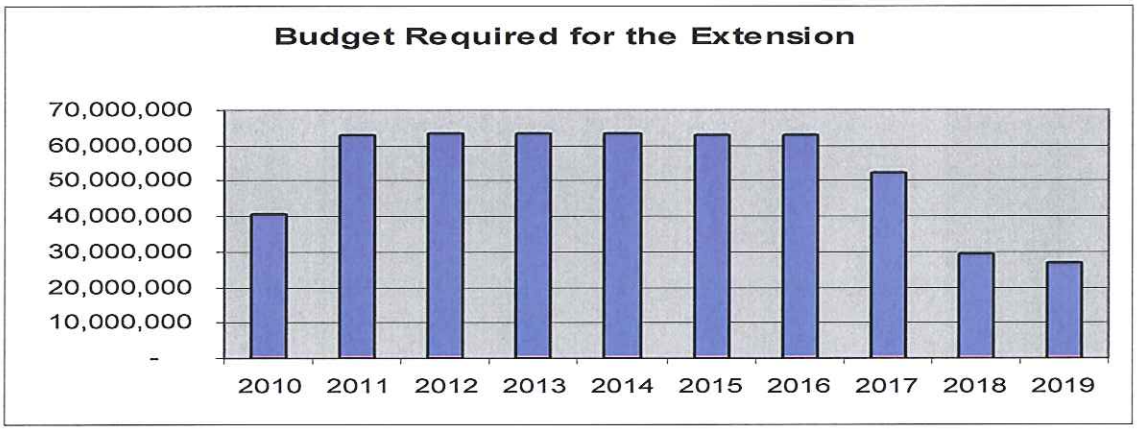
Table 13: Budget Required for the Extension Period 2010-2019

Description	Outputs (m²)	Total Cost ($)
Full Clearance	672,330,000	336,165,000
TS/NTS	1,864,260,000	93,213,000
BLS (Districts)	2,007,800,000	4,015,600
Equipment		65,009,040
Management/Training		30,337,552
TOTAL:	**4,544,390,000**	**528,740,192**

Table 14: Budgetary Breakdown by Year (USD)

Year	Full Clearance	Technical Survey /Non-TS	Baseline Survey	Equipment	Management	Total
2010	25,653,000	7,113,153	306,433	4,960,888	2,315,081	**40,348,555**
2011	40,038,000	11,101,876	478,267	7,742,721	3,613,270	**62,974,134**
2012	40,338,000	11,185,061	481,850	7,800,737	3,640,344	**63,445,992**
2013	40,338,000	11,185,061	481,850	7,800,737	3,640,344	**63,445,992**
2014	40,338,000	11,185,061	481,850	7,800,737	3,640,344	**63,445,992**
2015	40,128,000	11,126,831	479,342	7,760,126	3,621,392	**63,115,691**
2016	40,128,000	11,126,831	479,342	7,760,126	3,621,392	**63,115,691**
2017	33,288,000	9,230,212	397,636	6,437,377	3,004,109	**52,357,335**
2018	18,678,000	5,179,101	223,115	3,612,032	1,685,615	**29,377,863**
2019	17,238,000	4,779,813	205,914	3,333,559	1,555,661	**27,112,946**
TOTAL:	**336,165,000**	**93,213,000**	**4,015,600**	**65,009,040**	**30,337,552**	**528,740,192**

Graph 13: Budget Required for the Extension Period (USD)



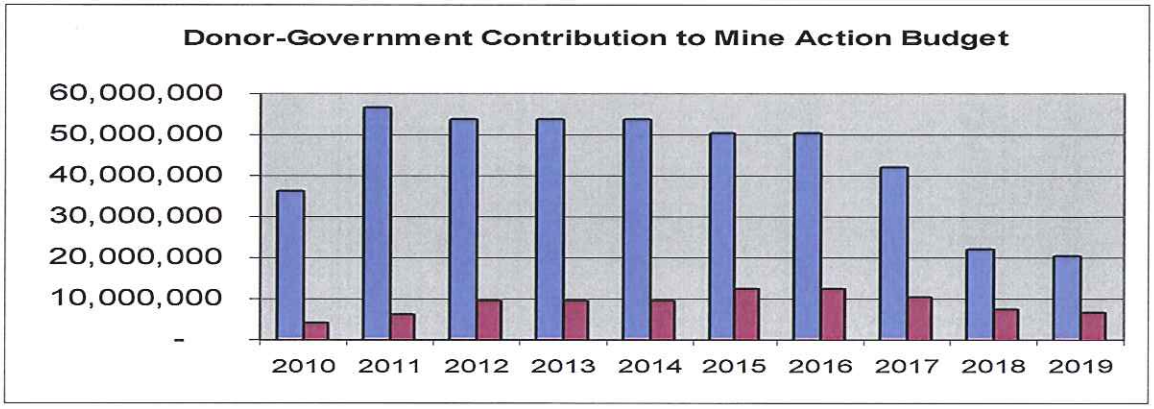
Cambodia expects the bulk of demining budget to come from donation through UNDP facilitation scheme, bi-lateral scheme, Government contribution, and commercial contracts. The

following table 15 and chart 14 show the breakdown of the expected funding shares between the Royal Government and international donors.

Table 15: Expected Budgetary Shares between the Royal Government and International Donors

Year	Donor	Govt	Total	Donor	Govt
2010	36,313,700	4,034,856	**40,348,555**	90.0%	10.0%
2011	56,676,721	6,297,413	**62,974,134**	90.0%	10.0%
2012	53,929,093	9,516,899	**63,445,992**	85.0%	15.0%
2013	53,929,093	9,516,899	**63,445,992**	85.0%	15.0%
2014	53,929,093	9,516,899	**63,445,992**	85.0%	15.0%
2015	50,492,553	12,623,138	**63,115,691**	80.0%	20.0%
2016	50,492,553	12,623,138	**63,115,691**	80.0%	20.0%
2017	41,885,868	10,471,467	**52,357,335**	80.0%	20.0%
2018	22,033,397	7,344,466	**29,377,863**	75.0%	25.0%
2019	20,334,709	6,778,236	**27,112,946**	75.0%	25.0%
TOTAL:	**440,016,781**	**88,723,411**	**528,740,192**		

Graph 14: Donor-Government Contribution to Mine Action Budget (USD)

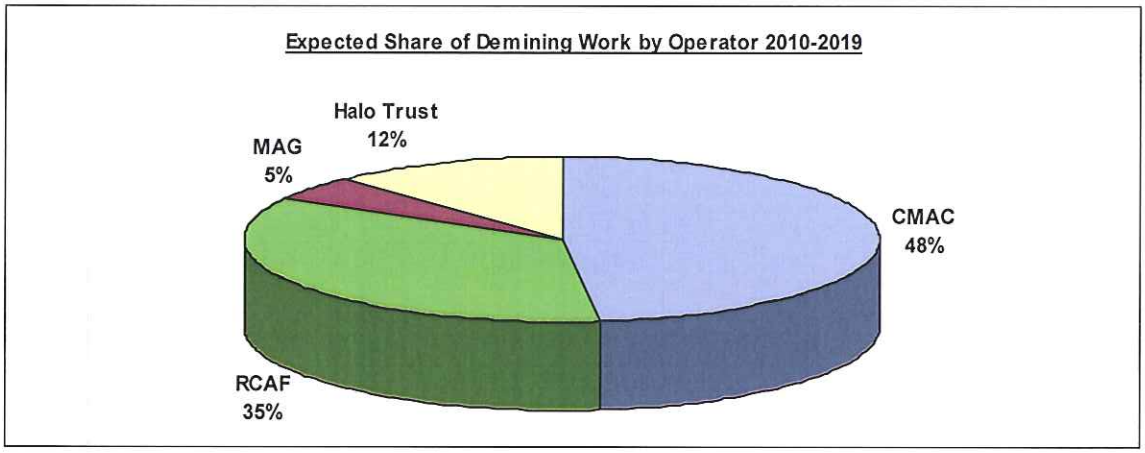


It is projected that each of the 4 demining operators will undertake a share of all works.
For clearance: CMAC: 48 %, RCAF: 35 %, MAG: 5 % and Halo Trust: 12 %.
For Surveys: CMAC: 70 %, RCAF: 0 %, MAG: 10 % and Halo Trust: 20 %.

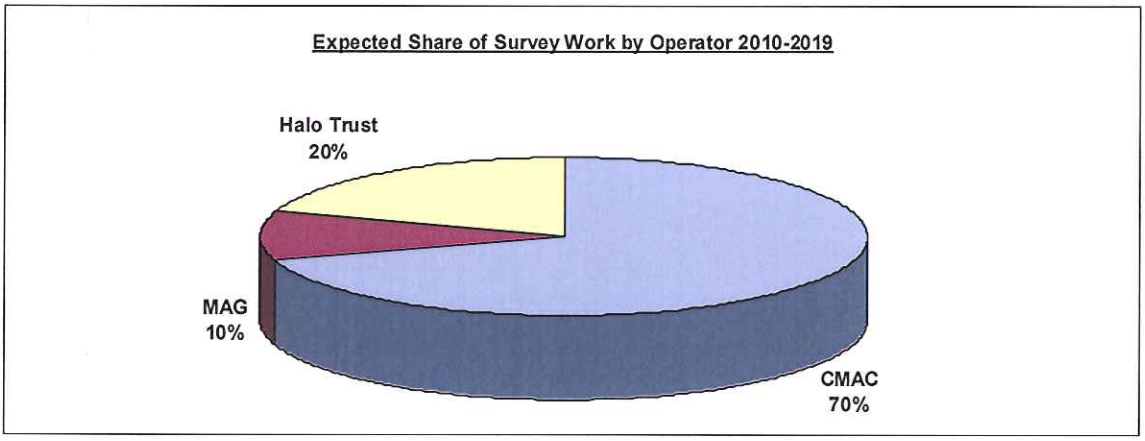
Table 16: Share of Work between Operators

Method of Release	CMAC		RCAF		MAG		Halo Trust		Total	
	%	km²	%	km²	%	km²	%	km²	%	km²
Release by clearance	48%	322.6	35%	235.2	5%	33.6	12%	80.6	100%	672
Release by TS-NTS	70%	1,304.8	0	-	10%	186.4	20%	372.8	100%	1,864
Release by BLS	70%	1,405.6	0	-	10%	200.8	20%	401.6	100%	2,008

Graph 15: Expected Share of Demining Work by Operator 2010-2019



Graph 16: Expected Share of Survey Work by Operator 2010-2019



Assumptions and risk factors

1- As previously indicated, this workplan has been developed based on a quantification methodology that uses the results of CMAC's technical and non-technical survey activities over a sample of 16 districts. The sector recognizes the huge benefit of this projection as an attempt to quantify the remaining problem in Cambodia but also acknowledges the limits of the methodology used. This means that when more results become available over time, the projection will be further refine but this could result in important variations indicating a much bigger or lesser problem than foreseen at this point in time.

2- Based on budgetary requirements projections outlined above, Cambodia will require sustained and increased level of funding, both from international donors and from the national budget. Annual budget required from 2011 is double the amount that Cambodia currently mobilized for mine action. With Cambodia's current economic situation, external funding will continue to play a crucial role in supporting mine action. Emerging and competing needs, not just locally but globally, will make it very challenging for Cambodia's mine action sector to maintain and increase funding to a level to support resource mobilization to comply with the Convention's obligation to address the remaining problem by the end of 2019.

3- Cambodia has benefited from many research and development initiatives that considerably enhanced the pace and quality of the demining work undertaken. Innovative technologies and methodologies such as refine survey methodologies and demining equipment will be essential for Cambodia to address quickly and efficiently its remaining problem.

4- Continued border tensions may affect Cambodia's full ability to meet the obligation of the convention.

5- Regional or national political instability, natural disasters, global, regional or national financial crisis are all factors that may impede Cambodia's ability to meet its obligations under that period.

6- It is also assumed that current partnerships with international and national organizations, NGOs and development agencies will continue and expand in order to support Cambodia during the Extension Period with financial and in-kind resources, sharing of knowledge, experience and expertise.

18. Institutional, human resource and material capacity available

Cambodia has been very well known for its mine action programme considered one of the oldest and most progressive programmes worldwide. In other words, the mine action sector in Cambodia is considered in a reasonably advanced phase of its development. The sector has gone through key important stages of mine action life cycle (Cf. Annex 6) and emerged successfully from conflicts to stabilization, then from stabilization to reconstruction and lastly from reconstruction to assisted development. In 16 years of operations, experiences and competencies have been acquired, capacities were reasonably developed at every level, all facets of challenges have been confronted and dealt with, lessons learned were shared, many lives were saved, benefits improved socio-economic well being of the poor and vulnerable people living in mine affected area, to peace, stability and safety for all people in Cambodia.

Along the way, national institutions have been established (CMAA, CMAC) and rendered operational. Demining and other related works have been performed efficiently and the overall intervention can be considered effective. The success of Cambodian mine action services can be seen in the drastic reduction of casualties, the sustained commitment among stakeholders and the RGC, the participation and ownership by the affected communities and the consistent support of generous donors. Internationally, mine action in Cambodia is well regarded and seen as one of the leading example globally. Despite of these above attributes, there are still much to be developed and enhanced.

Institutions:

With the establishment of CMAA as national coordinating and regulatory body, and CMAC as the national demining operator, required key institutions have all been established.

Coordination:

Mine action coordination in Cambodia is one of the most mature developments globally. As stated earlier CMAA as the National Authority has been established. Since its establishment in 2002, it has developed operational and legal frameworks to guide mine action operations. It performs an important role as the sector coordinator and regulator however continued support is required to further develop its capacity and ability to perform in order to respond adequately and in time to the sector's needs. The institution will require more qualified and experienced

personnel, to strengthen its management system, and enhance its policy and regulatory capacity.

Aid effectiveness – TWG and CDC:

The Council for the Development of Cambodia (CDC) can serve as one of the best models for aid coordination and plays a very important role in aid coordination efforts with the donors. This can also be dubbed as the gateway to the donors. The CDC has established a number of Technical Working Groups (TWG), one of which is the Technical Working Group for Mine Action, chaired by the Vice President of the CMAA. This TWG serves as a means to conduct political and technical dialogues with development partners (donors) with the purpose to create a common understanding on key issues related to mine action, increase transparency and accountability in the delivery of aid, and align donor's aid strategies to the sector's priorities. These mechanisms are essential elements of the Royal Government of Cambodia's effort to achieve effectiveness and efficiency in managing and implementing mine action programmes.

Prioritization:

Cambodia has developed one of most mature prioritization processes among mine clearance programmes in the world. This prioritization process has been innovative in ensuring communities' involvement in defining clearance priorities thereby further strengthening community-based participatory mechanisms. The system has evolved throughout the years of development and has been taken as good model by many mine action programmes.

The 'MAPU process' is an innovative mechanism that facilitates an additional level of engagement with communities (to those put in place by the Operators) that allows for Government authorities to register the broad location of affected areas, as well as be aware of community preferences in terms of how best to prioritize where clearance should next occur.

Since 2001, another innovative programme has been implemented by CMAC called Community-Based Mine Risk Reduction (CBMRR). CBMRR emerged in recognition of the need for mine risk education to develop a more community-oriented approach in severely affected communities, in order to allow for more people, and more types of people to be reached over a longer and more sustained period of time. There was also a desire to stress the reality of "Mine Risk Reduction" given the realization that while many people living in mine contaminated areas are often aware that they are living in dangerous areas, livelihood pressures and a lack of land security limits their options and forces them to take risks.

Through the engagement of MAPUs and CBMRR with a cross section of people, human capital has been built within mine affected communities for management of all aspects of mine action, including integration of community perspectives in setting tasks.

Another potential strength in mine action coordination, planning and implementation at the grassroots' level is the Commune Council. The Commune Councils are generally elected to a five-year term to run the communes. These commune councils have one of the most effective and clear structures and are represented by all political parities, serving the interests of the people from all walks of lives. They are administratively active and dynamic. To take advantage of this existing system and capacity, Cambodia will seek to strengthen the commune councils in more functions related to mine action coordination: mine risk education, victim assistance, mine clearance prioritization and coordination.

Mine Clearance Operators and Partners:

Cambodia has both national and international non-governmental organizations conducting mine clearance. These organizations must be accredited by CMAA in order to operate in Cambodia. At the moment, only RCAF, which mandate is to respond to tasks assigned by the Government is not accredited. Key operators involved in mine clearance include: CMAC, MAG, Halo Trust and RCAF. The National Police also play a key role in mine risk education, information collection and dissemination, law enforcement.

In addition to these, Cambodia is home to numerous mine clearance and development partners, including JMAS, NPA, HIB, Austcare, Care International etc. These players not only play a key role in managing and implementing development projects in cleared areas, but also directly contribute to mine clearance through the allocation of a proportion of their budget to mine clearance. They also assist demining operators with inputs and initiatives aimed to improve mine clearance and survey effectiveness and efficiency. UNDP play an important role in assisting the Government of Cambodia to build its capacity with regards the overall coordination, management and control of mine action and in channelling financial support to undertake clearance activities. UNICEF is supporting the Mine Risk Education department of the CMAA as well as MRE activities throughout the country.

The Cambodia Red Cross plays a key role in collecting, updating, managing and disseminating mine/ERW casualty information, with its independent and comprehensive CMVIS database. This CMVIS information mechanism again serves a good model for other countries to follow, having the mine/ERW casualty database managed by an independent body.

The Geneva International Centre for Humanitarian Demining is also an important partner to the mine action sector in Cambodia. The Centre coordinated the development of International Mine Actions Standards which are the basis for the Cambodian Mine Action Standards, and provides other technical support, assistance and advisory services such as evaluation of mine action programmes and toolboxes, the provision of publications and guidelines, and other knowledge and services which mine action programmes around the world, including Cambodia, can draw on at no cost.

Human Resources and Equipment:

Over the past 16 years, Cambodia has trained and produced some of the most experienced deminers, surveyors, dog handlers and machine operators in the world and has built up one of most capable local demining management staff. With the commencement of demining operations back in 1992, experience, skills and knowledge has built up over the years with intensively and progressively. This staffs are currently serving all main mine clearance operators including CMAC, MAG,HALO Trust and RCAF. These are the key assets Cambodia has and will remain during the next ten years of this extension. This demining staffs have been well and intensively trained by professional trainers, both local and expatriate to bring their levels of skills and experience to the professional international standards. Some of Cambodian mine action personnel have also benefited from exchange programmes, employment abroad and delivery of technical assistance in mine action programmes in other mine affected countries. International mine action organizations also often come to visit Cambodia to gain experience and lessons learned that they can use to improve their national programmes.

In addition to these mine action qualified and experienced human resources, Cambodia is home to one of the most professional and well managed training centres and research and development facilities. These training centre and R&D facilities host a series of training, workshops and R&D activities every year. Training has been in principle delivered to local mine action staff, but negotiations are under way for CMAC to deliver training to international mine

action programmes from other countries. R&D activities have been conducted by both mine action operators in Cambodia as well as R&D specialized institutions from US, Japan, etc. Research and Development facilities and experience in Cambodia can accommodate R&D in diverse areas including detection technology, mine detection dogs, mechanical systems, explosive harvesting programme, etc.

With regards to equipment used to deliver and support mine clearance, Cambodia makes use of a variety of mine detection technologies, vehicles, demining machinery, mine/ERW detection dogs, survey and navigation specialized equipment, explosive harvesting facilities. These equipments have been well maintained and fully operational throughout the year. In addition to this equipment fleet, CMAC owns one of the best equipped and specialized repair and maintenance workshops which can accommodate heavy repairs of both vehicles and heavy machinery such as demining machines.

In the next ten years, Cambodia will require additional equipment and material to support the operations it committed to under the Extension Request. To meet the obligations of the Convention, Cambodia expects to receive financial support to acquire these additional equipments in support of this Extension Request.

Table 17: Team deployment to support Extension Request (2010-2019)

Teams	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Survey teams	30	30	30	30	30	30	30	25	20	10
Manual Demining teams	50	100	100	100	100	100	100	70	30	25
MDD short leash (SLD)	10	15	15	15	15	15	15	10	5	5
MDD long leash (LLD)	4	10	10	10	10	10	10	10	8	5
Explosive Detection Dogs (EDD)	4	6	6	6	6	6	6	6	6	6
Quick Intervention teams	13	20	25	25	25	25	25	20	15	15
Community-Based Demining (CBD)	5	4	4	4	4	2	2	0	0	0
Demining Machines	4	10	10	10	10	10	10	8	5	5
Brush Cutters	25	30	30	30	30	30	30	30	10	10
MRE	6	6	6	6	6	6	6	6	6	6
EOD	24	30	30	30	30	30	30	30	30	30
CBMRR	26	33	33	20	20	20	20	20	20	20
CBURR	37	40	50	60	60	60	60	60	60	60
ERW Clearance Team	12	12	12	12	12	12	12	12	12	10
BAC	15	15	15	15	15	15	15	15	10	10

Graph 17: Demining Force Chart (Personnel Chart, including Office Personnel)

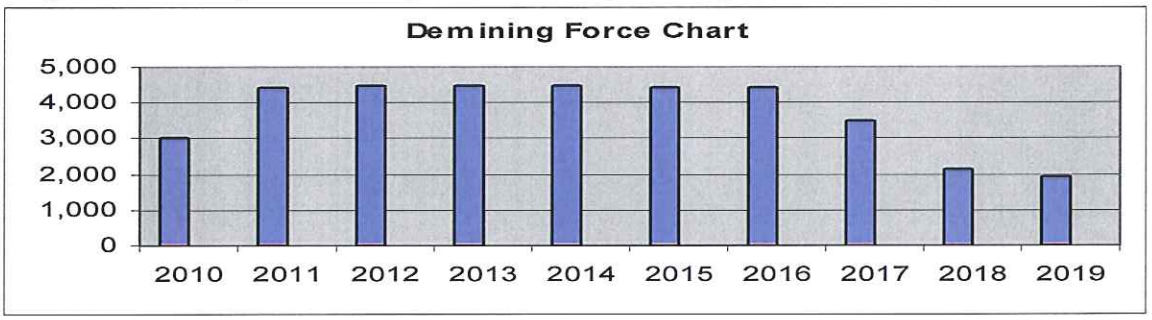


Table 18: Personnel (by tool, excluding office staff) required to support Extension Request (2010-2019)

Teams	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Survey teams	150	150	150	150	150	150	150	125	100	50
Mobile Platoon (MP)	1,250	2,500	2,500	2,500	2,500	2,500	2,500	1,750	750	625
MDD short leash (SLD)	90	135	135	135	135	135	135	90	45	45
MDD long leash (LLD)	20	50	50	50	50	50	50	50	40	25
Explosive Detection Dogs (EDD)	20	30	30	30	30	30	30	30	30	30
Community Mine Clearance (CMC)	91	140	175	175	175	175	175	140	105	105
Community-Based Demining (CBD)	150	120	120	120	120	60	60	-	-	-
Demining Machines	20	50	50	50	50	50	50	40	25	25
Brush Cutters	225	270	270	270	270	270	270	270	90	90
MRE	24	24	24	24	24	24	24	24	24	24
EOD	72	90	90	90	90	90	90	90	90	90
CBMRR	26	33	33	20	20	20	20	20	20	20
CBURR	37	40	50	60	60	60	60	60	60	60
ERW Clearance Team	84	84	84	84	84	84	84	84	84	70
BAC	240	240	240	240	240	240	240	240	160	160

Table 19: Estimated key equipment required to support Extension Request (2010-2019)

No.	Description	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	Demining machine	4	10	10	10	10	10	10	8	5	5
2	Brush Cutter machine	25	30	30	30	30	30	30	30	10	10
3	Truck trailer	18	24	30	30	30	30	24	24	18	18
4	Dogs	87	143	143	154	154	154	143	123	85	76
5	Vehicles	400	500	600	600	600	600	600	500	400	300
6	Motorcycle	151	207	207	194	194	192	192	155	105	90
7	Trailer for water	65	115	115	115	115	115	115	85	40	35
8	Trailer - two wheels	65	115	115	115	115	115	115	85	40	35
9	Water Tank	65	115	115	115	115	115	115	85	40	35
10	VHF hand-held	632	837	862	859	859	855	855	747	547	505
11	VHF mobile	272	363	368	368	368	366	366	312	222	202
12	Mine detector	2,126	3,360	3,395	3,395	3,395	3,365	3,365	2,595	1,419	1,254
13	Bomb locator (DS)	283	406	411	411	411	407	407	333	208	196
14	GPS	287	373	378	378	378	376	376	322	232	202
15	Exploder	169	243	248	248	248	246	246	204	129	122
16	Galvanometre	169	243	248	248	248	246	246	204	129	122
17	Camera, digital	247	333	338	338	338	336	336	287	202	182
18	Generator 3-5KVA	149	218	223	223	223	221	221	174	112	92
19	PPE (Complete set)	2,132	3,488	3,518	3,518	3,518	3,486	3,486	2,644	1,366	1,182
20	Explosive case	203	283	288	288	288	286	286	239	157	137
21	Grass cutting machine	263	432	437	437	437	433	433	324	179	162

Tables

Graphs

Maps

Annex 1

Clearance statistics by operators as calculated by CMAA DBU					
Year	**Clearance Results**	**CMAC**	**MAG**	**HALO**	**Sub-Total**
1992	Area (Sqm)	71,149	1,590	92,400	165,139
	AP Mines	11	7	470	488
	AT Mines	0	0	0	0
	ERW	1	0	131	132
1993	Area (Sqm)	6,082,826	124,775	290,060	6,497,661
	AP Mines	4,314	408	994	5,716
	AT Mines	5	0	21	26
	ERW	453	203	104	760
1994	Area (Sqm)	8,991,772	621,416	798,293	10,411,481
	AP Mines	1,934	1,151	209	3,294
	AT Mines	118	0	1	119
	ERW	8,744	2,737	84	11,565
1995	Area (Sqm)	10,722,106	1,221,878	1,234,048	13,178,032
	AP Mines	20,753	1,063	2,019	23,835
	AT Mines	14	0	0	14
	ERW	30,894	3,508	394	34,796
1996	Area (Sqm)	10,036,210	597,958	489,870	11,124,038
	AP Mines	3,522	569	724	4,815
	AT Mines	19	0	62	81
	ERW	1,741	382	248	2,371
1997	Area (Sqm)	13,020,304	162,840	972,195	14,155,339
	AP Mines	10,296	317	1,312	11,925
	AT Mines	79	0	117	196
	ERW	5,888	275	2,391	8,554
1998	Area (Sqm)	9,237,256	433,413	823,742	10,494,411
	AP Mines	7,627	646	1,308	9,581
	AT Mines	178	0	2	180
	ERW	5,358	1,522	1,622	8,502
1999	Area (Sqm)	10,379,532	385,497	1,759,975	12,525,004
	AP Mines	6,224	484	1,445	8,153
	AT Mines	83	0	19	102
	ERW	85,838	681	1,843	88,362
2000	Area (Sqm)	10,356,537	408,184	2,806,396	13,571,117
	AP Mines	10,671	173	2,075	12,919
	AT Mines	297	0	14	311
	ERW	9,517	391	2,325	12,233
2001	Area (Sqm)	9,087,014	1,162,946	4,444,731	14,694,691
	AP Mines	11,927	2,073	5,036	19,036
	AT Mines	224	0	35	259
	ERW	18,352	1,076	3,861	23,289

2002	Area (Sqm)	11,278,486	1,701,521	4,387,667	17,367,674
	AP Mines	17,272	1,259	3,673	22,204
	AT Mines	235	35	57	327
	ERW	29,674	1,669	6,018	37,361
2003	Area (Sqm)	9,616,656	2,427,839	4,967,974	17,012,469
	AP Mines	12,001	3,505	4,876	20,382
	AT Mines	214	24	91	329
	ERW	7,095	1,541	2,465	11,101
2004	Area (Sqm)	10,135,369	1,729,583	5,889,822	17,754,774
	AP Mines	32,258	8,439	18,682	59,379
	AT Mines	406	20	180	606
	ERW	8,300	1,513	2,989	12,802
2005	Area (Sqm)	20,414,010	3,480,662	5,628,014	29,522,686
	AP Mines	41,474	2,926	19,412	63,812
	AT Mines	338	11	243	592
	ERW	13,465	1,764	1,108	16,337
2006	Area (Sqm)	25,468,085	3,201,084	4,713,485	33,382,654
	AP Mines	21,285	369	25,312	46,966
	AT Mines	358	15	60	433
	ERW	13,076	565	796	14,437
2007	Area (Sqm)	25,809,785	3,634,073	4,544,473	33,988,331
	AP Mines	16,756	4,775	35,020	56,551
	AT Mines	194	10	43	247
	ERW	9,665	1,239	1,225	12,129
2008	Area (Sqm)	24,575,978	3,026,643	6,131,964	33,734,585
	AP Mines	17,168	3,989	32,475	53,632
	AT Mines	204	37	61	302
	ERW	17,433	1,633	783	19,849
Total 1992-2008	**Clearance Results**	**CMAC**	**MAG**	**HALO**	**Total**
	Total Area Cleared	215,283,075	24,321,902	49,975,109	289,580,086
	Total AP Mines	235,493	32,153	155,042	422,688
	Total AT Mines	2,966	152	1,006	4,124
	Total ERW	265,494	20,699	28,387	314,580

Annex 2

Operators' Demining Progress Report (1992-2008)

Year	Clearance Results	CMAC	RCAF	MAG	HALO	Total
1992-2000	Area (Sqm)	81,104,062	36,373,778	4,257,143	10,846,031	**132,581,014**
	AP Mines	121,426	126,287	8,990	13,494	**270,197**
	AT Mines	2,324	7,358	76	294	**10,052**
	UXO	577,106	18,019	25,687	15,014	**635,826**
	Fragments	232,511,193		553,736		**233,064,929**
2001	Area (Sqm)	9,637,455	6,482,357	1,400,149	4,351,105	**21,871,066**
	AP Mines	16,916	2,581	4,898	4,688	**29,083**
	AT Mines	465	15	37	142	**659**
	UXO	77,034	4,060	10,816	6,083	**97,993**
	Fragments	14,069,870		1,075,445		**15,145,315**
2002	Area (Sqm)	11,582,239	17,118,994	1,766,740	4,209,121	**34,677,094**
	AP Mines	32,688	1,935	1,870	4,513	**41,006**
	AT Mines	493	266	50	125	**934**
	UXO	61,840	3,680	5,882	8,362	**79,764**
	Fragments	19,767,069		2,041,402		**21,808,471**
2003	Area (Sqm)	9,708,686	24,777,104	2,619,740	4,987,007	**42,092,537**
	AP Mines	22,160	25,841	4,790	8,550	**61,341**
	AT Mines	504	307	44	222	**1,077**
	UXO	76,671	21,094	4,965	18,742	**121,472**
	Fragments	21,032,570	42,127	3,773,493		**24,848,190**
2004	Area (Sqm)	11,157,336	13,129,136	2,039,495	5,681,040	**32,007,007**
	AP Mines	43,635	1,133	6,688	20,085	**71,541**
	AT Mines	936	161	58	588	**1,743**
	UXO	106,360	12,729	16,391	18,573	**154,053**
	Fragments	20,804,831	20,485	4,498,369		**25,323,685**
2005	Area (Sqm)	22,086,486	9,744,500	3,149,018	5,673,070	**40,653,074**
	AP Mines	74,165	234	4,046	38,450	**116,895**
	AT Mines	851	52	61	611	**1,575**
	UXO	128,865	9,182	17,375	27,293	**182,715**
	Fragments	23,866,907	23,089	3,593,224		**27,483,220**
2006	Area (Sqm)	26,772,625	16,538,990	3,784,202	4,793,907	**51,889,724**
	AP Mines	35,745	1,528	4,531	34,395	**76,199**
	AT Mines	1,000	139	37	210	**1,386**
	UXO	113,296	9,870	18,963	17,190	**159,319**
	Fragments	26,109,554	13,676	4,978,028		**31,101,258**
2007	Area (Sqm)	27,666,058	18,972,472	4,172,748	4,548,243	**55,359,521**
	AP Mines	32,245	219	7,054	38,917	**78,435**
	AT Mines	587	2	103	123	**815**
	UXO	114,755	11,712	20,425	10,753	**157,645**
	Fragments	24,732,667	21,254	3,565,267		**28,319,188**

2008	Area (Sqm)	27,653,389	27,503,551	3,244,121	6,972,706	**65,373,767**
	AP Mines	25,543	1,878	4,538	37,542	**69,501**
	AT Mines	497	37	119	215	**868**
	UXO	114,101	9,822	19,813	8,308	**152,044**
	Fragments	19,874,891	162,455	3,119,635		**23,156,981**
Total 1992 - 2008		**CMAC**	**RCAF**	**MAG**	**HALO**	**Grand Total**
	Total of Areas (Sqm)	**227,368,336**	**170,640,882**	**26,433,356**	**52,062,230**	**476,504,804**
	Total number of APM	**404,523**	**161,636**	**47,405**	**200,634**	**814,198**
	Total number of ATM	**7,657**	**8,337**	**585**	**2,530**	**19,109**
	Total number of UXO	**1,370,028**	**100,168**	**140,317**	**130,318**	**1,740,831**

These results correspond to clearance progress as reported by operators and may be different from statistics compiled at the CMAA Database Unit which calculates clearance statistics according to polygons provided by clearance operators. In addition progress reports by operators include mines and ERW that have been destroyed outside mined areas (e.g. caches, spot UXO/ERW etc.).

Annex 3

Districts that accounted for 92% of the mine casualties In the country in the past 5 years (2004-2008)

No.	Most Mine Affected Districts	Province	No. of Accidents	No. of Casualties	No. of Village in District
1	Sala Krau	Krong Pailin	98	116	43
2	Malai	Banteay Meanchey	91	107	38
3	Ou Chrov	Banteay Meanchey	75	103	82
4	Thma Puok	Banteay Meanchey	60	82	65
5	Kamrieng	Battambang	55	75	46
6	Samlout	Battambang	50	76	49
7	Phnum Proek	Battambang	46	56	24
8	Rotanak Mondol	Battambang	41	59	37
9	Pailin	Krong Pailin	36	43	36
10	Veal Veaeng	Pursat	33	39	20
11	Samraong	Otdar Meanchey	29	67	47
12	Svay Chek	Banteay Meanchey	27	41	69
13	Choam Khsant	Preah Vihear	26	42	26
14	Sampov Lun	Battambang	18	21	26
15	Banteay Ampil	Otdar Meanchey	13	16	74
16	Trapeang Prasat	Otdar Meanchey	13	31	38
17	Bavel	Battambang	12	22	82
18	Koas Krala	Battambang	11	21	51
19	Banan	Battambang	9	12	76
21	Moung Ruessei	Battambang	7	15	103
Total			**7,58**	**1,054**	**1,079**

Annex 4: Land Classification Table

CLASSIFICATION	SUB-CLASSIFICATION		Art.5	SUB-CLASSIFICATION DETAILS	REMARKS
A (Mined Area) Land that presents evidence of mines.	**A1**	Land containing dense concentration of AP mines	Yes	Strategically located, logical patterns of protective, defensive or denial mine laying such as mine belts, mines along road alignment, borders, military bases, and other infrastructures.	Deployment of humanitarian clearance resources should be concentrated on A1- A3 land provided it addresses community priorities. All polygons should be further investigated to delineate the perimeter of the mined area before deployment of full humanitarian clearance assets. Allocation of clearance assets on A4 polygons should be limited to those where there is a development justification.
	A2	Land containing mixed AP and AT mines	Yes		
	A3	Land containing AT mines	No	In-use or abandoned route alignment presenting threat of AT mines, regardless of density and regardless of presence or absence of AP mines.	
	A4	Land containing scattered or nuisance presence of AP mines	Yes	Land that is not in productive use with limited presence of AP mines laid in a non-defined manner.	
B (Residual Threat Land) Land that presents evidence of ERW or an indeterminate presence of mines.	**B1**	Land containing ERW (not including mines)	No	Battle areas containing ERW. These areas are suitable for BAC.	Allocation of clearance assets on B land should be limited to those where there is a community requirement.
	B2	Land with no verifiable mine threat	Yes	Previously suspected land that local population is continuously putting back into productive use. No accidents or evidence of mines for a period of 3 years will result in reclassification as C1.	
C (End State Land) Land that presents no obvious threat.	**C1**	Reclaimed Land	No	Previously suspected land that has been put back into productive use without accident or evidence of mine in the past 3 years as per Cambodia Area Reduction Policy.	Deployment of humanitarian demining assets on this land should not be considered.
	C2	Threat reduced land	No	Previously mined or suspected land where the perceived threat has been reduced through approved threat reduction or survey techniques.	
	C3	Cleared Land	No	Land formally cleared by accredited mine clearance operators adhering to the national standards (CMAS).	
	C4	Unmined Land	No	Land with no indication from local communities or previous survey to contain any mine threat.	

Annex 5: List of Cambodian Mine Action Standards (CMAS)

CMAS ID	CMAS Title	Status
CMAS-01	Application of CMAS	Approved
CMAS-02	Accreditation of Demining Organization and Licensing of operation	Approved
CMAS-03	Monitoring of Demining Organization	Approved
CMAS-04	The Storage, Transportation and Handling of Explosive	Approved
CMAS-05	Reporting and Investigation of Demining Incident	Approved
CMAS-06	Clearance Requirement of Demining	Approved
CMAS-07	Clearance Requirements of ERW	Approved
CMAS-08	Explosive Ordnance Disposal (EOD)	Approved
CMAS-09	Safety and Occupational Health-General Requirements	Approved
CMAS-10	Safety and Occupational Health-Demining Worksite Safety	Approved
CMAS-11	Personal Protective Equipment-PPE	Approved
CMAS-12	Mechanical Demining	Finalized
CMAS-13	Marking Mine & ERW Hazards	Provisionally approved
CMAS-14	Baseline Survey	Provisionally approved
CMAS-15	Environmental Management During Mine and ERW Clearance Operations	Drafted
CMAS-16	Sampling	Drafted
CMAS-17	Guide for the Use of MDD	Drafted
CMAS-18	Operational Procedure of MDD	Drafted
CMAS-19	Guide to Occupational Health and Dog Care	Drafted
CMAS-20	Guide for the Management of Demining Operations	Drafted
CMAS-21	Post Clearance Documentation	Drafted
CMAS-22	The Procurement Process	Drafted
CMAS-23	Guide to research of Mine Action Technology	Drafted
CMAS-24	Test and Evaluation	Drafted
CMAS-25	Information Management	Drafted
CMAS-26	Management of Training	Drafted
CMAS-27	Safety & Occupational Health-Medical Support to Demining & ERW Operations	Drafted
CMAS-28	Communication	Drafted
CMAS-29	Evaluation of MRE Program	Drafted

Annex 6: Mine Action Program Life cycle
Courtesy of GICHD