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CAMBODIAN MINE ACTION CENTRE

Annual Report 2008

Saving Lives and Supporting Development for Cambodia

FOREWORD

Year 2008 has been another successful year for the Cambodian Mine Action Centre (CMAC). Productivity has remained high while CMAC has pressed on with innovating and adapting to the changing landscape of the mine action sector. Looking to the future, CMAC has been placing emphasis on research and development, increasing the focus on battlefield clearance, and continuing to strengthen the workforce through staff training and deminer savings plans. Collaboration between operators has been better than ever before. For the first time, CMAC recorded zero landmine/UXO deminer accidents all year. This came as a result of a heightened level of discipline, experience and conscious execution of demining and related work by all staff at all levels. Also, the national landmine and ERW casualty rate continued to decline. Zero deminer accidents and a decreasing national accident rate are good reason to celebrate, as victory over the hidden killer in Cambodia begins to come into view.

However, there are substantial works ahead to eradicate all the remaining mine/ERW risks from Cambodia. Addressing the remaining risks will required further concentrated mine action efforts by all stakeholders. Obviously, CMAC will continue to play key and important role in the process at the nationally and internationally.

We would like to take this opportunity to express our gratitude to the international community and our partners, PMAC/MAPU, local communities and authorities and the Royal government of Cambodia, and finally to all our gracious donors whose generosity makes our work possible. The continued support to CMAC is highly appreciated, and we look forward to a successful productive year reducing the number of lives lost to landmine/UXO accidents and releasing safe arable land for agriculture and also for resettlement and infrastructure for the poorest communities in Cambodia. With your backing CMAC will continue to innovate and strive ahead in its mission of "Saving lives and supporting development for Cambodia".

Heng Ratana
Advisor to the Prime Minister
Director General
CMAC

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EXECUTIVE SUMMARY

Landmines and Explosive Remnants of War (ERW) remain in Cambodia as a lethal legacy of the three decades of war and civil conflict lasting until as late as 1998. The National Landmine Impact Survey (L1S) completed in 2002 classified 4,544km² of the country as a Suspected Hazardous Area (SHA) with 6,422 villages (46.2% of all Cambodian villages) affected by landmines and Unexploded Ordinance (UXO).

This has had a severe socio-economic impact on Cambodia. Although landmines and UXO incidents are decreasing; statistics produced by CMVIS[1] show that that landmines/UXO still cause hundreds of casualties every year. Furthermore, contamination widely constrains productive use of land, perpetuating the cycle of poverty among the affected population.

CMAC was created as a national institution to address this issue, with the mission of 'Saving Lives and Supporting Development for Cambodia'. CMAC is carrying this out through 4 core activities[2], 2008 activities are detailed in this report.

2008 was a remarkable year. 2008 was the best performance of any of the past 15 years in CMAC demining operations history in Cambodia in that there were zero mine accidents to CMAC deminers or CMAC key staff. This shows improvement in the deminers' discipline in strictly follow through on execution of the CMAC SOP coupled with good management by front line managers.

Since 1992 to 2008 year end CMAC has cleared **227,368,336** m² of contaminated land (227.4 km²), found and destroyed **405,023** anti-personnel mines, **7,657** anti-tank mines, **1,370,028** UXO's, **45,243** kg of small calibers, and unearthed **402,769,552** fragments.

In 2008 CMAC cleared **27,653,389** m² of contaminated land, found and destroyed **25,709** anti-personnel mines, **497** anti-tank mines, **114,101** UXOs, **7,001** kg of small calibers, and **19,874,891** fragments. A total of **23** separate projects were implemented funded from **23** separate funding schemes. There were **16** tools deployed, **14** of which were for mine/ERW clearance and **2** were supporting role (CBMRR and CBURR).

[1] Red Cross Cambodian Mine Victim Information System
[2] Landmine/UXO Awareness; Landmine Information and Survey; Landmine/UXO Clearance; Training in Landmine Action

In cooperation with NPA and with assistance from GICHD, CMAC established a land release expert group to work on the new land release concept. Land Release Protocol along with Technical and Non-Technical SOPs were being refined, while Technical Survey teams were being trained and tested successfully in Siem Reap resulting in releasing substantial percentage of previously recorded SHA under the L1S.

In September 2008, DU 3 has started BAC activities in its target areas. BAC operations involve the location and disposal of ERW, including UXO and Abandoned Explosive Ordnance (AXO or AO); over specific areas including battlefields, defensive positions and sites where air delivered or artillery munitions have been fired or dropped. It may involve surface and sub-surface clearance.

Research and Development continued to be an important CMAC function with the testing and evaluating of new and improved tools such as demining machines (Flail type, Push type and Swing type); mine detection (HSTAMIDS, an American made dual sensor landmine detector); landmine detection dog breeding program (born in Southeast Asia) with the offspring of proven landmine detection dogs currently in operation; EDD single search operations in the UXO fields started in late 2008 and will continue into 2009. These innovative ways will boost productivity significantly without compromising with quality and safety. More research and development activities will continue into 2009 and beyond.

Also in 2008 CMAC conducted massive training to provide the demining staff with multi-skills including basic and advanced EOD, battle area clearance (including SOP's and use of UXO detectors), navigation, and mapping (including the use of GPS), minefield management and community liaison. These training courses were designed to prepare CMAC demining force to respond to the challenges they would face in the years to come in the new mine action environment.

Also this year Cambodia began to prepare for the Anti-Personnel Landmine Ban Convention (APMBC) Article 5 extension request. Its Article 5 calls for a State Party to identify all mined areas and clear these areas within the 10 year life of the Convention. For Cambodia this is due on 31 December 2009. With that deadline fast approaching, and with an extensive landmine problem still remaining, The Royal Government of Cambodia will request from the international community for another 10 years. To support this, CMAC as a national institution will take on active role. In this regards, a new five year strategic plan will be developed to cover a period of 2010 to 2014 to guide CMAC activities going forward.

By late 2008, in support of the Government APMBC's Article 5 extension request related initiative, a plan for a new baseline survey, CMAC is geared up to prepare for this important task to be implemented by teams of trained professional in accordance with the standard set under the CMAA survey protocol (CMAS) and operators own SOPs.

At the corporate level, the CMAC Senior Management team has been in the fore front actively seeking to best representing CMAC in the National and International arena building the RGC, donors and contractors' confidence to sustain funding support to CMAC. They also initiated changes with the aim to continuously enhance CMAC performance and profile.

Toward the end of the year, there were changes in the Senior Management within CMAC. H.E Khem Sophoan (Former Director General) was appointed as Chairman of the CMAC Governing Council; H.E Heng Ratana (Former Deputy Director General) were appointed to be the Director General, while Mr. Oum Phumro (Former Director of Operations and Planning) was appointed as the Deputy Director General. These important changes allows for the continued fostering the culture of hard work and commitment, operational efficiency and accountability, reactivity and innovation within the organization and best representation in the nation and international arena.

This has been a successful year for CMAC carrying out its mission to save lives and support development for Cambodia.

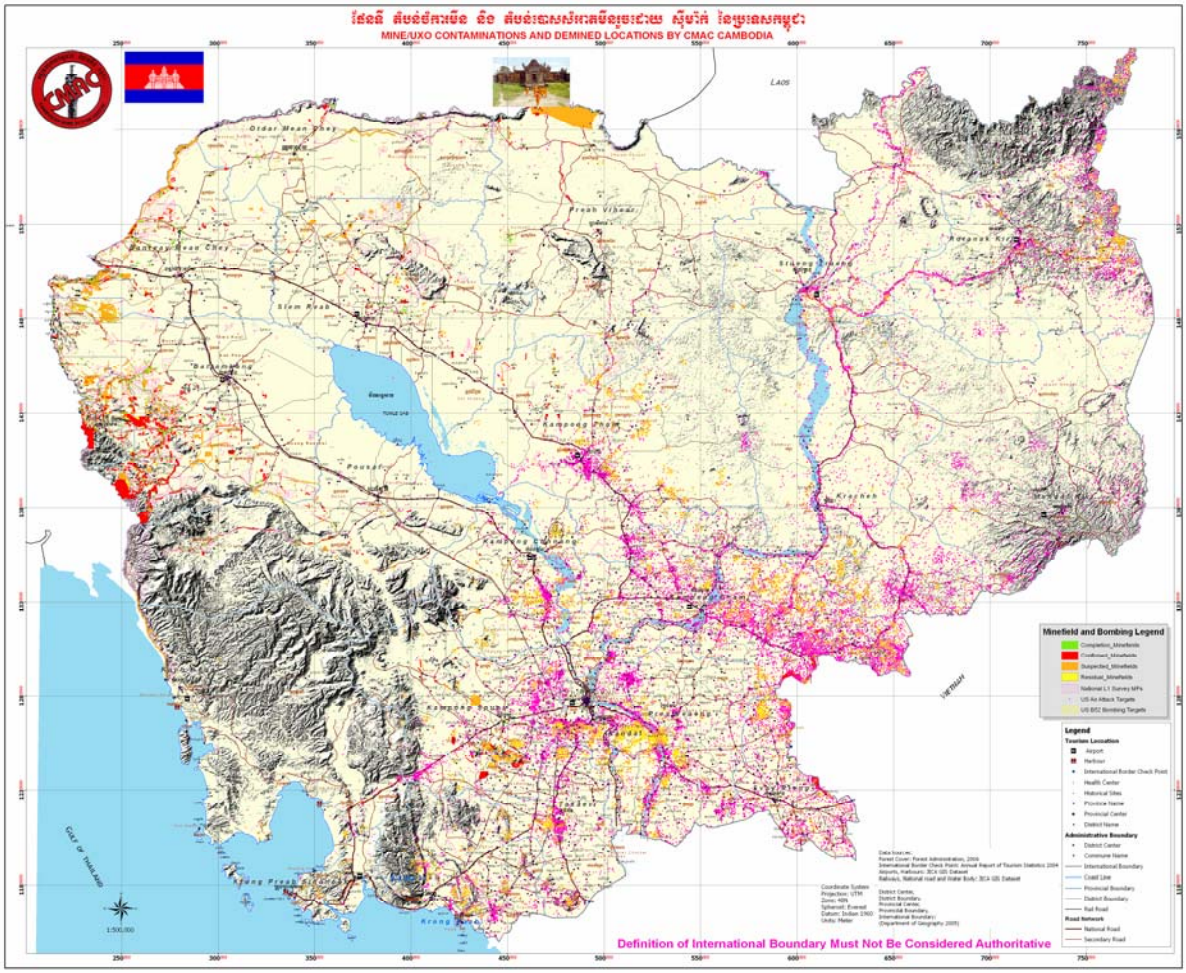
GLOSSARY

ADB	Asian Development Bank
ADMAC	Agricultural Development on Mine Areas in Cambodia
AP mine	Anti-personnel mine
AT mine	Anti-tank mine
AXO or AO	Abandoned Explosive Ordnance
BAC	Battle Area Clearance
BMC	Banteay Meanchey
BTB	Battambang
CBM or CBMRR	Community-Based Mine Risk Reduction
CBU or CBURR	Community-Based UXO Risk Reduction
CBD	Community-Based Demining Team
CHO	Cambodia Hope Organization
CM	Close Marker
CMAA	Cambodian Mine Action and Victim Assistance Authority
CMAC	Cambodian Mine Action Centre
CMC	Community Mine Clearance
CMVIS	Cambodia Mine Victim Information System
CRC	Cambodian Red Cross
CRS	Catholic Relief Service
CSU	Contractual Service Unit
CVD	Cambodian Vision for Development
DANIDA	Denmark International for Development Agency
DDSP	Disability Development Services Pursat
DFP	District Focal Point
DH	Dog Handler
DU	Demining Unit
ECOSORN	Economic and Social Relaunch of Northwest Provinces
EDD	Explosive Detection Dog
EOD	Explosive Ordnance Disposal
ERO	Eastern EOD Regional Office
EU	European Union
FRA	Field Relief Agency
GICHD	Geneva Centre for International Demining

GTC	Global Training Centre
HI	Handicap International
HSTAMIDS	Hand-held Stand-off Mine Detection System
ICRC	International Crescent and Red Cross
JMAS	Japan Mine Action Service
JSC	Jesuit Service Cambodia
L1S	Level One Survey (Impact Survey)
LLD	Long Leash Dog
LUPU	Land Use Planning Unit
LWF	Lutheran World Federation
MAPU	Mine Action Planning Unit
MAT	Mine Awareness Team
MDD	Mine Detection Dog
MMT	Mine Marking Team
MoEYS	Ministry of Education, Youth and Sports
MRE	Mine/UXO Risk Education, or Mine/UXO Risk Education and Reduction
NGO	Non-Governmental Organization
OEB	Opérations Enfants De Battambang
PMAC	Provincial Mine Action Committee
RACHA	Reproductive and Child Health Alliance
RGC	Royal Government of Cambodia
SEADO	Social Environment Agricultural Development Organization
SLD	Short Leash Dog
SR	Siem Reap
TC	Training Centre
TSC	Technical Survey for Clearance Team
TST	Technical Survey (Team)
UNDP	United Nations Development Program
URSMD	UXO Risk Reduction through Scrap Metal Dealers
UXO	Unexploded Ordnance
WFP	World Food Program
WVC	World Vision – Cambodia

1. INTRODUCTION

Landmines and other Explosive Remnants of Wars (ERW) remain within Cambodia as a lethal legacy of decades of wars and civil conflict[1] which continued in some parts of the country until as late as 1998, with the heaviest mine laying campaign by all warring parties occurred from 1979 to 1993 period. As a result, Cambodia became one of the most heavily landmine/ERW contaminated countries in the world. The National Landmine Impact Survey (LIS), completed in April 2002 reported 4544 km^2 of land area being contaminated by landmines, unexploded ordnances (UXO) and cluster munition. Figure 1: landmine/ERW Contamination Map of Cambodia.



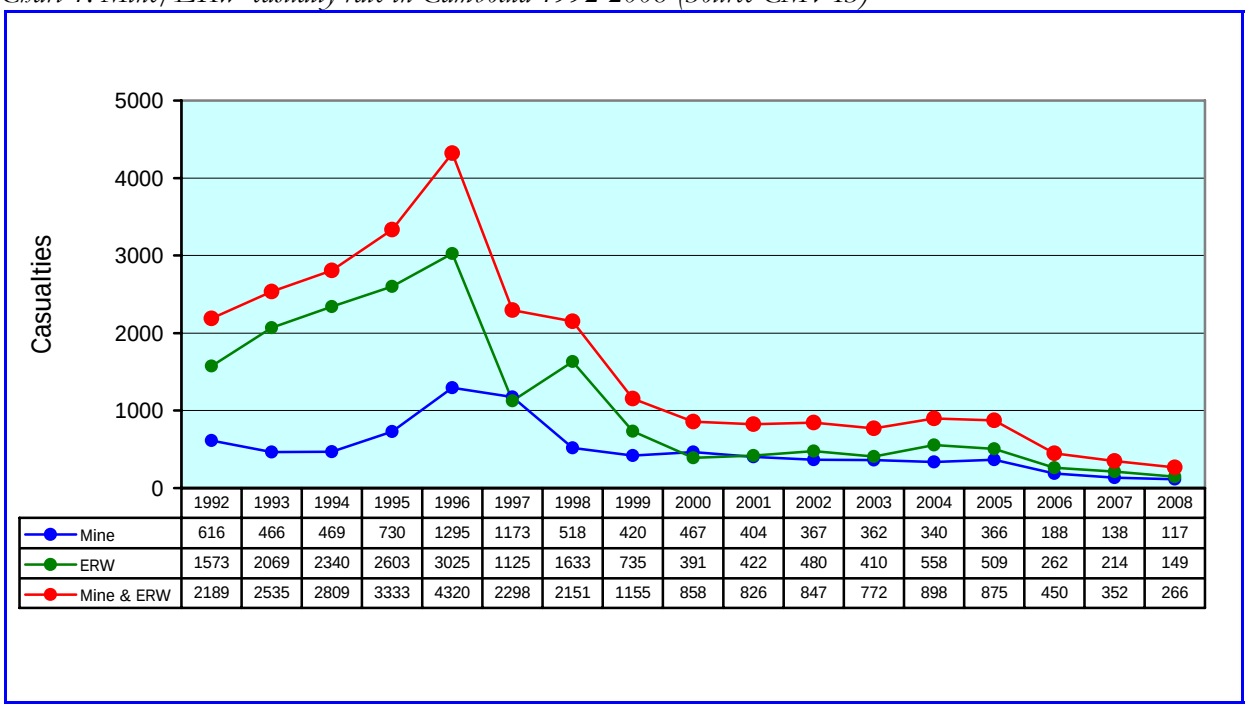
On-going demining operations since 1992 further uncovered substantial ERW as well as landmine outside of the L1S surveyed area which further expanding the mine/ERW risk. Together landmines and ERW have caused human casualties and sufferings long after the armed conflict with the lost of lives and limps and the unprecedented and wide spread downstream negative socio-economic,

[1] WWII, French Indo-China War, Viet Nam War, Cambodian Internal conflict

health, environmental and psychological consequence that will take years of cleaning up, interventions, and substantial resources expanded.

CMAC was established with mandate to address the landmine/ERW problem by engaging in four core functions, mine risk education, survey and verification, mine/ERW clearance, and mine action training. Since establishment, CMAC has competently performed all functions and has produced landmine/ERW contaminated areas safe for resettlement, agriculture, infrastructure, and other land used for humanitarian benefit. CMAC actions contributed to substantial reduction of landmine/ERW casualties reflecting the downward reduction drop of accident rate in the last three years.

Chart 1: Mine/ERW casualty rate in Cambodia 1992-2008 (Source CMVIS)



	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

Notwithstanding this improving figure, extensive landmine/ERW still remains throughout Cambodia which will require many more years of reactive and proactive intervention and substantial resource mobilization.

The CMAC 5 year Strategic Plan presents a research which projected area that the demining community needs to release through various methods (Clearance and Surveys). It was projected that some 672 km^2 required full clearance and 3,872 km^2 required releasing through surveys method including a baseline survey (2008 km^2) and Technical and non-technical survey (1.864 km^2)

As a leading demining organization in Cambodia, CMAC continues to make every effort to increase its demining productivity to release as much land as possible back to productive use by the communities.

This report presents the CMAC operational activities and outputs achieved during the implementing year 2008.

2. OPERATIONAL ACTIVITIES AND OUTPUTS

2.1. OPERATIONAL ACTIVITIES

2.1.1. Demining Assets Deployment

Year 2008 marked the best operational year for CMAC in term of the productivity and safely. It reflects the significant and important change of strategy in strengthening the CMAC demining resources and their strategic deployment in order to contribute toward the achievement of CMAC's mission of 'saving lives and supporting development for Cambodia'.

Contributing to this success in part, was the increasing improvement of the deminers' attitude toward safety, improved individual and team discipline, enhanced morale as well as the strict adherence to the CMAC operations SOPs. These in turn were made possible through good management practice of CMAC front line managers and continuous safety conscious messages from the part of CMAC management team which has led to zero demining casualty in 2008. On the other hand, the other factor was the implementation of the best capacity building program, a massive technical training initiative 'Battle Area Clearance Techniques (BAC)' which had never been done before in CMAC; three of these courses were conducted in 2008. They assisted in enhancing the CMAC's operational strengths and capability in challenging the changing landmine/ERW clearance landscape in Cambodia. Together, they contributed to the improvement of safety, efficiency, effectiveness and productivity in mine action intervention to the large scale of clearance as well as to urgent tasks timely and meeting the community needs.

Accordingly, 17 mobile demining platoons, 14 Brush Cutter teams, 4 CMC teams and 2 SLD teams[1] were assigned to attend in the BAC course in a stretch of nine month period with five modules, (1) field management, (2) utilizing three new modern mine detectors (Minelab F3, Metal Detector CEIA-Mine and Metal Detector CEIA-UXO), (3) Basic EOD, (4) Navigation (Site sketch drawing, map reading and GPS), and (5) Deep Search Operational SOP 2100 with detector Ebinger Upex-740M. These 3 courses were successfully completed by all trainees; they captured at least 589 trainees in total.

Operational requirement during the reporting period CMAC has seen some reduction of mobile platoons from 36 to 35 in March 2008, then to 34 in July 2008, and the latest to 33 in December 2008.

[1] Mobile platoons and teams were taken out from DU1, DU2, DU3, DU4, and DU6 and headquarter Phnom Penh to attend the courses. The first BAC course was started opening the class from 5 May to 4 July 2008, and second course was started from 4August to 10 October 2008, and the third one was started from 17 October 2008 to 6 January 2009

A part from this, 3 CMC Teams and 3 EOD team from in Mondul Kiri province were converted into new 8 BAC teams. The team consists of 5 personnel. They were equipped with 2 metal detectors (1 CEIA-Mine and 1 CEIA-UXO) and one metal detector–FEREX.
During the same reporting period, CMAC decreased its number of CMC teams from 16 to 13 as well as the EOD teams from 28 to 25 due to the establishment of new 8 BAC teams to support BHP Billiton project in Mondul Kiri province.

In early of March 2008, 3 demining machines of Research and Development Phase 2 project started its full operational activities on the ground in Rasmey Sangha village, Sdao commune, Ratanak Mondul district, Battambang province, while the new JMAS KOMATSU project consists of 1 demining machine, 1 brush cutter, 1 bulldozer and one mobile platoon, has started its operations in early July 2008.

At early of April 2008, 2 ten-men TST teams were converted into 4 regular five-men TST teams to undertake survey work in Battambang, Banteay Meanchey and Siem Reap provinces, to participate in CMAC-NPA survey project.

In Kampong Cham, on November 2008, one new CBURR District Focal Points (DFP) and one new EOD team were established with funding support from the JMAS in order to work in Kampong Cham and other nearby provinces under the command and control of ERO (now refers to as DU5). As above mentioned, the following table 1 shows the number of demining teams deployed throughout the reporting year.

Table 1: Number of Demining Assets (tools) deployed in 2008

S/N	Demining Assets (Tools)	Number of Teams Deployed in 2008											
		Jan	Feb	Mar	Ap	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Mobile Demining Platoon (MP)	36	36	35	35	35	35	34	34	34	34	34	33
2	Explosive Ordnance Disposal Team (EOD)	27	28	28	28	28	28	25	25	25	25	26	25
3	Technical Survey for Clearance (TSC)	19	19	19	19	19	19	19	19	19	19	19	19
4	Technical Survey Team-Large (TST10)	4	4	2	2	2	2	2	2	2	2	2	2
5	Technical Survey Team-Small (TST5)	-	-	4	4	4	4	4	4	4	4	4	4
6	Community Mine Clearance Team (CMC included ERC)	16	16	16	16	16	16	13	13	13	13	13	13
7	Mine Risk Education and Reduction Team (MRE)	6	6	6	6	6	6	6	6	6	6	6	6
8	Community-Based Mine Risk Reduction (CBMRR)	24	24	24	24	24	24	24	31	31	31	31	31
9	Community-Based UXO Risk Reduction (CBURR)	36	36	36	36	36	36	36	36	36	36	37	37
10	Short Leash Mine Detection Dog Team (SLD)	10	10	10	10	10	10	10	10	10	10	10	10
11	Long Leash Mine Detection Dog (LLD)	4	4	4	4	4	4	4	4	4	4	4	4
12	Explosive Detection Dog (EDD)	4	4	4	4	4	4	4	4	4	4	4	4
13	Mechanical Brush Cutter (BC)	23	23	23	23	23	23	24	24	24	23	23	23
14	Community-Based Demining Platoon (CBD)	5	5	5	5	5	5	5	5	5	5	5	5
15	Demining Machine (DM)	3	3	3	3	3	3	4	4	4	4	4	4
16	Battlefield Area Clearance Team (BAC)	-	-	-	-	-	-	8	8	8	8	8	8
17	Drilling Team, 16 Staff (3 sections)	-	-	-	-	-	-	-	2	2	2	2	2

2.1.2. Allocation of Demining Assets

During the reporting period, CMAC Demining Assets assigned to the various CMAC's Demining Units (DU) were deployed to support many landmine/ERW high priority clearance tasks selected through the national planning mechanism, often refers to as MAPU process, a participatory and bottom up approach to mine action planning; and urgent humanitarian and development supported tasks requested by local authorities and mine/ERW affected communities.

Landmine/ERW Clearance intervention were both taken place in minefields as well as in former battlefields. Taking this into account the concentration of high casualty rate and active economic and development activities in the areas, most of CMAC's mine clearance teams and some of ERW intervention teams were deployed, 46.29 percent in the North-western provinces and 20.52 percent in the Northern provinces; these two regions were highly affected with landmines as well as with ERW.

Some 33.19 percent of the remaining CMAC demining assets particularly those used for ERW intervention especially ERC (CMC), EDD and EOD teams were deployed in Eastern provinces where ERW are still remaining scattering everywhere and causing adverse impact on the population. Table 2 provides a snap shot of CMAC deployment as of December 2008. Figure 2 provides a snap shot view of asset distribution over the contaminated maps of Cambodia.

Table 2: Demining assets (Tools) deployment to CMAC demining Units as of December 2008

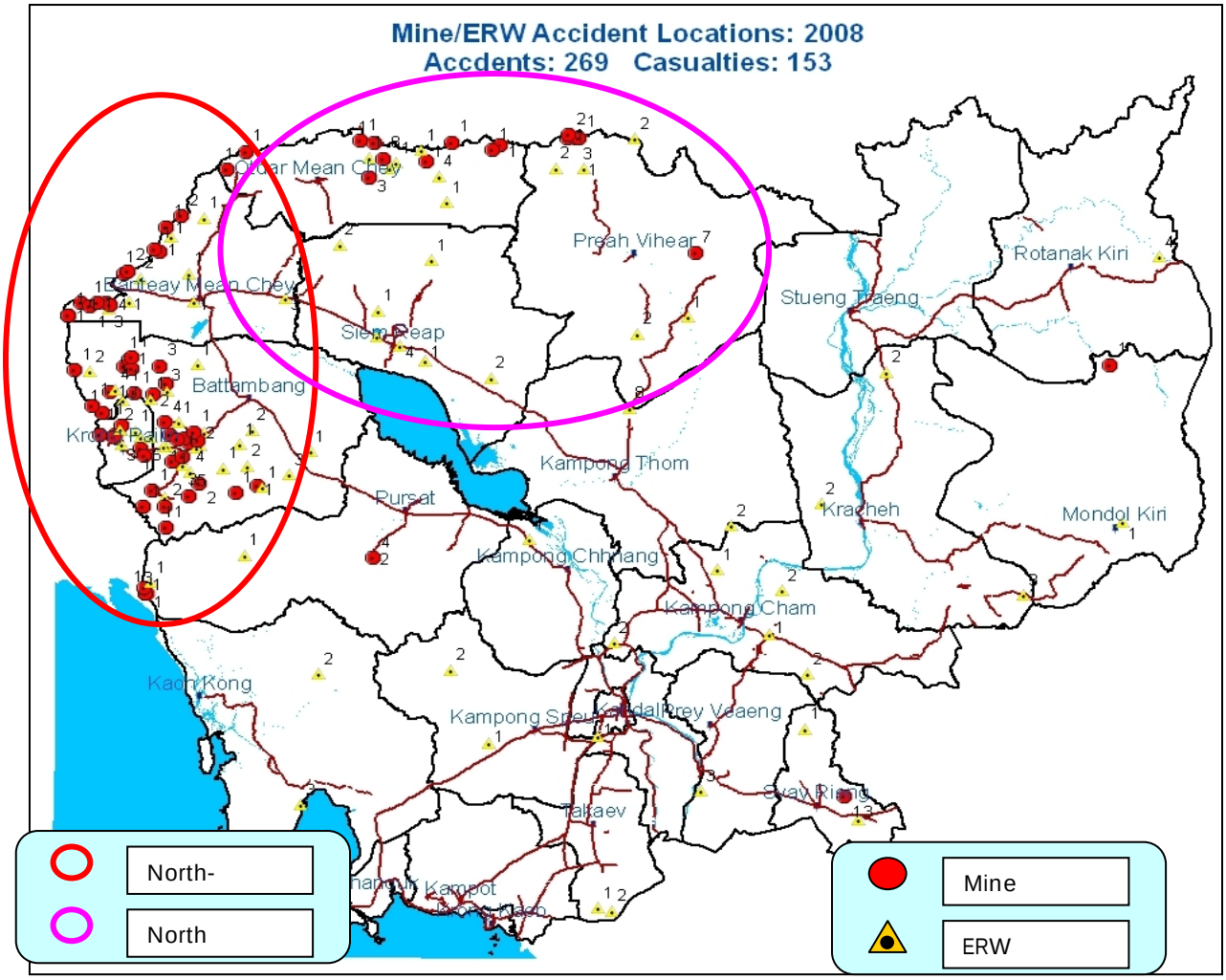
Demining Unit	Demining Assets (Tools)															
	MP	EOD/ERI	TSC	TST-Large	TST-Small	CMC/ERC	BAC	MDD-SL	MDD-LL	MDD-EDD	BC	DM	CBD	MRE	CBMRR	CBURR
DU#1(Banteay Meanchey)	8	1	4	-	-	2	-	2	1	-	4	-	1	-	7	-
DU#2(Battambang and Pursat)	9	2	5	-	-	2	-	3	3	-	11	4	3	1	11	-
DU#3 (Pailin and Samlot district)	5	2	3	1	-	1	-	2	-	-	3	-	-	-	5	-
DU#4 (Kg. Thom, Preah Vihear, Oddar Meanchey)	5	2	2	-	-	1	-	3	-	-	4	-	1	1	-	-
DU#6 (Siem Reap & Oddar Meanchey)	6	3	2	1	4	1	-	-	-	-	2	-	-	1	8	-
CMAC HQ (Phnom Penh)	-	6	1	-	-	2	-	-	-	-	-	-	-	1	-	8
Eastern EOD Regional Office (ERO)	-	9	2	-	-	4	-	-	-	4	-	-	-	1	-	22
BHP BILLITON (Mondul Kiri)	-	-	-	-	-	-	8	-	-	-	-	-	-	1	-	7
CMAC Training Centre (Kampong Chhnang)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total teams deployed in 2008	33	25	19	2	4	13	8	10	4	4	24	4	5	6	31	37

Note: Annex 1 provides a MAP of geographic location of each of the CMAC 6 Demining Units.

Some of the CMAC assets were not include in the above table. Four BC and 3 bulldozers were excluded from the operational activities. Three brush cutters were retired from demining operation. However, they and three bulldozers were deployed to support various development projects in building road and digging ponds in area cleared by CMAC. A part from these, one mining support drilling team was established for BHP Billiton project in Mondul Kiri province. The progress of this team is not captured for the operational report.

Figure 2 below shows the number of accidents and casualties cause by both landmine and ERW occurred in 2008 (Source CMVIS). Both landmine and ERW casualties remain the major problem in North-Western Region and along the border area, a stretch along K5 mine belt. The pattern shows consistency since the start of mine/ERW accident/casualties data collection by CMVIS.

Figure 2: Demining assets deployment over contaminated map as of December 2008



2.2. OPERATIONAL OUTPUT SUMMARY

2.2.1. Demining Achievements

As a leading demining organization in Cambodia, CMAC continues to make every effort to increase its demining productivity to release as much land as possible back to productive use by the communities. From 1992 to December 2008 CMAC achieved the following operational outputs:

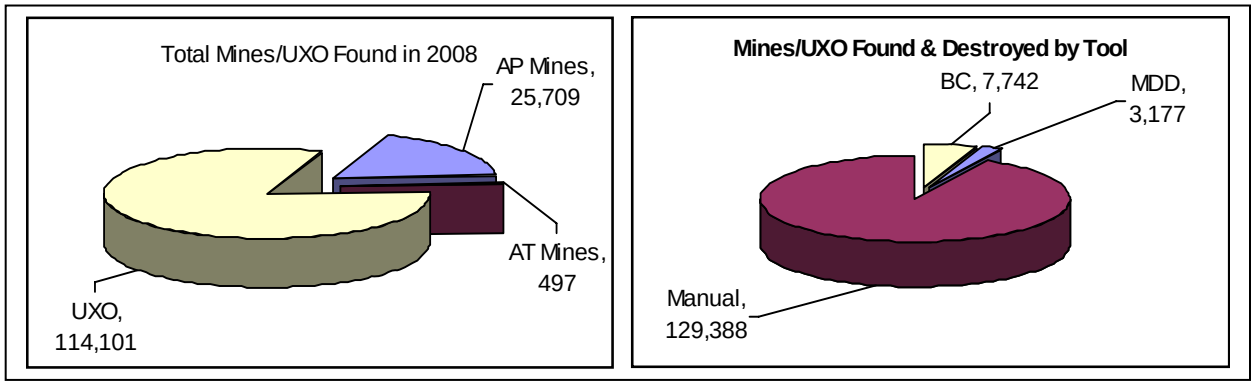
- Cleared **227,368,336** m² of contaminated land (227.4 km²)
- Found and destroyed **405,023** anti-personnel mines
- Found and destroyed **7,657** anti-tank mines
- Found and destroyed **1,370,028** UXO's,
- Found **45,243** kg of small calibers, and
- Unearthed **402,769,552** fragments, presenting enormous obstacles to demining activities

In respect to the clearance progress in 2008, as of December CMAC achieved as follows:

- Cleared **27,653,389** m² of contaminated land.
- Found and destroyed **25,709** anti-personnel mines.
- Found and destroyed **497** anti-tank mines.
- Found and destroyed **114,101** UXOs,
- Found **7,001** kg of small calibers, and
- Unearthed **19,874,891** fragments.

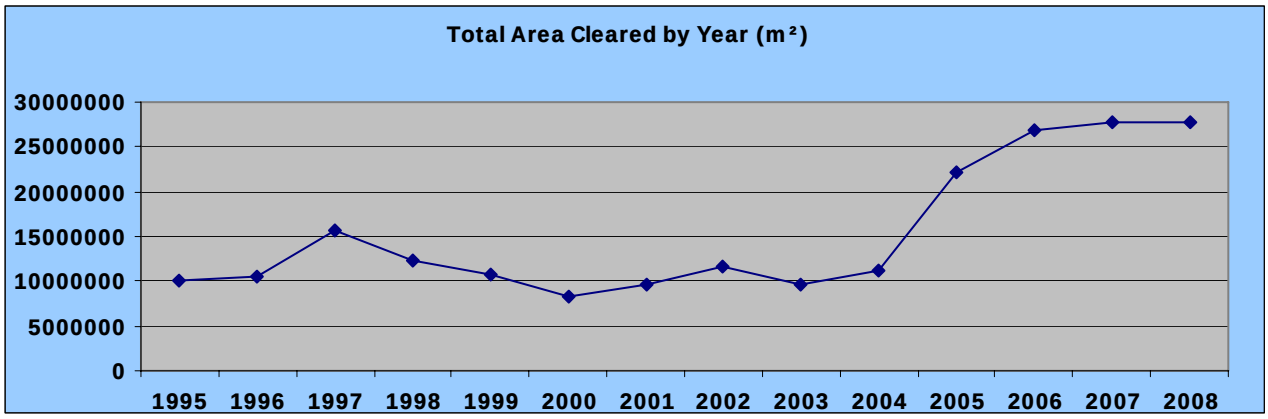
Items found and destroy during 2008: 25,709 AP; 497 AT; and 114,101 UXO. Among those, manual clearance teams have found and destroyed 129,388 items, 3,177 items by MDD and 7,742 by other tools; see chart 3 and annex 2.

Chart 3: Items found in 2008



It should be noted that the progress made in 2008 is a little short compared to the target set for the year (29.7 km²). This is due the massive training CMAC conducted in 2008 to provide the demining staff with multi-skills including basic and advanced EOD, battle area clearance (including SOP's and use of UXO detectors), navigation, and mapping (including the use of GPS), minefield management and community liaison. These training courses were designed to prepare CMAC demining force to respond to the challenges they would face in the years to come in the new landmine action environment. The result from this training is expected to yield positive results in the years to come.

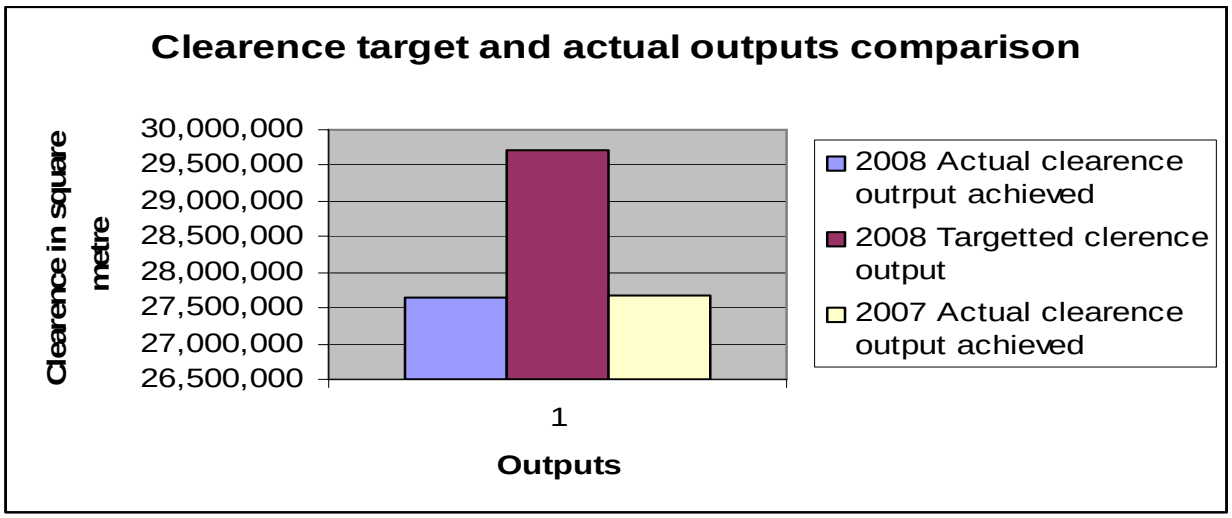
Chart 1: Overall operational Running Clearance achievement from 1992 to 2008



2008 is still the best year for CMAC in term of clearance achievement. It is especially encouraging to see the progress is still around the same as the year 2007 even though 17 mobile platoons and 14 brush cutters as well as some of small mobile teams had been sent to attend training in the Battle Area Clearance courses at the CMAC Training Centre through out the 2008 operation year. Because of the demining assets down time used for training, 2008 achievement felt below the intended target of some 2 square kilometres (chart 1 and 2) or 93.09% of plan; however, marking was higher than target 189.32% and substantial area reduction from L1S was at 893% of plan (see annex 1: 2008 Clearance and Survey actual outputs achieved comparing to targets).

Outputs achieved in 2008 and in 2007 are generally similar, see chart 2: Clearance target and outputs comparison (2007-2008) and annex 2 which shows the comparison between the overall demining achievements of 2008 Vs 2007.

Chart 2: Clearance target and out puts comparison (2007-2008)



2.2.2. Survey Achievements

Besides the clearance achievements, the mine marking are very important activities in doing marking and preparation of minefields for the demining tools to conduct the mine clearance effectively and consistently in order to respond to the community needs as well as to alert people avoiding from risk of mine and UXO. Herewith, the below results are showing us the outputs of these activities.

This past year has seen the Technical Survey Team (TST) employed in Siem Reap to test trial and collect survey data to support the CMAC land release initiate. As stated earlier, it is expected that the result of TST work will yield to a massive release of land once classified as SHA in Siem Reap into productive use. This work has not been documented in this report. However, it is an important achievement which will be recorded in 2009 achievement. Moreover in 2009, there will be a plan to conduct a Baseline Survey of the 21 post mine casualty districts which will cancel out many of the L1S SHA. Together the CMAC Land Release program, massive land release will be resulted. However, this new phenomenon will affect how demining output will be reported.

The current CMAC SOP calls for 3 classification of minefields as a productivities of the survey team (TST and TSC), confirmed, Residual and Suspected. Table 4 below shows the number of minefield marked under this classification.

Table 4: Minefield marked in 2008

Status of Minefields verified and marked by TSC, small TST & large TST	Achievement in 2008			
	Long Term Marking	Short Term Marking	No marking	Total
Confirmed Minefields	40	457	156	653
Residual Minefields	11	394	96	501
Suspected Minefields	17	573	130	720

2.2.3. Overall Operational Achievements by Project

As mine action evolved so does it requirements. At the commencement of the mine action program, mine/ERW intervention was all under one umbrella, the UNDP. Recent years, more mine/ERW clearance requirement felt into many projects driven by donors and development agencies. All have different needs and requirements. CMAC need to and has been coping with this change well. In period from January to December 2008, the overall operational achievement as earlier stated can be separated accordingly the projects or group of projects; 16 of such projects contribute to CMAC overall output achievement. Table 5 provide an overview of productivities for each of the projects.

Table 5: Achievement by activities per project in 2008

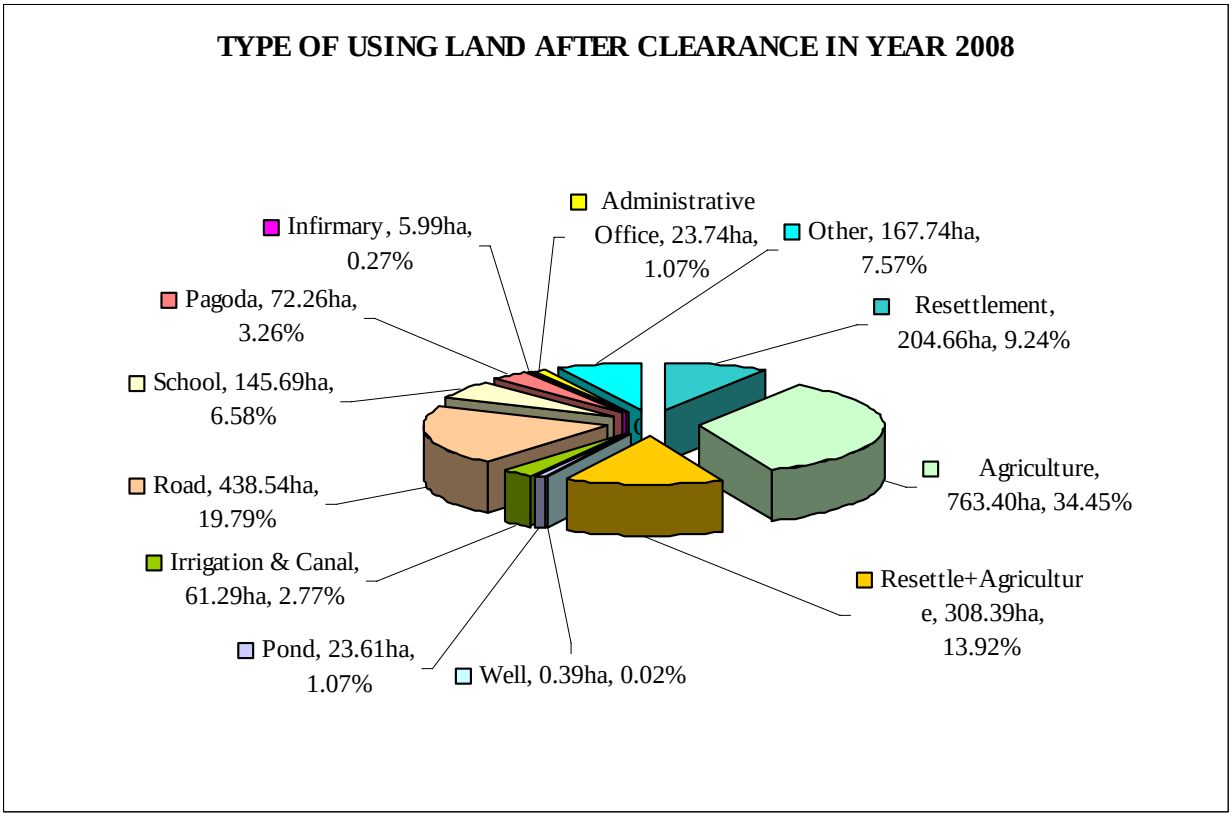
Name of Projects	ACHIEVEMENT FROM 1ST JANUARY TO 31ST DECEMBER 2008											
	Full Clearance-Area Cleared (m^2)	Vegetation Cutting (m^2)	Excavated (m^3)	Marked (m)	Area Reduction from L1S (ha)	Contaminated Area Found Outside L1S (ha)	AP& Improvised Mines	AT Mines	UXO	Small Calibres (Kg)	EOD Tasks	Fragment
UNDP	7,418,203	2,545,222	45,509	1,719,168	25,640.48	13,176.66	8,940	220	34,137	3,121	1,830	2,898,500
NPA	17,231	-	-	818,260	18,347.94	7,267.05	21	2	107	-	-	9,283
AUSTCARE	473,468	-	-	29,421	-	-	368	4	104	-	-	339,734
USA	3,210,043	844,198	12,849	731,140	18,971.36	7,175.25	3,269	17	6,752	2,616	627	3,270,272
JAIF,DU1+ERO	2,968,783	326,354	2,231	21,901	-	-	3,706	40	24,035	221	1,495	2,698,694
GERMANY	3,244,882	1,069,950	198	182,433	1,362.37	765.68	2,782	72	12,017	65	922	1,625,679
GRT-DU2	2,537,977	1,349,395	1,773	61,212	-	-	1,275	55	1,803	330	119	1,203,491
GRT-DU4	2,670,130	833,347	268	85,084	0.11	-	1,953	12	6,158	530	178	2,729,875
CBD-JMAS	453,247	-	-	-	-	-	647	7	241	-	-	3,314,519
EOD-JMAS	54,864	-	-	-	-	-	705	32	26,832	115	3,929	15,828
R & D	2,590,696	181,691	1,821	-	-	-	1,330	30	69			1,457,841
ECOSORN	963,184	185,052	-	46,155	-	-	567	6	1,251	3	220	257,985
BHP	93,497	-	-	32,988	-	-	2	-	219	-	76	3,999
PEACEBOAT	229,411	-	-	-	-	-	37	-	96	-	-	136,642
PRIVATE(LMI, PGS,GEJ)	369,099	93,701	39,244	200,149	-	-	13	-	227	-	82	40,540
KOMATSU	358,674	101,605	42,814	5,746	-	-	94	-	53	-	-	172009
TOTAL	27,653,389	7,530,515	146,707	3,933,657	64,322.25	28,384.64	25,709	497	114,101	7,001	9,478	19,874,891

There are a number of projects which were contributing across all types of the CMAC activities, the UNDP Clearing For Results, USA funded project at DU3 and Germany project at DU6. The Japanese funded projects of various schemes accounted for the major outputs achieved.

2.2.4. MRE and CBMRR/CBURR achievement

The message of mine awareness has evolved throughout the mine action year. The former mass media campaign has been slowly shifted to a more community based approach to Mine Risk Education (see section 2.3.1.). In 2008 MRE teams, CBMRR and CBURR have reached out to communities across the country. Table 6 below presents output of reached by the teams.

Description	MRE	CBMRR	CBURR	Total
Total number of villages reached	480	144	8,155	8,779
Total number of Session reached	658	-	9,020	9,678
Total number of household visited	13,863	33,387	39,310	86,560
Total number of Audience Group attended in MRE	59,274	134,688	182,652	376,614
Men	14,575	41,253	62,294	118,122
Women	16,418	45,169	50,538	112,125
Children	28,281	48,266	69,820	146,367

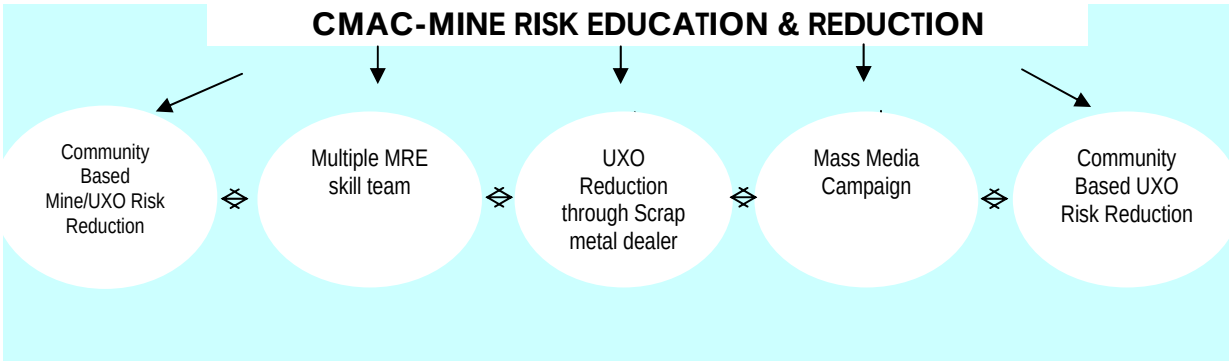


2.3. ACHIEVEMENTS BY CORE ACTIVITIES

2.3.1. Mine Risk Education (MRE)

The CMAC-MRE operations lie in the broad ranges of skills and capacities that have implemented to reduce casualty and the landmine/ERW risk behaviour of through the deployment and implementation of five fields MRE components, the CBMRR, CBURR, MRE, URSMD, and Mass Media Campaign.

The Five fields of Mine Risk Education & Reduction activities:



In 2008 the objectives of the CMAC-MRE are:

1. Collecting and destroying approximately 10,800 UXO, potentially saving around 54,000 people at risk.
2. Providing MRE to at least 75,000 people in vulnerable groups.
3. Continuing the "UXO Risk Reduction through Scrap Metal Dealers (URSMD)" pilot project.
4. Continuing the mass media campaign efforts.
5. Strengthening the skills and capacity of the MRE teams, CBMRR and CBURR to increase their effectiveness in response to the community requirements and risk reduction tasks.

MRE Activities in Kampong Cham Province

2.3.1.1. Community based Mine Risk Reduction (CBMRR)

The CMAC CBMRR project aims to enable mine/ERW affected communities to fully participate in the prioritization of mine/UXO actions in order to reduce their mine/ERW pose two main risks.

First risk is physical (death and injury) and psychological impact to individuals, their surviving families. The following are achievement in 2008:

CBMRR in Ochrove District of Banteay Meanchey Provnce

- 434 of CBMRR community networks, of which 97 persons were female; their capacities have been built up through fresher training workshop that took place at the district level[1].
- approximated 134,688 of mine/UXO-affected populations (in those comprise of 41,253 men, 45,169 women and 48,266 children) have received mine/UXO risk education from the 434 trained CBMRR community networks
- 33,387household have been visited in term of individual risk education in whole year of the project reporting period.
- 1,051 of task requests from mine/UXO-affected communities haven been responded by multiple MRE skill and the EOD teams, and 1,476 of anti-personal mines, 86 anti-tanks mines and 4,468 UXO have been reported and destroyed by the in intervention teams.
- Performed victim assistance referral in collaboration with the provincial department and district office of social affair, veterans and youth rehabilitation and other agencies for socio-economic, medical and rehabilitation assistance
- Facilitate the affected community access to development assistance in six main activities i.e. Infrastructure development facility, Water and Sanitation, agriculture facility, Emergency relief, Family economy assistance and community health assistance.

CBMRR in Malay District of Banteay Meanchey Province

[1] Specific MRE message for educating the specific risky group; follow-up the reporting system e.g. mine/UXO clearance requests; strengthening village information gathers through the participatory approach by utilizing of Participatory Learning and Action method; updating progress information on to the village map; qualitative performance of CBMRR community network through checking the community network's log book; and, follow-up the status community action planning to ensure that the problems and needs of the communities were appropriate responded and/or invested into the annual commune investment plan (CIP)

2.3.1.2. Multiple Skill MRE Team

The former mine awareness teams have been reformed to provide multiple capabilities by the reintegration of MRE capability with limited landmine/ERW clearance to provide quick response to community requests. The new approach of the multiple MRE skill team of four persons for per team, those comprise of one team leader, one MRE instructor (must be female) and two EOD specialists each multiple MRE skill team equipped one vehicle Pick-up and the consumable materials such as MRE materials and demolition equipment. Six MRE teams have been deployed throughout the country. They have achieved the following result.

MRE Activities in Kampong Cham Province

Table 6: MRE achievement

Risk Education Achievement		Tasks Intervention For Risk Reduction	
•Total number of villages reached	480	• Tasks Responded	546
•Total number of Session reached	658	• Cleared (m²)	33,745
•Total number of household visited	13,863	• Found & Destroyed	5,615
• Total Audience	59,274	- AP and improvised mines	299
- Men	14,575	- AT mines	1
- Women	16,418	- UXO	5,315
- Children	28,281	• Unearth fragment	6,697

2.3.1.3. UXO Risk Reduction through Scrap Metal Dealer "URSMD"

The URSMD was established under the financial support by UNICEF in 2007 with its aim to promote the role and responsibility of the shop owner and dealers of scrap metal to provide awareness on UXO problem among scrap metal collectors and to the UXO-affected community under close monitoring by the effective CBURR-district network. Eight scrap metal shops, four located in Chbarmorn district, Kampong Speu province and four shops in Angsnoul district in Kandal province were selected for the URSMD targeting project point.

URSMD Meeting in Kampong Speu Province

Achievement:

At least 15 scrap metal dealers for each scrap metal shop have selected and provided one day training on basic skill training of trainer of UXO risk education topic, which is expected that all the trained scrap metal dealers are able to continual educate to the scrap metal collectors in the UXO-affected communities. There were:

- 277 Scrap Metal Collectors and 120 Scrap Metal Dealers were provided training on mine and UXO risk education and related law[2]
- 184 requests and responses collect and destroy 3 AP, 1AT, and 1,656 items of UXO

Table below provide a breakdown of project beneficiaries.

Shop location	Dealers	Collectors
1. O Ronh village, Kandoldom commune, Chhbamorn district, Kampong Speu province	15	45
2. Peanich village, Rokathom commune, Chhbamorn district, Kampong Speu province	15	35
3.Peanich village, Rokathom commune, Chhbamorn district, Kampong Speu province	15	28
4. Peanich village, Rokathom commune, Chhbamorn district, Kampong Speu province	15	40
5. Romdenh village, Makak commune, Ang Snoul district, Kandal province	15	32
6. Thnal Totoeng village, Peuk commune, Ang Snoul district, Kandal province	15	37
7. Ang Snoul village, Ang Snoul commune, Ang Snoul district, Kandal province	15	25
8. Ang Snoul village, Peuk commune, Ang Snoul district, Kandal province	15	35
Total	**120**	**277**

2.3.1.4. Mass Media Campaign

The Mass Media Campaign is a part of MRE section in CMAC. During the reporting period, this section played an important role within the public advertising and the media broadcasting systems to help reach the people in areas where CMAC's mobile teams are not available to deliver mine/UXO risk education directly. Educational TV spots are especially attractive to all-aged population as they involve popular actors, portray real daily life of the people, and educate people in a very simple but eye-catching way. For the education story, men and children are usually targeted as they are the most vulnerable people in the communities.

Mine Risk Education Materials

[2] The CMAC's MRE section has been closely collaborated with the local police to approach law enforcement to announce the sub-decree of law management weapon and explosive to the shop owner and the dealers of the scrap metals.

- **Television and Radio Spot Production**

  - Compiled in cooperation with TVK 13 copies of old MRE TV and Radio spots into VCD for distribution to CBMRR's target communities and network's group in order to assist them to deliver risk education to their own communities
  - TV spot and radio spot were updated, but not broadcasted

- **NGO Campaign**

  - 338 persons from LMAP, ECOSORN, AUSTCARE, the Khmer Rouge Court, the Constructors of ECOSORN, Military Police (PM), USA volunteers and AYAD/VIDA received mine/UXO risk education.

2.3.1.5. Community-Based UXO Risk Reduction (CBURR)

The CBURR program works and networks with the affected communities to address UXO problem. Members of the network were training by CMAC on how to address the mine/UXO problems, mine awareness messages, how to report the mine/UXO and the community facilitation skill so that they can work properly on the mine/UXO identification. 37 CBURR Focal Person along with a Provincial Coordinator, usually local polices and authorities have been trained, deployed to work in 36 districts. Together there are eight communes and 67 village networks. They have been working to help their community reporting and at sending MRE message.

CBURR Achievements

- **UXO Risk Education**
  - **8,155** Village Visited
  - **9,020 Training Sessions**
  - **39,310** Household Visited, people **182,652**

- **Linkage with Mine Action**
  - 4371 Requests
  - 29,277 hazard items collected and destroyed

2.3.2. Survey, Marking, and Area Reduction

In this pass year, CMAC has undertaking two types of survey, the first is Technical Survey for Clearance where survey team assesses and prepares minefields and UXO fields for clearance and marking and develop site sketch at the completion of minefield clearance. This survey employs the TSC and in cooperation with relevant CBMRR and local authorities. The second type of survey undertakes to reassess the Suspect Hazard Area (SHA) listed in the L1S using a non-technical and technical survey

Survey and Mine Marking Activities in Pailin

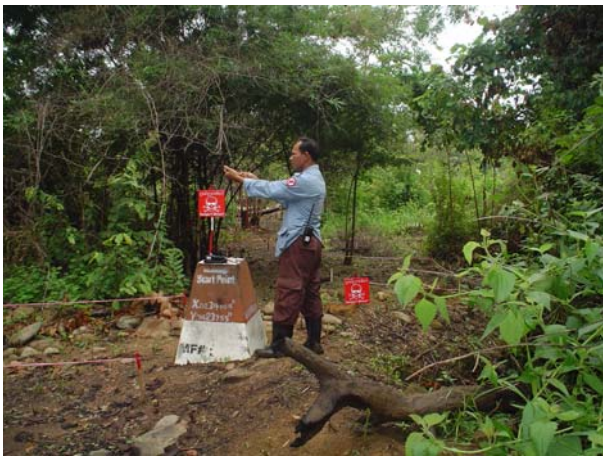
technique where appropriate. Like the TSC, this survey also requires close cooperation from CBMRR, the affected communities and local authorities for collecting accurate minefield information before reclassifying them as "confirmed", "suspected", or "residual". The result of this survey will release land once identified as SHA under the L1S as no longer pose threat to the community. It also found new areas which were not identified by the L1S as contaminated, registered them and reclassify them accordingly. The TST has been trained and employed to pilot a new land release protocol developed jointly with NPA and GICHD. The latter is an important tool to address landmine problem in Cambodia more efficiently.

Deployment

During the reporting period, CMAC deployed a total of 25 technical survey teams.

- 19 Technical Survey for Clearance teams (TSC) of 5 members
- 2 Technical Survey large teams (TST) of 10 members, and
- 4 small (TST) of 5 members.

The deployment of the TSC teams is spread out in all DUs to support demining operations; while the one large and 4 small Technical Survey teams have been deployed to conduct the survey, marking and area reduction in Pailin, Battambang, and Siem Reap province.



Technical Survey for Clearance Team #06 working in Pailin

Note: The early result of the Technical Survey performed in Siem Reap alone gave an early indication that a huge L1S SHA in Siem Reap of as much as 90 percent may no longer pose as a threat to the community. And the result of this survey has lead to smaller and more precise polygons. The following is the achievement of the technical survey teams within CMAC in 2008.

Achievements

2.3.2.1. Technical Survey for Clearance (TSC)

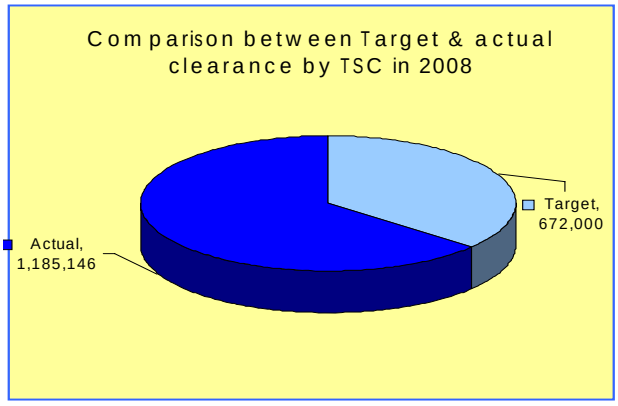
Although the TSC were designed as a tool to conduct survey to support clearance, they have also been used for small scale mine clearing sometime in support of commercial infrastructure and mineral exploration activities.

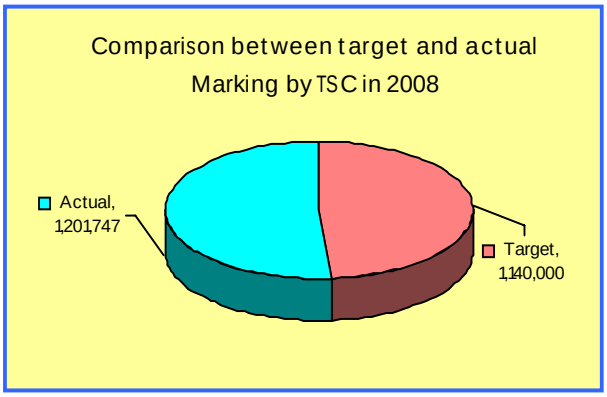
Technical Survey for Clearance Team #06 working in Pailin

The clearance achievement during the reporting period is 1,185,146m² of clearance, which is a 176.36% compared to the set target (672,000m²) or 76.36% is over the target set in 2008 for 19 TSC

teams. In addition, the actual marking is 1,201,747m, which is 105.42% compared to the set target (1,140,000m) for 12-month period or 5.42% is over the target set in 2008 for marking of minefield in preparation for clearance. These show the success of these teams in terms of accurate deployment and flexibility responses. The following table is its achievement during the 12-month period in 2008.

Type of Achievement	2008	2007	Variance(+)&(-) In 2008 & 2007
Grand Total of all areas cleared (m^2)	1,185,146	1,024,572	+15.67%
- Total Area cleared in MF and UXO field (m^2)	356,256	372,647	
- Total Survey and spot check (m^2)	828,890	651,925	
AP & Improvised mines found & destroyed	199	158	+25.95%
AT mines found & destroyed	6	2	+200%
UXO found & destroyed	430	150	+186.67%
Small caliber (kg)	5	-	
Linear meter marked (m)	1,201,747	1,128,581	6.48%
Number of minefields surveyed and marked	577	577	+0.00%





Indicator Analysis:

In addition to the above mentioned, the achievement of the areas cleared in 2008 by TSC is 15.67% over the achievement in 2007, and this is a signal of highest achievement, which is showing us the effectiveness of the activities and deployments of TSC in year 2008, while the achievement of the marking is 6.48% over the achievement achieved in 2007.

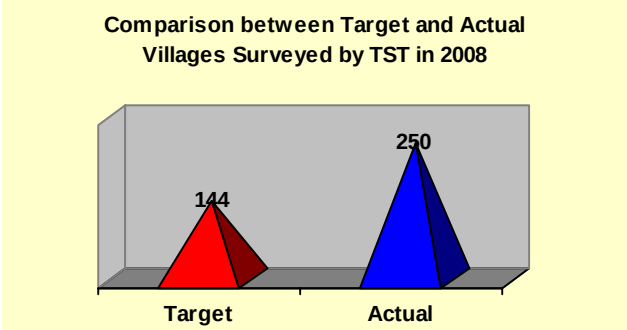
Technical Survey Team in Pailin

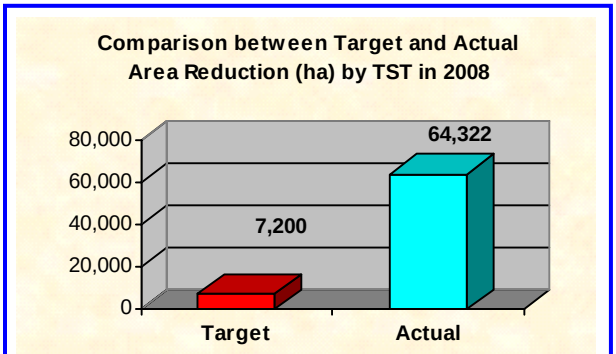
2.3.2.2. Technical Survey Teams (TST)

In 2008, in total the TST surveyed 73,744.24ha of area reported as contaminated in the Impact Survey (Level One Survey). After conducting the area reduction, they reduced a total area of 64,322.25ha from the Level One Survey (area reduction) and returned them into productive use. However, new contaminated areas were also found with a total of 28,384.64 ha.

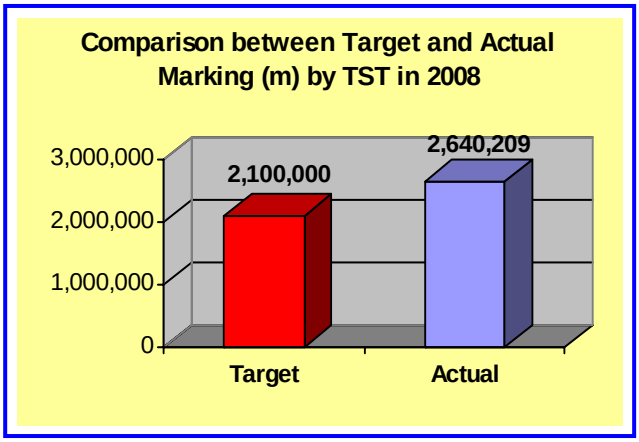
Without this technical process, this 64,322.25ha would otherwise be fully cleared, squeezing on the already- scarce resources. This should be noted that after conducting the technical survey, only 9,183.18ha remained as the contaminated areas in Level One Survey data; together with the 28,384.64 ha of contamination newly found, they accounted for 28% of the original L1S statistics.

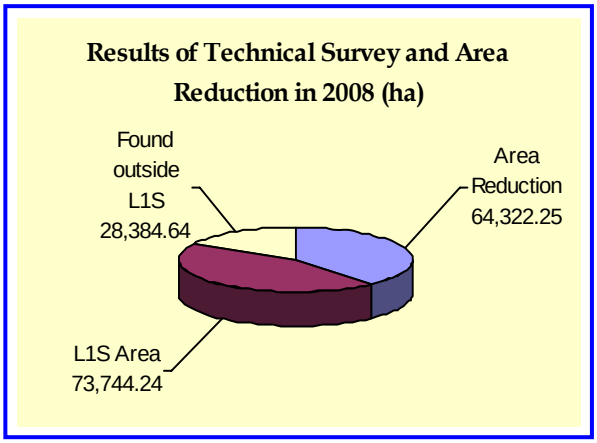
Effective planning allows the TST to survey more village than targeted. In 2008, the TST surveyed 250 villages nearly 100 percent over plan.





Status of Achievements	Achievement		Compared Variance (%) in 2008 & 2007
	2008	2007	
Total Area cleared by TST (m²), including survey and spot check area	161,289	150,434	+ 7.22%
AP & Improvised mines found & destroyed	128	22	+ 481.82%
AT mines found & destroyed	26	2	+ 1200.00%
UXO found & destroyed	327	21	+ 1457.14%
Small calibre found & destroyed (kg)	-	5	
Linear meters marked (m)	2,640,209	1,637,271	+ 61.26%
Fragments unearthed	41,124	57,732	± 28.77%
Number of villages surveyed	250	174	+ 43.68%
Total MF area of Level One Survey (L1S) – ha	73,744.24	25,232.28	+ 191.76%
Total Areas had been cleared (ha) by CMAC, Halo & MAG in L1S	239.42		
Total area reduction from L1S – ha	64,322.25	19,062.94	+ 102.67%
Contaminated area found outside L1S – ha	28,384.64	14,005.33	+ 86.21%
Total contaminated Areas after TS In L1S & Outside– ha	37,567.81	20,174.66	+ 28.91%
Confirmed minefields – ha	11,730.49	9,099.96	+ 833.67%
Suspected minefields – ha	16,993.56	9,254.62	± 4.44%
Residual minefields – ha	8,843.76	1,820.08	+ 43.68%





Indicator Analysis:

In summary, the achievement of the area reduction is 793.36% over the target plan set in 2008, and the achievement of the marking is 175.02% over the target set in 2008. This is a signal of highest achievement, which is received over the target, and it is 237.42% over the achievement in year 2007.

2.3.3. Landmine & UXO Clearance

2.3.3.1. Mobile Demining Platoon (MP)

The Demining Platoon (or Mobile Platoon – MP) is one of the elements of the demining toolbox. It is mainly a manual demining component of CMAC. The primary task of the Demining Platoons is to conduct full and large scale clearance of mine/UXO areas by focusing on low density, high density contamination minefields, high affected vegetation and dense forest. The platoons also provide risk reduction and support resettlement, agriculture, community livelihood and development activities. This tool can be deployed year round.

Yellow sticks identifies one mine found in the ground deminer of platoon #131 working in Pailin

Anti-personnel mine found in KASAWA Field in Pailin by Platoon #131

Deployment

Based on funding requirement and the necessity of minefield, the number of demining platoon deployment varied:

- January to February: 36 mobile platoons
- March to June: 36 to 35 platoons
- July to November: 35 to 34 platoons
- December: 34 to 33 platoons

In 2008, 3 mobile platoons were demobilized due to internal reform and to meet funding situation.

Platoons were deployed in all Demining Units, with 76% of the platoons deployed in 4 provinces of Battambang, Pursat, Pailin and Banteay Meanchey (Western part of Cambodia along the Thai-Cambodia Border). The remaining resources were deployed in the provinces of Kampong Thom, Preah Vihear, Siem Reap and Oddar Meanchey.

These platoons were either deployed alone or integrated with other toolboxes such as Brush Cutter teams and Mine Detection Dog teams in order to speed up clearance activities. The integration of different tools aims to make mine clearance more effective and efficient, as different minefield terrains are suitable for different tools of the demining toolbox. For instance, if a minefield is covered with heavy vegetation, a brush cutter is needed to assist the platoon to remove the vegetation. A brush cutter is also needed in a complicated minefield contaminated with sensitive AP mines, especially Type 72. Another aspect of integration, if for instance, when part of a minefield is contaminated heavily with fragments, an MDD team is useful. *The integration helps CMAC select the right tool for the right task.* Toolbox integration needs to be well managed. Day to day management is necessary to avoid overlapping roles or downtime.

UXOs found in KASAWA field in Pailin

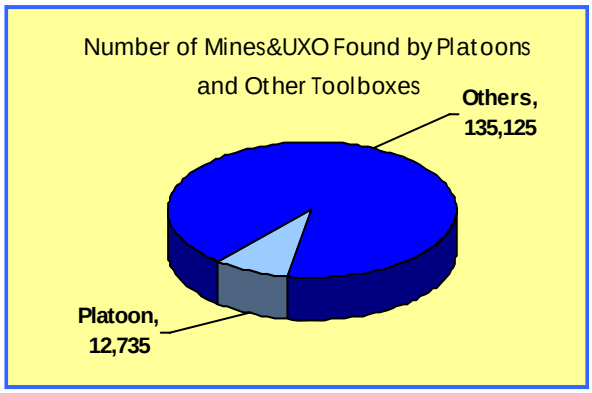
Helping speed up the process, Demining Platoons are also equipped with hand-held grass cutting machines, which play a very important role to remove light to medium vegetation in the minefields. These grass cutting machines are light and flexible, and they are suitable for most minefields. These hand-held grass cutting machines are also used with other teams such as MDD, CMC, BAC, etc.

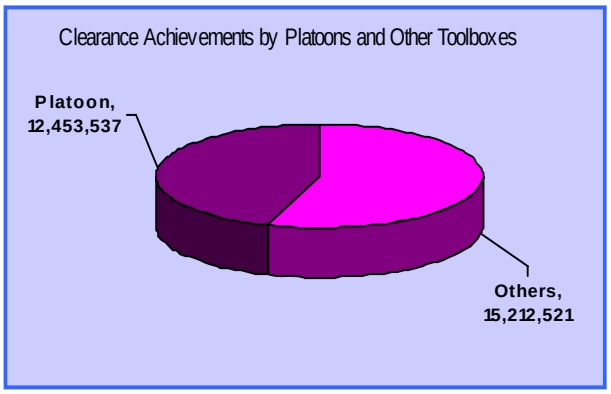
Achievement:

Type of Achievement	2008	2007	Variance (+) & (-)
• Total Actual Area cleared (m^2)	10,899,035	12,453,537	-12.48%
• Total target for Clearance (m^2)	12,312,000	8,284,000	48.62%
• AP & Improvised mines found & destroyed	8,493	9,131	-6.99%
• AT mines found & destroyed	73	129	-43.41%
• UXO found & destroyed	3,299	3,475	-5.06%
• Fragments unearthed	12,951,877	19,618,729	-33.98%
• Small calibers (kgs)	412	36	1044.44%

Indicator Analysis:

In 2008, the platoons alone cleared a total of 10,899,035 m² of area, which is 11.48% lower that the target set of 12,312,000m² of 2008, and 12.48% is lower than year 2007 and it is about 39.40% of CMAC's overall total productivity of the year. There were three main reasons for this reduction in productivity in 2008. This was due to the following:





a. Reduction of 5 mobile platoons through demobilization of mobile platoons during the reporting period from 38 to 33 remaining,
b. 17 mobile platoons were moved to attend the Massive Training (BAC Courses) at CMAC Training Centre for 3-month period,
c. Increasing the clearance target from 8,284,000m² in 2007 to 12,312,000m² in 2008.

Despite of the drop in annual productivity, demining platoon clearance output in 2008 when compared team to team, is still higher than previous years.

2.3.3.2. Community Mine Clearance Team (CMC)

The CMC is designed to provide quick response on both mine and UXO intervention to the requests for risk reduction and small scale development in the affected communities. This tool is highly mobile. Depending on the task and area for deployment, the team can be called Explosive Remnants of war Clearance Team (ERC) when it engages mainly in ERW clearance. The team composition can also vary. This makes standardizing team output difficult. However, because of its mobility and diverse functions, it is very effective for small tasks.

Deployment

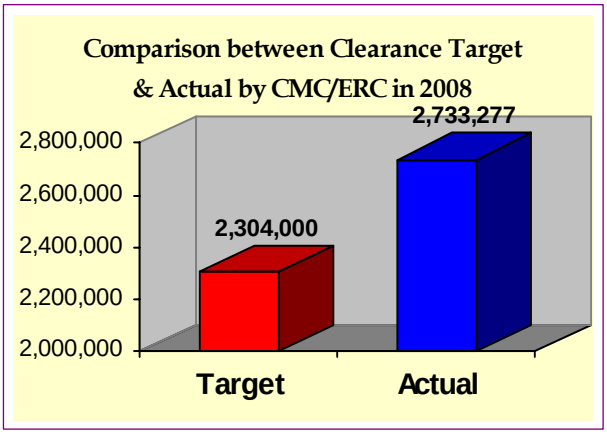
In 2008, there are a total of 16 CMC (included 4 ERC) teams deployed.

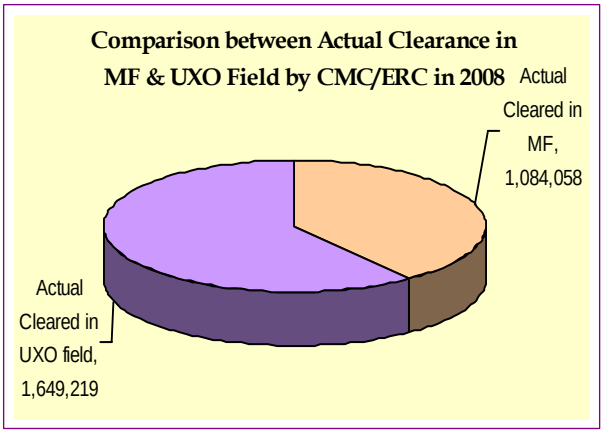
- January to June 2008, deployment is as follows: 2 teams in DU1, 2 teams in DU2, 1 Team in DU3, 1 Team in DU4, 1team in DU6, 4 team at ERO (or DU5), 2 team at Headquarters, 3 teams contracted to BHP Billiton.
- July to December 2008, CMAC deployed 13 CMC team in DU1 (2 teams), DU2 (2 teams), DU3 (1 team), DU4 (1 team), DU6 (1 team), ERO (4 teams), Headquarter (2 teams). The 3 CMC teams contracted to BHP Billiton in Mondul Kiri were restructured to 8 BAC teams.

Achievement

During the reporting period, their achievements of 9CMC and 4ERC are showed in the following table:

Type of Achievement	2008	2007	Variance (+) & (-)
• Total area cleared (m²)	2,733,277	2,714,375	+0.70%
o Area of minefields (m²)	1,084,058	970,923	+11.65%
o Area of UXO fields (m²)	1,649,219	1,743,452	-5.40%
• Total clearance target (m²)	2,304,000	1,560,000	+47.69%
• AP & Improvised mines found & destroyed	795	730	+8.90%
• AT mines found & destroyed	24	9	+166.67%
• UXO found & destroyed	2,785	2,426	+14.80%
• Linear meter marked (m)	63,193	128,032	-50.64%
• Fragments unearthed	818,046	876,077	-6.62%
• Small Calibers (kgs)	5	23	-78.26%





Indicator Analysis:

The clearance achievement during the reporting period is 2,733,277 m², which is 18.63% over the set target in 2008. Actual clearance in 2008 when compared to the target 2007 is 75.21% over the set target in year 2007, this indicate team efficiency. In relating to this, it is showed that the area cleared in minefield is remarkably increased (+11.65%) compared to the same period in year 2007; however area cleared in the UXO fields dropped by 5.40% less than the actual clearance in 2007 due to 3 CMC teams were sent to attend the Massive Training for 3-month period at the CMAC Training Centre. Nevertheless, the achievement, in general, is still higher than the target set.

2.3.3.3. Battle Area Clearance Team (BAC)

8 BAC teams of 5 persons staff were established by demobilization of 3 CMC (team#10, 03, 12) and 3 EOD teams (team#05, 15, 16) in the late of June 2008 based on the requirement of the BHP

Billiton project located in Mondul Kiri province. BAC was designed to provide quick response to the requests for risk reduction and small scale development including commercial mining support. These teams are capable to perform multiple tasks in the UXO field.

Deployment

During the reporting period from July to December 2008, 8BAC Teams were deployed in Mondul Kiri province under the Contractual Service Units (BHP Billiton project).

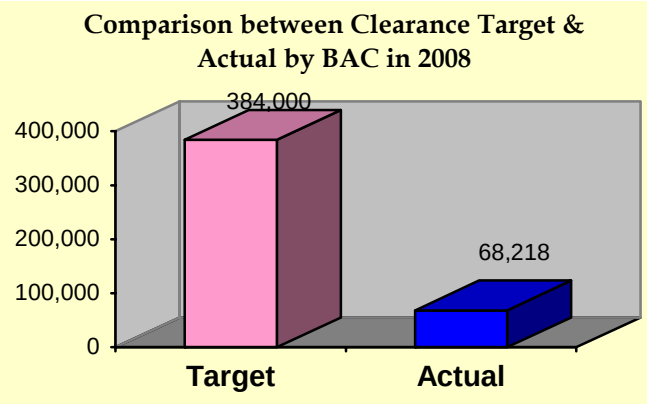
Achievement

During the reporting period, the achievements of 8 BAC are listed in the following table; they have limited output due to the method in which these teams were employed (mainly supporting the mining drill teams).

Type of Achievement	2008
• Total area cleared in UXO fields (m²)	68,218
• Total liner marking (m)	22,762
• Fragments unearthed (pieces)	2,677

Indicator Analysis:

The clearance achievement during the reporting period is 68,218 m², which is 82.23% less than the set target in 2008. However, as mentioned, these teams are not focused on full clearance like the mobile platoons, CMC or MDD teams, but they focused on borehole and track scouting survey.



2.3.3.4. Mechanical Clearance/ Machine Brush Cutters Team (BC)

The Brush Cutter was first introduced as a new Mechanical Mine Clearance tool into CMAC Operations Branch since 2000. It was originally designed to cut and remove vegetation in the minefield to support other demining teams such as manual demining teams, MDD teams, Mobile teams and EOD teams. Since its introduction Brush Cutter helped speed up the demining process and have changed the demining way. It has three functions; they are vegetation cutting, clear beam of soil in minefield and ground engaging

Mechanical Clearance Machine Operation in Minefield in Battambang Province

activities. They can also be used for development purpose. They are used both as a stand-alone tool or integrated with other toolboxes, such as manual platoons, MDD, etc. It should be highlighted that since the introduction of the brush cutters, together with improvements of SOP's and field management, CMAC has been able to double CMAC annual clearance productivity from around 10 to 12 km² to 22 km² in 2005. In 2006 and 2007, output was 26 km ² and 27km² respectively.

Noted that BC has a number of deminers attached, the number of deminers varied according to deployment and client requirement.

Deployment

27 Brush Cutters (BC) were donated by the Government of Japan to CMAC Since the year 2000, However, during the reporting period, CMAC deployed only 23 Brush Cutters in the provinces of Banteay Meanchey, Battambang, Pursat, Pailin, Siem Reap, Oddar Meanchey, Kampong Thom and Preah Vihear. Four BC (2 Hitachi and 2 Komatsu) were retired and use to support development activities and training. On certain occasions a retired BC had to be reactivated to assist clearance. Therefore, in 2008, there were between 23 to 24 BC teams deployed. Their deployment according to the table below:

Resource Mobilization	January –December 2008											
	J	F	M	A	M	J	J	A	S	O	N	D
BC DU1	4	4	4	4	4	4	5	4	4	4	4	4
BC DU2	11	10	10	10	10	10	10	10	10	10	10	10
BC DU3	3	3	3	3	3	3	3	3	3	3	3	3
BC DU4	3	3	3	3	3	3	3	3	3	4	4	4
BC DU6	2	2	2	2	2	2	2	2	2	2	2	2
CSU	0	1	1	1	1	1	1	1	1	0	0	0
HQ (Takeo)	0	0	0	0	0	0	0	1	1	0	0	0
TOTAL	23	23	23	23	23	23	24	24	24	23	23	23

Achievement:

During the reporting period, the Brush Cutters accomplished as the following achievement:

Type of Achievement	2008	2007	Variance (+) & (-)
- Total Area cleared (m²)	5,724,922	6,674,710	-14.23%
- Vegetation cutting (m²)	7,428,910	8,048,382	-7.70%
- Cleared soil mounds in minefields (m³)	103,893m³	178,817	-41.90%
- AP & Improvised mines found & destroyed	5,510	6,859	-19.67%
- AT mines found & destroyed	53	25	+112.00%
- UXO found & destroyed	2,110	1,984	+6.35%
- Fragments unearthed	1,380,315	2,072,027	-33.38%
- Small caliber (kgs)	3	-	

Indicator Analysis:

The clearance achievement during the reporting period is 5,724,922m², which is 30.85% less than the set target for 2008 (8,280,000m²) and the cutting progress is 7,428,910m², which is 23.00% less than the set target in 2008 (9,660,000m²). Compared to the year 2007, it was a 14.23% less than the clearance achievement in 2007 and was a 7.70% less than the cutting achievement of year 2007.

Low productivity caused by 14 BC team standing down to attend the Massive Training (BAC Course) at CMAC Training Centre for 3-month period in 3 different courses from May to December 2008. Other unexpected difficulties have lead to slowing down BC output to less than 30,000 m² per team per month. When complementing with normal mobile platoon, BC can enhance platoon productivity from 40,000 m² to 50.000

Other activities

- Brush Cutters was used by CMAC Research and Development section to trial as battery charger to charge batteries for mine detector (MINELAB. Trial was successful.
- 14 BC teams attend training in Massive Training (BAC courses) at CMAC Training Center, Kampong Chhnang province in order to get multiple skills. BC tam leader attend training on multi-tool integration
- 3 BC were deployed to support the community development project to dig ponds and support in clearing site and building access road.

2.3.3.5. Mine/UXO Detection Dog Team (MDD/EDD)

Since inception in 1996, the Mine Detection Dog (MDD) program grew and became one of the successful tools at CMAC helping to accelerate mine clearance. MDD can be deployed as a stand-alone tool or integrating with other toolboxes as such manual platoons and the brush cutters to assist manual demining in minefields contaminated with fragments, laterite soil, metal, hard grounds, deep laying mine and quality control

EDD Operations in Kampong Cham Province (DU5)

There are two types of MDD, Short Leash (SLD) and Long Leash (LLD). In 2007-08 the Explosive Detection Dog (EDD) capability was established to increase CMAC explosive detection capacity. This new tool was deployed in the Eastern region. To date, there are 47 dogs in operations, 24 in training and 7 dogs in unserviceable.

Deployment

In year 2008, CMAC deployed 18 MDD teams: 10 short leash teams with 4 dogs per team and 4 long leash teams with 2 dogs per team and 4 Explosive Detection Dogs with 2 dogs per team.

During this reporting schedule, 3 of 18 are short leash dog teams were contracted to work for MAG's demining operations in Battambang and Preah Vihear provinces.

Achievement

Achievement of the MDD teams in 2008 fell 20% below target. This underperformance was due to the many training sessions MDD teams participated during the period for the purpose of improving the MDD team skill and field management ability.

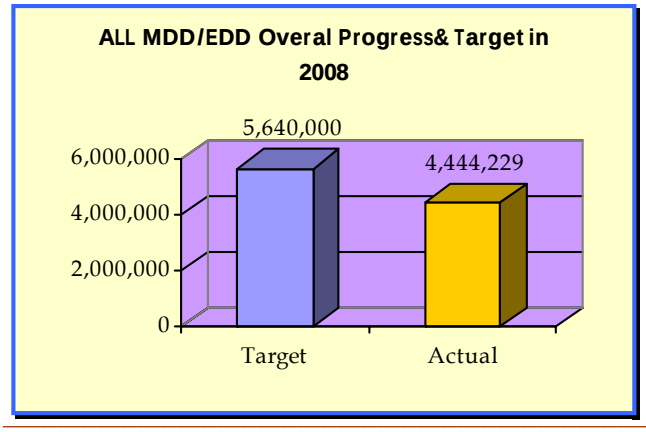
Type of Achievement	Achievement					
	SLD	LLD	EDD-UXO field	Total 2008	Total 2007	Variance (+) & (-)
Total Area cleared (m²)	2,128,890	1,146,646	1,168,693	4,444,229	3,470,882	+28.04%
AP& Improvised mines found & destroyed	165	84	1	250	379	-34.04%
AT mines found & destroyed	37	4	-	41	32	+28.13%
UXO found & destroyed	288	91	2,507	2,886	878	+228.70%
Small caliber (kgs)	-	-	165	165	10	-
Fragment unearthed	16,374	7,699	5,722	29,795	59,404	-49.84%

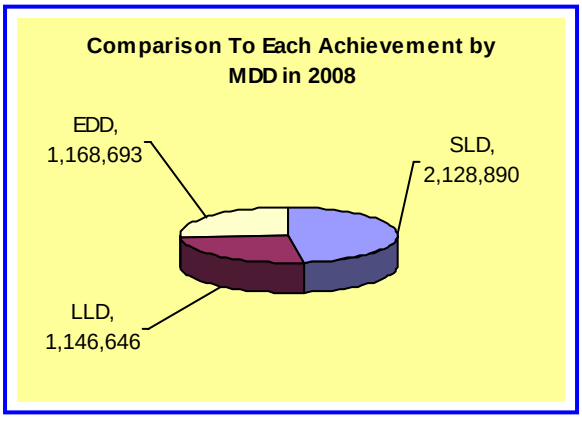
Note: During the reporting period, 3 MDD (SLD) teams contracted to assist MAG's operations in Battambang and Preah Vihear provinces, which the productivities were not captured for CMAC report. The following is MAG's achievement received from the operations. Area cleared was 884,243 m² with 87 AP, 2 AT, and 98 UXO found and destroyed.

Mine Detection Dog Operations in Siem Reap (DU4)

Indicator Analysis:

In 2008, the MDD/EDD clearance achievement is 4,444,229m², which is a -21.20% less than the set target in 2008 (5,640,000m²), but the actual clearance in 2008 is 28.04% over the set target of year 2007. Moreover considering the productivities of the 3 teams contracted to MAG and down time for training, the MDD/EED productivity generated in 2008 is considered acceptable.





MDD/EDD Training

On-going training and refreshing program for MDD/EDD teams is mandatory. This is to ensure that these teams performed efficiently and effectively. Table below shows how much training and training sessions were conducted in2008.

No.	Course Title	Course Number	Trainee Source	Trainee Number	Duration	Start Date	Finish Date	Remarks
Quarter 01 (January/February/March-2008)								
1	Trained of Semi-trained dog		NPA-GTC	10 dogs	4-5 month	Dec-07	April-08	
2	EDD single search training trial		TC	06 pers/ 02 dogs	4-6 weeks	31-Mar-08	9-May-08	
3	LLD/SLD Refresher Course (Team1,2,10)	# 56	DU1,3	19 pers/ 08 dogs	2 weeks	8-Jan-08	18-Jan-08	
4	EDD Refresher Course (Team 01,02)	# 57	ERO	10 pers/ 04 dogs	2 weeks	4-Feb-08	15-Feb-08	
5	MDD LLD Refresher Course (Team3,4)	# 58	DU2	10 pers/ 04 dogs	2 weeks	11-Feb-08	22-Feb-08	
6	MDD Handover Course			8 pers/ 8 dogs	4-6 weeks	Feb-08	Apr-08	
7	MDD SLD Refresher Course (Team 03, 04)	# 59	DU1,4	20 pers/ 8 dogs	2 weeks	11-Mar-08	21-Mar-08	
8	MDD Close Marker Course	# 09	All DU	20 pers	2 weeks	19-Mar-08	14-Mar-08	
9	Kennel Handler Basic Course	# 01	All DU	18 pers	3 weeks	11-Mar-08	28-Mar-08	
Quarter 02 (April/May/June-2008)								
10	EDD Refresher Course (Team3,4)	# 60	ERO	12 pers 4 dogs	2 weeks	24-Mar-08	4-Apr-08	
11	MDD SLD Refresher Course (SLD2,11, MAG)	# 61	DU2,4	20 pers/ 8 dogs	2 weeks	21-Apr-08	2-May-08	
12	Key MDD Staff Meeting (MDD TL/DU ops.)		All DU	50 pers	01 days	21-May-08	21-May-08	
13	MDD SLD Refresher Course (Team06, 07)	# 62	DU2,3	20 pers/ 8 dogs	2 weeks	20-May-08	30-May-08	
14	MDD SLD Refresher Course (Team5,8)	# 63	DU2,4	20 pers/ 8 dogs	2 weeks	2-Jun-08	13-Jun-08	
15	MDD SLD Refresher Course (Team1, 10)	# 64	DU2,11	20 pers/ 8 dogs	2 weeks	16-Jun-08	4-Jul-08	
Quarter 03 (July/August/September-2008)								
16	MDD LLD Refresher Course (Team01,02)	# 65	DU1,2	12 pers/ 4 dogs	2 weeks	7-Jul-08	18-Jul-08	
17	EDD Refresher Course (Team01,02)	# 66	ERO	12 pers/ 4 dogs	2 weeks	4-Aug-08	15-Aug-08	
18	MDD LLD Refresher Course (Team03,04)	# 67	DU2	12 pers/ 4 dogs	2 weeks	18-Aug-08	28-Aug-08	

Quarter 04 (October/November/December-2008)								
19	MDD SLD Refresher Course (Team03,04)	# 68	DU1,4	20 pers/ 8 dogs	2 weeks	6-Oct-08	17-Oct-08	
20	EDD Refresher Course (Team03,04)	# 69	ERO	12 pers/ 4 dogs	2 weeks	6-Oct-08	17-Oct-08	
21	MDD SLD Refresher Course (SLD2,11, MAG)	# 70	DU2,4	20 pers/ 8 dogs	2 weeks	20-Oct-08	31-Oct-08	
22	MDD SLD Refresher Course(Team06,ecosorn)	# 71	DU2	10pers/ 4 dogs	2 weeks	17-Nov-08	28-Nov-08	
23	MDD SLD Refresher Course (Team01,05)	# 72	DU1,2	20 pers/ 8 dogs	2 weeks	15-Dec-08	26-Dec-08	
24	MDD SLD Refresher Course(Team10, MAG)	# 73	DU3	10pers/ 4 dogs	2 weeks	22-Dec-08	31-Dec-08	

A carrousel is being used to train new dog to detect micro piece of object, this makes the dog learn to recognize different smell of object effectively.

A sandbox is being used for pressure search to direct dog to focus on searching the buried object.

A swimming pool is being used to improve physical fitness of dog that would make the dog stronger and healthy.

A test field is being established, to test and grant license to the dog. All operational dogs are going to be tested for very six months to get license as operational dogs. All new dogs prior to deployment are going to go through this test field.

Activator room is being used to train puppy to detect micro piece of Kong or TNT, this makes the puppy learn to find different pieces of object effectively.

A Dog handler in SLD team 04, working with his dog to search into the minefield at Thmour Puok District Banteay Meanchey Province, De-mining Unit 1.

EDD female Dog handler working with her dog to search the UXO field at* Kampong *Cham province, ERO.

A close marker used small grass cutting machine for cutting the vegetable to helping UXO dog operations at ERO.

A close marker working followed de-mining operational procedures on area marked by mine detection dog.

Anti-Tank mine was found by MDD team #05

Anti-Tank mine was found by MDD team10 during the operation at De-mining Unit 3.

A Bomb was found by EDD team during operation in field at ERO.

Veterinary Supporting

The veterinary service is also played an important role within the project; in providing both medical and health care supports for all mine dogs such as:

- Daily health control
- Weekly inspection
- Monthly anti-parasite program
- Annual vaccination.
- Minor surgery
- Preventive measures

Veterinary supporting was also performed by Agrovet Animal Hospital in Phnom Penh for the following issues:

- Lab and diagnosis
- Severe surgery
- Autopsy
- Echography and X –Ray
- Pharmacology

2.3.3.6. Explosive Ordnance Disposal Teams (EOD)

The aim of this Explosive Ordnance Disposal Team (EOD) is to search for, collect and destroy Unexploded Ordnances (UXO) throughout Cambodia. The goal of EOD program is to bring about personal security to communities living in UXO affected communities.

In recent year more EOD skilled personnel are needed to deal with the ongoing for EOD services. As much as, the continued demand for increased EOD capacity, the established of EOD response mechanism would need to be increased. The increasing demand for EOD comes in part because of the implementation of the CBMRR and CBURR network and the increased awareness about ERW problem.

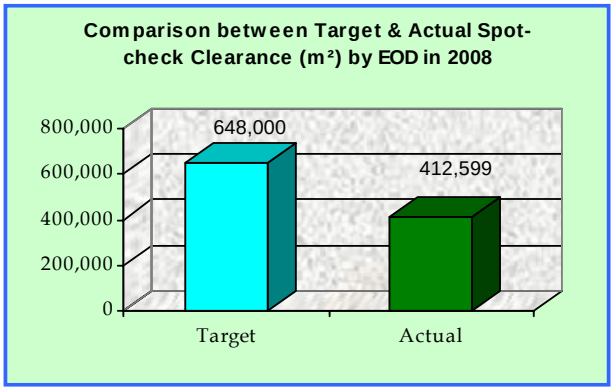
Deployment

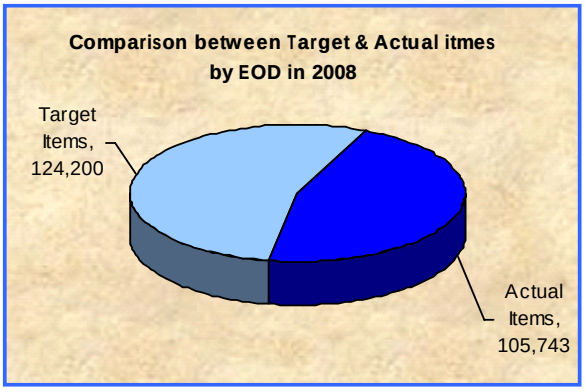
In 2007, CMAC deployed a total of 25 EOD teams; in 2008, 2 more teams were added (27 teams). They were deployed in DU1, DU2, DU3, DU4, DU6, ERO (now DU5), CSU, Training Centre and Headquarter to respond to the EOD needs based on community and local authority requests and n support of the other CMAC demining team. In 2008, CMAC deployed 8 EOD teams in Eastern Regional Office (ERO), 5 EOD teams in Phnom Penh, Kandal and Kampong Speu and 3 teams in Mondul Kiri province and the remaining team in Western/North Western province of Cambodia.

Achievement

The table below list EOD output for the reporting year.

Type of Achievement	2008	2007	Variance (+)&(-)
Number of Tasks Responded	8,904	8,388	+6.15%
Total Areas Cleared (m²)	412,599	216,994	+90.14%
Total Items destroyed by EOD (including 143 bombs typed: MK81, MK82 & 20pound & 4,658 Bomblet)	105,743	113,747	-7.04%
□ AP & Improvised mines	9,072	13,672	-33.65%
□ AT mines	261	372	-29.84%
□ UXO	96,410	99,703	-3.30%
Small calibers (kgs)	6,411	6,501	-1.38%
Fragments unearthed	42,469	14,761	+187.71%





Indicator Analysis:

In 2008, all the 27 EOD teams responded to 8,904 tasks, with a total achievement of 105,743 items collected and destroyed. Even though, this is less than the target set in 2008, but it is already a significant number of items collected and destroyed during the reporting period. In addition, the EOD teams also conducted spot clearance around the locations where they collected UXO to make sure that no other ERW's were left behind in those locations which would pose future risks and require repeated action. Another point to note is that even after over 10 years of operations, CMAC still finds new types of UXO from time to time, some dating back to the World War II.

There were 105,743 items (Mines & UXO) collected and destroyed in 2008; this is a -14.86% less than the set target in 2008 (124,200 items); and -07.04% less than output in 2007. The actual spot-check clearance in 2008 is 412,599 m², which is a -36.32% also less than the set target (648,000m²). One of the key reasons why productivity has dropped was due to the collection of ERW from location father and father away into the remote country side. This often requires more time.

Bomb MK82 was found by EOD teams, located close to Provincial town. It is approximately 5 to 6 meter deep and still functioning 90 percent, this bomb was neutralized by EOD experts and transported them to CMAC training Centre for training. There are many bomb were found by EOD teams at South East and Eastern Regional Provinces such as Kandal, Takeo, Svay Rieng, Kampong Cham, Prey Veng, Kratie and Ratanak Kiri Provinces, and it is mostly founded along the Vietnam and Cambodia border.

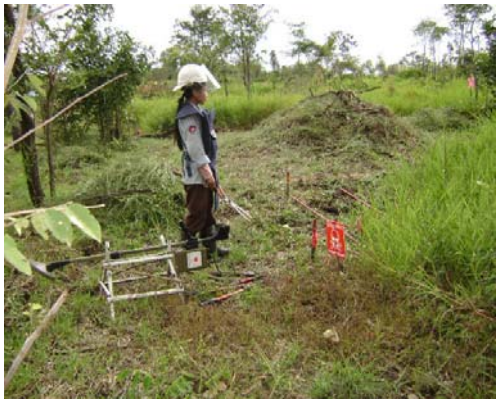
The group of Japan delegation organized by JICA visited to EOD team and CBURR activity at Kandal Province of JMAS project. The purpose for this field visit is to research and study and understanding of mine action activities in Cambodia, especially the EOD/CBURR activities and community liaison and facilitation. This group also visited EOD demolition and UXO education to community.

During this period in accordance with the quality objective (ISO 9001-200) set for year 2008, EOD Branch has completed its main activities as below:

- Reviewed completely on EOD tasking format for linking with IMSMA system,
- Revised completely the EOD SOP (SOP.513) as Personal Protective Equipment(PPE),
- Conducted the field monitoring visit and refresher training to EOD/CBURR under JMAS project,
- Conducted the assessment and evaluation upon the old EOD PPE for improvement,
- Conducted of 2 Courses of Improvised Explosive Device Intensive training and refresher training,
- Twice a year, EOD Branch conducted the field monitoring visit to EOD/CBURR activities. The purpose of the filed monitoring is to check all equipment, material, SOPs, operations in order to find out the weaknesses and strengths for improvement to them.

2.3.3.7. Community Based Demining Platoon (CBD)

Landmine problems are still the major issue facing rural Cambodian communites. It is thus sensible and efficient to empower communities to have some control in addressing the problem themselves. In order to better ensure problem ownership, CMAC decided to establish a community-based demining platoon to solve the problems for most mine affected, high casualty and highly contaminated communities, where the young people lack the means to generate income and are prone to risk from their livelihoods, where the landmine/UXO threat is constant and long term, and where economy and resettlement are severely impeded by the presence of imposingly vast minefields surrounding the communities. CMAC still continues to involve the affected communities to conduct landmine/UXO clearance in their own communities for the purpose of their community rehabilitation and development. In this respect, the Community-Based Demining (CBD) has been established at the commune level with community deminers were recruited and provided a technical training from the affected villages within the target communes. The principle aim of the community-based demining is to reduce the risks to communities and provide safe land for the community rehabilitation and development. All members of the CBD platoons are recruited from the community based on the following criteria:



- Priority 1: Mine victims from poor families.
- Priority 2: Widows or widowers from poor families.
- Priority 3: Members from landless poor families.

Female villagers are especially encouraged to participate in this process. At least, 55% of women are engaged in this activity. Members of the CBD platoons are provided with the same training, equipment and personal gear as the CMAC regular mobile platoons. However, when a new CBD Platoon is deployed after training, CMAC attaches technical advisors (Khmer nationals), taken from the conventional platoons, to control closely the CBD Platoons. When there is confidence that the Platoon is sufficiently experienced, the technical advisors are removed. But eventually, the productivity of a new CBD platoon is usually lower than the set target, but the old CBD platoon is usually increased similarly to the regular platoons.

Deployment

During the reporting period, 5 CBD platoons are deployed operating in Battambang, Banteay Meanchey and Preah Vihear. Three Platoons deployed in Battambang funded by Japan Mine Action Service (JMAS), 1 platoon deployed in Banteay Meanchey supported by Austcare Project, and another 1 platoon deployed in Preah Vihear supported by Grassroot-Kosanune project.

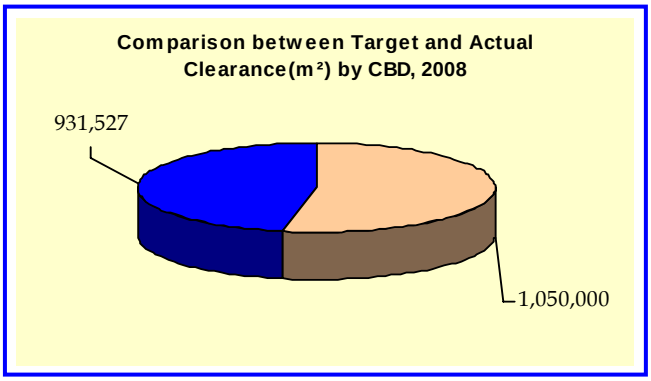
Achievement

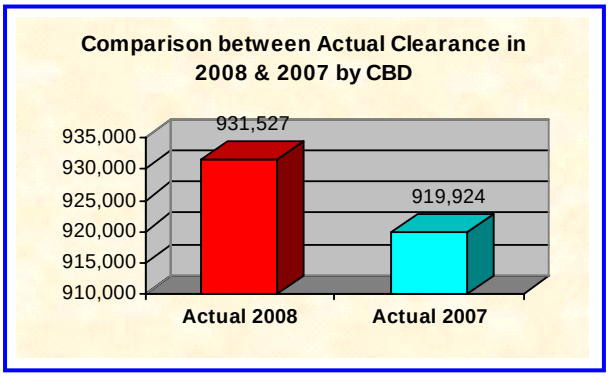
During the reporting period, the total productivity of 5 CBD Platoons achieved as the following:

Type of Achievement	2008	2007	Variance (+) & (-)
Total Area cleared (m²)	931,527	919,924	+1.26%
AP & Improvised mines found & destroyed	908	302	+200.66%
AT mines destroyed	8	3	+166.67%
UXO destroyed	359	304	+18.09%
Fragments unearthed	4,319,238	1,727,600	+150.01%

Indicator Analysis:

The clearance achievement during the reporting period is 931,527m², which is -11.28% less than the set target in 2008. However, this achievement is still higher than the year 2007 at least 1.26%. Some of the contributing factors to being slightly under target were 3 CBD platoons (JMAS project) from Battambang attending the 2-week refresher training at TC, some staff turnover, and some general obstacles in operations. However, this achievement still shows the success of these teams and their experience and capacity in terms of ownership in mine action responses in their own communities.





2. 3.3.8. Demining Machine (DM)

CMAC tried to capture any useful and advanced technology in order to speed up its operations on the ground through continuing efforts in research and development of demining related equipment. Significantly, the introduction and application of the demining mechanical brush cutters under Japanese Grant Aid is an evidence of success in research and development activities. The application of these machines in the minefields has been a significant increasing of mine clearance productivity in the phase I research.

Through Japanese Government support of mine action in Cambodia and their promotion of research and development of demining related equipment and technology, on 17 March 2006, the Government of Japan and the Government of Cambodia signed a Exchange of Notes concerning the Japanese economic cooperation for the execution of the Project for Research and Development of Mine Clearance Related Equipment to be executed by CMAC in Siem Reap province. The aim of the project was to test and evaluate the performance and suitability of demining machines and mine detectors manufactured by Japanese companies and research institutions.

Based on the total budget plan was available for this project, CMAC started to test those Demining Machines and equipment by cooperating with the Japan International Cooperation Systems (JICS) in Siem Reap on 6

September 2007, which the test result of Demining Machines revealed a good performance, survivability and clearance productivity rate in the real minefields.

Following that Demining Machine test (Phase I), on 06 September 2007 another Project for Research and Development of Mine Clearance Related Equipment (Phase II) was signed by the Government of Cambodia and The Government of Japan to extend its execution by CMAC and under consultation by JICS with regarding on a separated Memorandum of Understanding (MoU) signed between CMAC and JICS on 12 September 2007 with the total budget for the Phase II project is 484,000,000 yen.

The project is attached with three types of Demining Machines (Hitachi Swing Type, Hitachi Push Type and Komatsu) in order to carry out its project operation on the ground for the Phase II. This could be noted that, Hitachi Swing Type is a converted excavator-based type with a flail and or tiller rotary system attached to its arm. The Hitachi Push Type is a converted excavator without arm and its flail attachment is fixed to its main body. The Komatsu machine is a converted excavator bulldozer with a tiller rotary attachment placed in front of the main body. The Komatsu can be operated by a remote control. All Demining Machines are designed to withstand from any kind of anti-personnel landmine blast.

The project aims to conduct the trial and evaluate the Demining Machines in the view of their capacity performance, survivability and mobility in the integration with other demining toolboxes of which variety methodology and technology have been applied in a way to speed up release of the contaminated landmines and UXOs areas.

The Project Target and Deployment

After the green light from MoU, Phase II have started its operations from January 2008 by attaching with 4 Mobile Platoons that consist 72 deminers, 12 Section Commanders, 4 Platoons 2ic, 4 Platoon Commanders, 4 Medics, 4 Truck Drivers, and 6 Demining Machine Operators, and 6 Mechanics, and 1 Mine Detection Dog consists of 5 persons per team, 1 Brush Cutter - 8 persons team, 1 Field Supervisor and other support staff such as management staff, truck/crane operators, QA personnel and security guards.

In the execution of the project, CMAC management teams have worked closely by coordinating with JICS in both general management and technical aspects. It should be noted that the project location is chosen in Reaksmey Sangha and Andoeuk Damoiy Villages, Sdao Commune, Ratanak Mondul District, Battambang Province. Although, 4 platoons, 1 LLD and 1 Brush Cutter started from 11 January 2008, but by March 2008, demining mechanics were also assigned to start operations on the ground from April 2008. All Demining Machines started operating on the ground as a toolbox test respectively. The purpose of deploying Demining Machines is to clear a part of a low density minefield and integrate with other demining teams to conduct a released-land process of the suspected minefield.

Achievement

It should be assumed that the progress achievement is captured for demining machines. The below productivity is its achievement during the reporting period from April to November 2008 and in addition, the progress below is added with Demining machine from Komatsu project, which started its operation from July to December 2008.

Type of Achievement	2008
- Total Area cleared (m^2)	1,059,413
- Vegetation cutting (m^2)	101,605
- Cleared soil mounds in minefields (m^3)	42,814
- AP & Improvised mines found & destroyed	55
- AT mines found & destroyed	4
- UXO found & destroyed	10

2.3.4. Mine Action Training, Research, and Development

2.3.4.1. Training

Training in mine action is the 4th core function of CMAC's demining activities in Cambodia. CMAC established its own Training Centre (TC) in 1994 at Kab Srouv, Khan Dongkor, Phnom Penh, where was converted from the Mine Clearance Training Unit (MCTU) since UNTAC's era. This is also noted that TC firstly based in Phnom Touch in Ratanak Mondul district, Battambang province, which was established by UNTAC and then handed over to CMAC in 1993.

After handing and taking over to/from UNTAC, CMAC strengthen its demining training activities itself for nearly one year period in Phnom Touch (Battambang), by supporting the techniques the partner countries, but in early 1994, the Khmer Rouge devastated everything in place. By having commitment from the Government Council and the Royal Government of Cambodia, a new place (former refugee camp for repatriation) was agreed for CMAC to its Training Centre from Phnom Touch (Banan district) to Kab Srouv, Khan Dongkor, Phnom Penh in 1994, in order to resuscitate and continue consistency its humanitarian demining training activities.

In 1997, by supporting from the Government of Germany, a new Training Centre was established in Kampong Chhnang Province, where is an active main training facility which conducts training needs assessment, designs and delivers training courses to improve and enhance technical, medical and management skills, conducts and/or assists with research and development activities, and provides quality assurance services for field operations. Training conducted by TC is sometimes also delivered in other venues, such as at Demining Units, to reflect the field training requirements, and the US Army also organizes training courses at the TC for CMAC and the Army in field specializations. In addition, the Training Centre also houses MDD/EDD training, test and licensing facilities and research and development facilities such as the Explosive Harvesting Program and detector test and evaluation facilities, including deep search. In other words, the Training Centre is a focal point for capacity building and development, quality assurance, research and development and improvement in demining methodology and procedures.

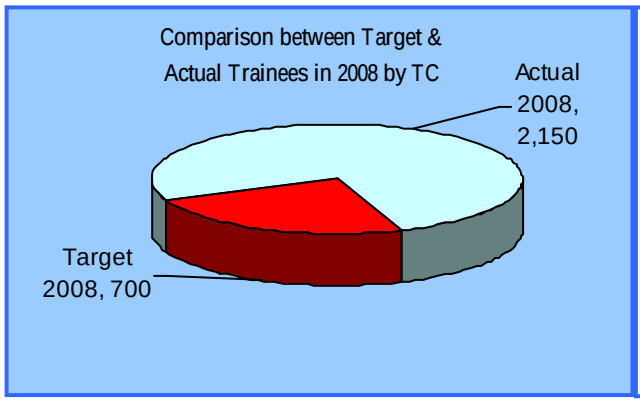
In 2008, the Training Centre conducted 61 training courses participated by 2,150 trainees, which is 91.37% of the total amount of CMAC staff. In addition to training its own staff, CMAC's TC also provides training to external demining organizations, which is 2.28% from the Royal Cambodian Armed Force (RCAF) and 0.75% from MAPU, Siem Reap, Pursat and Kampong Thom). In 2008, CMAC TC cooperated with German's Armed Force Experts to deliver a Course of Basic Ammunition technical training to the Royal Cambodian Armed Force (RCAF) in January 2008. The following training courses were conducted in TC during 2008:

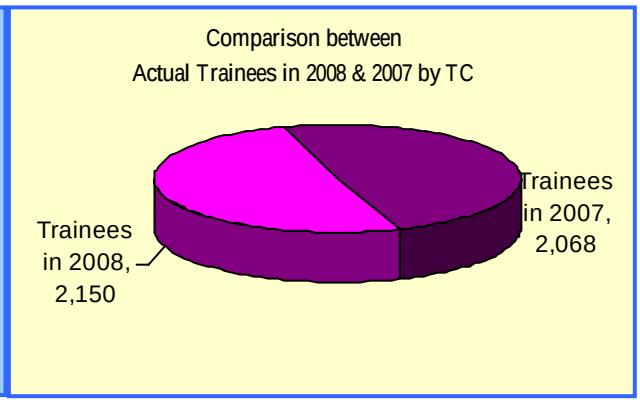
S.N	Course title	Location	Trainees	Period	Started	Finished
1	Explosive harvesting program course#24	E.H.P	2	2Weeks	2-Jan-08	12-Jan-08
2	Ammunition technical training course#3	TC	37	3Weeks	8-Jan-08	25-Jan-08
3	MDD refresher course#56	TC	20	2Weeks	8-Jan-08	18-Jan-08
4	Explosive harvesting program course#25	E.H.P	4	2Weeks	14-Jan-08	25-Jan-08
5	Integration tool box course#3	TC	23	1Weeks	14-Jan-08	18-Jan-08
6	De-mining refresher(CBD) course#63	TC	98	2Weeks	21-Jan-08	1-Feb-08
7	Explosive harvesting program course#26	E.H.P	3	2Weeks	28-Jan-08	8-Feb-08
8	De-mining reform 1Lane1Man drill#2	TC	191	2Weeks	4-Feb-08	15-Feb-08
9	SOP2100 course#2	TC	8	1Weeks	4-Feb-08	8-Feb-08
10	MDD refresher course#57	TC	9	2Weeks	4-Feb-08	15-Feb-08
11	MDD refreshers course#58	TC	10	2Weeks	11-Feb-08	22-Feb-08
12	Explosive harvesting program course#27	E.H.P	2	2Weeks	11-Feb-08	22-Feb-08
13	Explosive harvesting program course#28	E.H.P	3	2Weeks	25-Feb-08	7-Feb-08
14	De-mining reform 1Lane1Man drill #3	TC	78	2Weeks	18-Feb-08	29-Feb-08
15	Basic close marker course#9	TC	17	2Weeks	3-Mar-08	14-Mar-08
16	EOD advance level II course#9	TC	27	6Weeks	4-Feb-08	14-Mar-08
17	Mine and UXO detection refresher course#1	ERO	60	2Weeks	5-Mar-08	16-Mar-08
18	De-mining refresher course#64	DU1	115	2Weeks	5-Mar-08	16-Mar-08
19	De-mining reform course#6	DU4	90	2Weeks	11-Mar-08	28-Mar-08
20	Basic kennel handler course#1	TC	16	3Weeks	11-Mar-08	28-Mar-08
21	MDD refresher course#59	TC	16	2Weeks	11-Mar-08	21-Mar-08
22	Basic technical survey clearance course#3	TC	19	3Weeks	11-Mar-08	28-Mar-08
23	Explosive harvesting program course#29	E.H.P	3	2Weeks	11-Mar-08	21-Mar-08
24	EOD refresher course#40	TC	20	1Weeks	17-Mar-08	21-Mar-08
25	EDD refresher course#60	TC	20	2Weeks	17-Mar-08	28-Mar-08
26	EOD refreshers course#41	TC	20	1Weeks	24-Mar-08	28-Mar-08
27	Explosive harvesting program course#30	E.H.P	1	2Weeks	23-Mar-08	4-Apr-08
28	Basic ammunition technical training course#1	TC	31	4Weeks	31-Mar-08	25-Apr-08
29	Explosive harvesting program course#31	TC	2	2Weeks	7-Apr-08	25-Apr-08
30	Basic ammunition technical training course#2	TC	31	5Weeks	20-Apr-08	20-Jun-08
31	Basic navigation course#9	TC	16	2Weeks	21-Apr-08	2-May-08
32	MDD refresher course#61	TC	20	3Weeks	21-Apr-08	4-May-08
33	Battle area clearance(BAC) course#1	TC	198	9Weeks	30-Apr-08	4-Jul-08
34	MDD refresher course#62	TC	19	2Weeks	19-May-08	31-May-08
35	Explosive harvesting program course#32	E.H.P	1	2Weeks	26-May-08	6-Jun-08
36	Battle area clearance for BHP course#1	TC	59	5Weeks	26-May-08	27-Jun-08
37	MDD refresher course#63	TC	18	2Weeks	2-Jun-08	13-Jun-08
38	MDD refresher course#64	TC	21	2Weeks	16-Jun-08	27-Jun-08
39	Basic MDD New dog hand over course#4	TC	2	5Weeks	2-Jun-08	11-Jul-08
40	Basic MDD operational handler course#2&3	TC	2	8Weeks	2-Jun-08	25-Jul-08
41	Kennel handler course#2	TC	2	4Weeks	1-Jul-08	30-Jul-08
42	MDD refresher course#65	TC	11	2Weeks	7-Jul-08	18-Jul-08
43	CBD de-mining refresher course#64	DU2	99	2Weeks	16-Jul-08	25-Jul-08
44	BHP PARA medical course#1	TC	15	5Weeks	21-Jul-08	12-Sept-08
45	MDD refresher course#66	TC	6	2Weeks	4-Aug-08	15-Aug-08
46	MDD operational handler course#4	TC	2	6Weeks	4-Aug-08	26-Sept-08
47	Battle area clearance (BAC) course#2	TC	188	9Weeks	4-Aug-08	10-Oct-08

S.N	Course title	Location	Trainees	Period	Started	Finished
48	BHP refresher BAC course#1	TC	67	9Weeks	4-Aug-08	19-Sept-08
49	EOD advance level II course#10	TC	27	9Weeks	4-Aug-08	10-Oct-08
50	MDD refresher course#67	TC	12	2Weeks	18-Aug-08	29-Aug-08
51	EOD refresher course#42	TC	40	2Weeks	15-Sept-08	25-Sept-08
52	MDD refresher course#68&#69	TC	29	2Weeks	6-Oct-08	17-Oct-08
53	CBD de-mining course#127	TC	25	6Weeks	13-Oct-08	28-Nov-08
54	EOD advance level II course#11	TC	29	9Weeks	17-Oct-08	1-Jan-09
55	Battle area clearance (BAC) course#3	TC	198	9Weeks	17-Oct-08	1-Jan-09
56	MDD refresher course#70	TC	20	2Weeks	20-Oct-08	31-Oct-08
57	MDD refresher course#71	TC	9	2Weeks	17-Nov-08	28-Nov-08
58	IED refresher course#2	TC	8	4Days	25-Nov-08	28-Nov-08
59	EOD basic level I course#18	TC	3	3Weeks	26-Nov-08	15-Dec-08
60	MDD refresher course#72	TC	17	2Weeks	16-Dec-08	26-Dec-08
61	MDD refresher course#73	TC	11	2Weeks	22-Dec-08	1-Jan-09
TOTAL			**2,150**			

Indicator Analysis

During the reporting period, the Training Centre achieved 61 training courses participated by 2,150 trainees, which is 207.14% over the target set in 2008 (700 trainees). In addition, the training achievement of year 2008 is 3.97% over the achievement of year 2007, but the number of courses in 2008 is a -6.15% less than year 2007.





Ground Operational Achievement

In addition to training, the TC also responded directly to EOD requests from the communities surrounding Kampong Chhnang areas. In 2008, 21 requests for UXO action were responded with resulting in 170 UXO collected to destroy by TC Instructors.

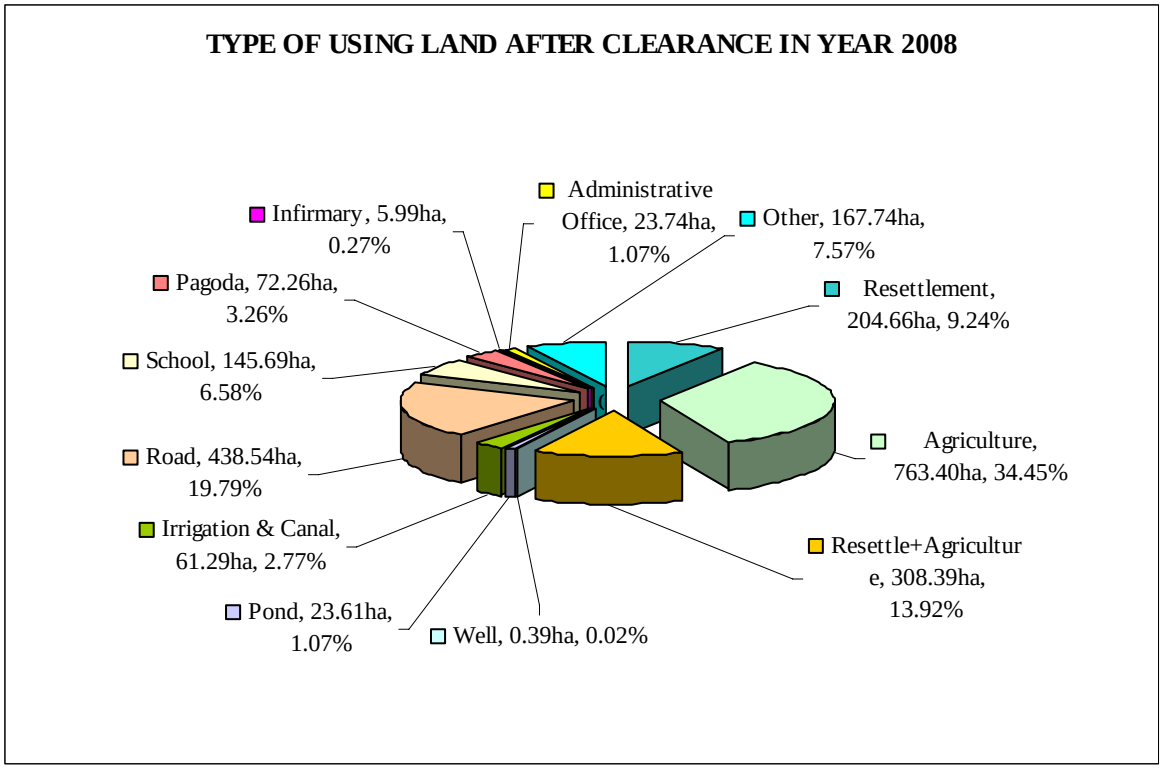
2.3.4.2. Research & Development

CMAC's TC is currently housing the Explosive Harvesting program (still at research and development stage) supported by the US Government and managed by Golden West in cooperation with CMAC. Explosive harvesting facilities have been constructed and equipped, and work in

underway to extract explosives from mines and UXO and reshape or cut them for subsequent field uses. In 2008, this Program produced a significant number of shaped charges and thousands of these charges were distributed to CMAC, Halo Trust and MAG for trial and use. Comments and evaluation from the three operators on the quality of the explosives have been very positive and effective, and the charges have been very useful replacing the imported explosives. However, the imported explosives are still needed to sufficiently support to the field operations. In this respect, the following table is the products which produced by Explosive Harvesting program (EHP) and import from oversee in the reporting period as below:

Balance Stock-In/Out of Explosives:

SN.	Description	Unit	Last-Stock balance Dec-07	Source of Explosives		Issued To all DUs in 2008	Latest Stock Balance Dec-2008	Remarks
				Import 2008	EHP Produced in 2008			
1	TNT 100g Golden West	Block	135	-	29,500	26,985	2,650	
2	Non Electric detonator, India	Ea	1,624	13,100	-	6,005	8,719	3,550 of bad quality
3	Electric detonator, India/China	Ea	9,165	14,050	-	7,300	15,915	
4	Detonating cord, India	m	250	65,750	-	27,740	38,260	
5	TNT Pentolite Booster 100g	Block	2,950	-	-	2,950	-	
6	Charge Dem.C4-30 Blocks/box	Block	2,166	-	-	1,168	1,126	128RV DU2
7	Non Electric detonating US	Ea	9,236	-	-	2,100	7,136	
	Safety fuse India/US	m	28,474.8	13,000	-	3,744.82	37,729.98	
9	Igniter time M60	Ea	8,100	-	-	2,685	5,415	
10	Primer Adaptor US	Ea	11,026	-	-	-	11,026	
11	TNT Pentolite Booster 175g	Block	-	20,321	-	4,458	15,863	
12	TH-50 Sharp charge EHP	Block	-	-	415	365	50	



2.4. SOCIO-ECONOMIC IMPACT OF OPERATIONS

To reduce potential accidents, CMAC provides land for agriculture, settlement and infrastructure development, and provides opportunity for development agencies to implement their activities in a safe environment. Without demining, most development activities cannot be implemented due to landmine and UXO contamination.

CMAC decentralized the minefields selection responsibility to the demining unit level, which work closely with the provincial authorities (MAPU and PMAC) within the selection process. MAPU mechanism ensures a fair and transparent mine clearance planning process by guaranteeing a proper use of the cleared land, with greater benefits to the poor families and which contributes to the community development.

Through mine clearance activities, CMAC also conducts socio-economic assessment before the clearance operations. Indeed, limited resources do not permit to clear all mine and UXO affected area at the same time, thus the land to be cleared during the year is carefully selected and prioritized. The selection of minefields for clearance strictly follows the process of MAPU and PMAC, and priorities are given to the land with the highest socio-economic impact for the maximum of beneficiaries: the land with humanitarian purpose for resettlement of displaced persons and other form of human settlement, and the one with economic purpose for expansion of agriculture, access to essential infrastructures or development projects.

In 2008, CMAC had cleared 559 minefields (562sites) of high priority ***(not included with 144 UXO fields in BHP project)***, as followed by demining platoons, CBD, MDD, CMC, ERC, BC, DM, TSC, and TST.

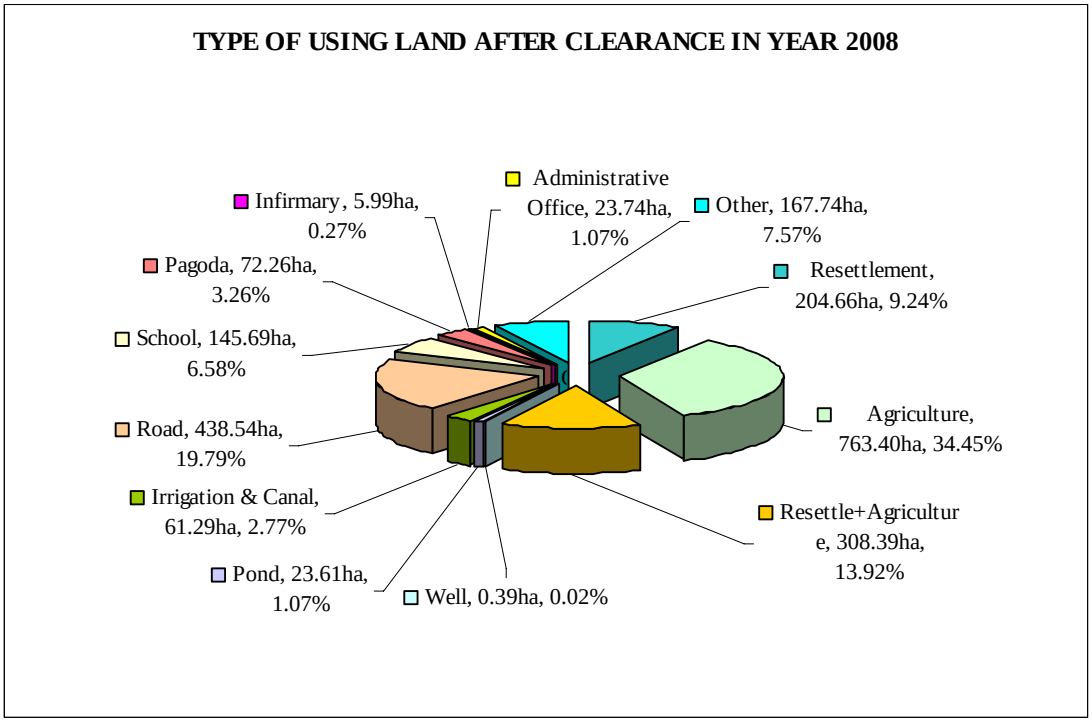
The total beneficiaries of the CMAC's mine clearance are represented below:

Type of Beneficiaries	TOTAL
Direct Beneficiaries (families)	6,351
Indirect Beneficiaries (families)	87,874
Students	33,477
Beneficiaries villages	271

THE ANALYSIS OF SOCIO ECONOMIC REPORT OF MINE CLEARANCE IN 2008

DEVELOPMENT CATEGORY	Platoon / MDD/ CBD/ Teams (ha)	Number of sites
Resettlement	200.58	45
Agriculture	770.39	172
Resettlement plus Agriculture	308.55	45
Well	0.39	1
Pond (dug pond for family household use)	23.51	26
Irrigation, canal, road access	65.75	23
Road portion (infrastructure development)	441.48	100
School	142.52	68
Pagoda	72.26	24
Health Center	5.99	4
Administrative office	19.75	8
* Others Uses	164.43	46
Total	**2,215.61 ha**	**562 Sites**

*Note: * Other Uses: temples, historical sites, construction sites, risk reduction.*



3. PROJECT MANAGEMENT

Mine action in Cambodia is dependant on support from donors, NGOs, as well as the Royal Government of Cambodia and private sector. CMAC normally received funding via three channels: multi-donor funding through the UNDP to support the Project "Clearing for Results", the direct single-donor funding to CMAC through Bilateral Projects for humanitarian demining, and direct contracts with private companies through the Contractual Service Unit. CMAC management of mine action activities have to take into account the form of the project, the particular funding, resources, timeframe and specific activities required. Good project management has thus become a core emphasis, along with continuing emphasis on safety and cost efficiency. It is very important have this focus considering the differences in reporting formats and requirements, audits, human resources and logistics.

3.1. 2008 PROJECTS IMPLEMENTED

No	Project	Locations	Donor/Partner	Remarks
1	UNDP "Clearing for Results"	DU1, DU2, DU4, ERO	Multi-donor (Australia, Canada, AAM, Spain)	Clearing for Results in Banteay Meanchey, Battambang, Preah Vihear, Kampong Thom and eastern provinces
2	NPA (Netherlands)	DU1, DU2	Netherlands	Project to support and enhance technical survey in Battambang and Siem Reap
3	Austcare	DU1	Australia	Integrated demining and development in Banteay Meanchey
4	Japan-Grassroots	DU2	Japan	Humanitarian demining in Battambang
5	Japan-JMAS	DU2	Japan	Community-based demining in Battambang
6	US-DU3	DU3	USA	Humanitarian demining in Pailin and Samlot
7	Japan-Grassroots	DU4	Japan	Humanitarian demining in Kampong Thom and Preah Vihear
8	Peaceboat	DU4	Peaceboat	School construction in Preah Vihear
9	Germany-DU6	DU6	Germany	Humanitarian demining in Siem Reap and Oddar Meanchey
10	ECOSORN	DU1, DU2, DU4	EC	Integrated demining and development in north-west provinces (ECOSORN Project)
11	Japan-JMAS	ERO, HQ	Japan	EOD, CBURR
12	Japan-ASEAN Integration Fund	DU1, ERO	Japan	Humanitarian demining in Banteay Meanchey and EOD activities in eastern provinces
13	LMI	CSU	LMI	Mineral Exploration in Ratanak Kiri
14	BHP Billiton	CSU	BHP Billiton	Mineral Exploration in Mondul Kiri
15	PGS	CSU	PGS	Mineral Exploration around Tonle Sap Lake
16	UNICEF	All DU's	UNICEF	MRE, CBMRR
17	Explosive Harvesting Program	HQ,TC	USA	R&D in explosive harvesting
18	MAG (MDD)	DU2, DU3, DU4	MAG	Renting of CMAC's MDD teams for MAG operations
19	GTC (MDD)	HQ, TC	Sweden	Provision of MDD and technical assistance
20	GEJ: Good Earth	DU2	Hitachi	Post-clearance development

	Japan			
21	JMAS-CMAC	DU2	Komatsu	Community-Integrated development (CID)
22	R&D Project Phase II	DU2	Japan	Integration trial of demining machines
23	Technical Cooperation	HQ	Japan/JICA	Provision of technical advisor
	Total Projects 2008:	23		

Note: this does not include Japanese Grant Aid Phase V which has been in process. Minutes of Discussion has been signed between CMAC and JICA.

3.2. 2008 TEAMS DEPLOYED

MONTH	TS5	MP	SLD	LLD	EDD	CMC	CBD	DM	BC	MRE	EOD	TS10	TSC	CBM	CBU	BAC
January		36	10	4	4	16	5		23	6	27	4	19	26	36	
February		36	10	4	4	16	5		23	6	28	4	19	26	36	
March		35	10	4	4	16	5	3	23	6	28	4	19	26	36	
April	4	35	10	4	4	16	5	3	23	6	28	2	19	26	36	
May	4	35	10	4	4	16	5	3	23	6	28	2	19	26	36	
June	4	35	10	4	4	16	5	3	23	6	28	2	19	26	36	
July	4	34	10	4	4	13	5	4	24	6	25	2	19	26	37	8
August	4	34	10	4	4	13	5	4	24	6	25	2	19	26	37	8
September	4	34	10	4	4	13	5	4	24	6	25	2	19	26	37	8
October	4	34	10	4	4	13	5	4	23	6	25	2	19	26	37	8
November	4	34	10	4	4	13	5	4	23	6	26	2	19	26	41	8
December	4	31	10	4	4	13	5	1	23	6	26	2	19	26	41	8

3.2. DEMINING ACCIDENTS

The operations year of 2008 has been positively marked by high productivity and zero accidents to deminers. This is the first time in its history that there are no accidents/incidents to deminers. This also highlights CMAC's commitment to safety, which is one of the core values of demining activities.

There are many challenges of course faced by CMAC's deminers on the ground. These challenges include booby traps, tough terrain, and sensitivity of old and damaged mines, complicated mines such as 72 types, etc. However, CMAC's deminers overcame these challenges very well in the past year.

3.3. FUNDING

Even though it was expected at the beginning of the year that there would be a shortfall of budget for 2008, the actual fiscal year went quite smoothly. CMAC, thanks to the continued support and commitment from donors and partners, managed to sustain a reasonable funding level to support its operations.

There were two main factors which addressed the financial concerns CMAC had at the beginning of the year:

- The increased funding by the Japanese Government through the Japan-ASEAN Integration Fund, which provided nearly 2 million USD (more than 1 million going to

operational costs) to support demining activities in DU1 Banteay Meanchey and ERW activities in eastern provinces. In addition, new projects also contributed to the financial sustainability in 2008. New projects in 2008 included NPA to support technical survey and land release, Research and Development Phase II, and CMAC-JMAS Community Integrated Development project supported by Komatsu Ltd.

- CMAC's commitment to cost-efficiency. Measures were taken to ensure that increased productivity was achieved without increasing resources. Efforts were made to effectively control the management of resources, including cost management and field operational management.

3.4. BAC & MULTI SKILL TRAINING

2008 has been a year of massive training for CMAC. Recognizing that multi-skills are very important for deminers to perform their duties effectively, especially in the changing landmine action environment, CMAC conducted three training courses for a total of 650 trainees at the Training Centre during 2008 offering them operational skills including basic and advanced EOD, battle area clearance (including SOP's and use of UXO detectors), navigation, and mapping (including the use of GPS), minefield management and community liaison. These trainees upon completing their course will add substantial value to the demining operations in terms of speed, techniques and experience as well as diversity of functions in the field.

Battle Area Clearance and Deep Search Training Activities

3.5. TECHNICAL SURVEY & LAND RELEASE PROJECT

Full clearance alone cannot solve Cambodia's landmine and UXO problems. Area Reduction (AR) performed by the Technical Survey Teams (TST) is a promising technique to increase the rate of land release in Cambodia. This approach is earning more and more attention as the shift in demining strategy continues.

CMAC will utilize this technique increasingly going forward and a Standard Operation Procedure (SOP) has been developed accordingly. CMAC looks to perfect best practice as much as possible

and revisit and enhance this SOP in line with the organizational strategy and culture of continuous improvement which sees CMAC as a leader in the Landmine Action sector.

In 2008, CMAC and NPA worked together on a technical survey and land release project to assist Cambodia to better quantify the actual landmine and UXO problems in high priority and high impact areas and accelerate area reduction. This project has seen a further improvement to the survey concept and the development of a new land release concept based on IMAS and international best practices.

In cooperation with NPA and with assistance from GICHD, CMAC established a land release expert group to work on the new land release concept. This land release document is expected to be the core document adopted by the Government and will provide useful guidance for landmine action practice in the future.

Technical Survey teams were being trained and tested successfully in Siem Reap resulting in releasing substantial percentage of previously recorded SHA under the L1S. While the final result was being tabulated, it was expected that some 90 percent will be released.

3.6. DEMINING UNIT 3 TRANSITION

CMAC started to deploy its resources to Pailin (known as Demining Unit 3) under the support of the US Government in 2001 and later on the US extended this support to cover Samlot District of Battambang Province. This support has so far covered a humanitarian landmine action program focusing on clearing landmines, delivering landmine/UXO risk education, conducting technical survey and landmine marking as well as providing technical, field management and leadership training to improve the management of demining activities in DU 3.

With a trend of reduced landmine casualties while the number of casualties caused by ERW (UXO) still persistently fluctuates and is expectedly on the rise, CMAC and the US Government would like to see an increased response to UXO in the current coverage areas and a potential expansion of this response to neighboring districts as well as to other parts of the country. To realize this commitment, the US Government has allocated a substantial amount of money to train CMAC deminers in new skills to deal with EOD and BAC tasks. A transition plan has been developed and

put in place to achieve the training, formation of EOD/BAC teams, deployment of the teams, and eventual transition of DU 3 from sole demining to cover UXO clearance as well.

From September 2008 to August 2009, CMAC will implement a gradual and stable transition plan to slowly shift DU 3 from conducting sole demining to covering both demining and BAC activities in the target areas, with potential expansion to neighboring districts in Battambang Province as well as to other parts of Cambodia.

BAC operations involve the location and disposal of ERW, including UXO and Abandoned Explosive Ordnance (AXO or AO), over specific areas, which may include battlefields, defensive positions and sites where air delivered or artillery munitions have been fired or dropped. Depending on the humanitarian priorities and required land use, BAC may involve surface and sub-surface clearance. The requirement for BAC can be in both urban and rural environments.

3.7. RESEARCH & DEVELOPMENT OF LANDMINE CLEARANCE RELATED EQUIPMENT

During phase I, the test focused on the performance, survivability, mobility, maintenance/repair and acceptance of the machine. It was carried out from April until December 2006 at heavily landmine contaminated provinces: Siem Reap and Battambang. However, upon the arrival of the machines in Siem Reap, Cambodia, Kawasaki requested to withdraw its candidacy from the Project due to the technical difficulties they faced, leaving only three machines from two manufacturers to participate: Komatsu (1 machine) and Yamanashi Hitachi (2 machines).

Demining Machine: Komatsu machine (Komatsu)

Demining machine: Swing Type (Hitachi)

The result of the evaluation of those three mechanical demining machines shown that all three machines achieved high degree of efficiency to clear AP mines at different depth, different soil type in the different environment. The drawback of those machines had also been identified and a recommendation for each machine had also been given in the report, which was produced by the local consultant.

Demining machine: Push Type (Hitachi)

After the completion of the R&D phase I, all three demining machines were sent to Japan to be modified/upgraded according to the recommendation mentioned in the phase I report. Memorandum of agreement on the

project for research and development of landmine clearance related equipment in Cambodia (Phase II) was signed between CMAC (represented by H.E Heng RATANA, former Deputy Director General) and the Participants (from the abovementioned two companies) on 2nd November 2007.

Demining Machines were designed to sustain Anti-Personnel landmine blast. Anti-Tank (AT) explosion will damage the machine and threaten the safety of the operator. In this test, both machines from Hitachi machines: Push type and Swing type hit AT mines. Both drivers were safe but machine was damaged. They were back in operation after repairs which were done on site.

The machines have great performance in clearance minefield. Its performance is higher than the figure stated in CMAC's SOR. The work performs by the machines equal at least one platoon of CMAC deminer, each is equipped with metal detector. The quality of its clearance is widely accepted by the local people. The cleared land is quickly utilized by the farmer without fear from danger of landmine/UXO and it had been utilized in the safe environment.

HSTAMIDS team indoor training

3.7. HSTAMIDS TRAINING

HSTAMIDS is an American made dual sensor landmine detector that would first detect metallic object using metal detector in its head and then analysis the suspected metallic object by using its sensor. The test was jointly conducted between CMAC and American counterpart in Siem Reap (performance and SOP training at newly constructed test lanes within DU 4 compound) and Battambang. The test started from June 2008 and will continue into 2009. CMAC is still collecting more data, conducting analysis of these data to evaluate the performance of this detector, and developing appropriate SOP's to utilize the detector in field operations. However, it is highly expected that it would contribute greatly to speed up the landmine clearance operation in Cambodia.

HSTAMIDS team practiced at suspected minefield in Battambang

HSTAMIDS team trialed equipment

3.8. PUPPY PROGRAM

Since 2000, canine landmine-detection teams have been used in Cambodia in four of the worst hit provinces. Currently, there are 56 dogs in the field.

In the past, CMAC attempted to turn local dogs into landmine detectors. CMAC sent 10 prospects to Sweden for training. But even though the Cambodian canines learned how to detect mines, the effort eventually failed. The dogs turned to their old behaviours and had difficulty trusting their handlers upon return to Cambodia. Since then, CMAC has imported semi-trained dogs to get fully trained in Cambodia before they become landmine/UXO detection dogs.

Acknowledging that the costs of importing semi-trained dogs are high while the budget to support this activity is expectedly shrinking, CMAC has been working on a new solution to the issue: breeding its own dogs.

The new puppies were born in March 2008, the offspring of proven landmine detection dogs. They were the first litter of 10 landmine detection dogs born in Southeast Asia. Their parents, November and Frode, are Malinois shepherds from Bosnia. Unfortunately, seven of the 10 puppies died from canine Pravovirus, which affects the intestinal tract. The setback, however, will not deter CMAC from developing its dog breeding program. To compensate for the loss, GTC in Bosnia has provided 10 new puppies to CMAC to be trained with the remaining 3. Training of these puppies started immediately after they were born.

With the program up and running and some further investment, CMAC expects to run and manage the first landmine detection dog breeding program in south-east Asia and this is expected to benefit Cambodia and the region greatly.

3.9. EDD SINGLE SEARCH TRIAL

As part of its continued and strong commitment to improving the operational procedures and boosting productivity, CMAC has conducted a trial on EDD single search operations, which will see innovative ways of using the Explosive Detection Dogs in the UXO fields. This trial started in late 2008 and will continue into 2009 to assess the performance and outputs as well as costs associated. Early results indicate that this is a promising method of using explosive detection dogs in UXO contaminated areas and this innovative way will boost productivity significantly without compromising with quality and safety.

EDD Single Search Training Activity CMAC Training Centre-Kampong Chhnang

4. LOGISTIC SUPPORT &HUMAN RESOURCES

Department of Support and Human Resources has a major role and responsible in supporting CMAC de-mining activities toward the success of this organization. Some important roles and responsibilities of this department including supply support, maintenance and transportation, assets control and management, health care and human resources development and management could be highlighted. In 2008, the Department of Support and Human Resources used all the best efforts in providing a better support services for the operation of CMAC. In addition, staff welfare improvement is an important task be implemented including improving human resources policy and procedure, living condition of the field staff and motivation etc.

ACHIEVEMENT

LOGISTIC SUPPORT AND PROCUREMENT

CMAC is an operation driven institution and operating based on stock. To ensure the availability of store and equipment to on time support for CMAC de-mining operation, Logistics and Procurement Office, with approval from the top management, implemented its support services through General Stock System. This system allows the Logistics and Procurement Office to purchase the required materials (Consumable store) beforehand and redistribute to, based on the requirement of, the project implemented by CMAC. Re-supply system to support the operation on the ground has also been strengthened. However, as a non-profit institution, CMAC have no reserve fund, only the budget allocated in a certain projects that can be used to purchase equipment to support their operation activities within the project. In this connection, CMAC needs also the equipment and materials support from donor communities and partners to enable CMAC to improve de-mining productivity with efficient, safety and quality manner.

Some of the key achievements of Logistics and Procurement Section during the year can be illustrated, as follows:

1.1 Conducted and reconciled the first stock taking results for expendable store, and reported to CMAC top management,

1.2 Conducted stock taking for fixed assets and the second stock taking for expendable store for 2008, and reconciliation its results,

1.3 Regularly updated the fixed assets movement, its status and users into SunSystem based on reports from De-mining Units, Spot Check and Stock Take results,

1.4 Coordinated with Finance Department, with approval from top management, to dispose the broken, loss and transferred assets from CMAC Fixed Assets Register List totaling 893 items,

1.5 Coordinated with Finance Department to register 32 donated mine detection dogs from NPA, 11 assets purchased by De-mining Unit 6, and re-registered 133 assets into CMAC Fixed Assets List (SunSystem), and corrected asset information 2 units,

1.6 Strengthened the implementation of Re-supply system to De-mining Units and to operation sites as well, and coordinated with concerns Department to equip for new establishment and re-structured teams,

1.7 Received in-kind donation, mine awareness materials, from the UNICEF including vehicle and motorbike tires, T-shirts, personal gears, notes books, satchels with silk screen in total cost $57,293,

1.8 Provided mine detector maintenance services to all De-mining Units. In 2008, Mine Detector Section has repaired 714 sets of F1A4, 62 sets of Ebinger UPEX 740M and 1 sets of F1A4-UXO detectors. All spare parts were supplied through General Stock and JICA Follow up project,

1.9 Coordinated with Explosive harvesting Program (EHP) in order to get recovered explosive to support CMAC operation on the ground. With this explosive, CMAC has saved a lot of money that so far spent for purchasing explosive. In 2008, CMAC issued explosives (TNT) from its stock amount to 4,540.15 kg, in which 2,881 kg or 63% received from this Explosive Harvesting Program (increased 74% compared to 2007). At the same time, CMAC issued other explosives including 8,105 each of detonator non electric, 7,300 each of detonator electric, 27,740 meters of detonator cord, 3,744.8 meters of Safety fuse and 2,685 each of igniter time blasting M60 to support its operation on the ground,

1.10 Conducted surprise check on the explosive used of the mobile teams and evaluated the requirement of explosive to support CMAC operation. As results, indicated that the management, transportation and storage of explosive have been properly conducted and in a safety manner,

1.11 Conducted spot check on store custody, management and utilization at De-mining Units,

1.12 Coordinated with all relevant institutions and department on the custom clearance for the import of de-mining machines for the Research and Development Project,

1.13 Coordinated on custom clearance for donated equipment and purchased equipment/materials including vehicles tires, cutting tools, boots for de-miners, medical training equipment, mine detection dogs, spare parts for mine detectors, de-mining machines etc.

1.14 Provided support services on fuel utilization contract with tax exemption, suppliers contracts, visa and flight tickets arrangement for top management and technical advisors.

MAINTENANCE AND TRANSPORTATION

Transportation is the biggest component of CMAC operation and as such constitutes the largest cost items in the inventory. The cost is cumulative in spare parts, fuel and maintenance costs.

The Maintenance and Transport Section has take its effort to manage the transport means to ensure the quality and reliability to support the operation on the ground. The remarkable achievement of this section can be presented, as follows:

- Prepared fuel consumption plan for Royal Government of Cambodia Support fund. In 2008, CMAC received DO:89,645L, ER:7,045L and MD:400L supported by the Royal Government of Cambodia for CMAC Headquarters operation,
- Upgraded 15 vehicles to replace the un-serviceable vehicles of the mobile teams and De-mining Units as well as new establishment teams,
- Coordinated to re-arrange the vehicles requirement of BHPB project after converting CMC and EOD to BAC teams,

- Coordinated and conducted vehicles services and maintenance 209 time-vehicles to support the smooth run of CMAC's Headquarters operation, and other mobile teams attached to HQ,
- Modified trucks to be dump trucks (4 Units) and crane (1Unit),
- Conducted spot check on the used of vehicles of the De-mining Units, Training Centre and projects,
- Provided training courses on traffic law, vehicle preventive and maintenance for de-miners, drivers, platoons and teams leader

After receiving workshop facilities and tools, and technical adviser from the people and Government of Japan, Central Workshop (CWS), as a services provider in maintenance, has conducted 880 vehicle-repairs including upgraded 12 vehicles and Service "C" 155 time-vehicles, Services "A", "B" and other repairs 713 time-vehicles from all De-mining Units.

CWS has conducted a survey on the utilization of the vehicles in various De-mining Units and found that the speedometer of Toyota P/U and Land Cruiser types have been reached 60-120 thousand Kilometers, while ISUZU truck 30-80 thousand kilometers. It is indicated that Toyota P/U and Land Cruiser types have been used approximately 20-40 thousand Kilometers per year, while ISUZU truck 10-20 thousand kilometers per year. The lifetime of these vehicles, from manufacturer, is 10 year and can be used approximately 10-12 thousand kilometer per year or 100-120 thousand kilometer within its lifetime. Also, in this survey, CWS identified those 46 vehicles in various De-mining Units need repairing.

For brush cutter, CWS has conducted 123 time-brush cutters checks/repairs in all De-mining Units. In a survey conducted in 2008, the speedometer of 15 brush cutters have been reached 5-6 thousand hours, 8 brush cutters have been reached from 7-9 thousand hours and 2 brush cutters have been reached over 10 thousand hours. The standard operation from the manufacturer indicates that these machines can be used in total 8-10 thousand hours, approximately 800-1,000 hours per year, within their lifetime 10 years. Actually, CMAC has used these machines in average 1,700 hours per years over the standard of the manufacturer. In this connection, in 2008, these machines need timely maintenance and some of them need medium to heavy repairing.

In regards with training activities, CWS has cooperated with JICA Expert attached to CWS as well as HITACHI and Komatsu Companies conducted training for mechanics, 3 promotions with 8 courses, on brush cutter and de-mining machines. The training focused on hydraulic, electronic systems, engines and maintenance methods. The course provided detail and clear technical instruction to mechanics and documents for further improvement of those mechanics.

MEDICAL SECTION

CMAC has deployed 52 medical staff with various education level including doctors, medical assistants and nurses.

Medical staffs have used all their best effort in collaboration with all relevant sections to promote staff healthy, especially the deminers who are working on the mine fields in the remote areas, including hygiene education and health promotion.

Healthy promotion is one of the important activities of Medical Section. There are various activities were implemented in 2008 including:

- Physical check for new recruitment and re-deployment staff (142 persons) and field staff medical check to promote health care (231 staff) and hygiene education on food, clean accommodation and surrounding area, clothes and sleeping etc.
- Published health flash and distributed it to medics for education field staff on personal hygiene and transmitted disease prevention,
- Conducted 9 life saving training & health education courses at Training Center for 355 trainees for medic, deminers, platoon leaders, EOD staff, BC staff and mobile teams staff from different projects,
- Conducted 209 MEDEVAC exercises at mine/UXO field,
- Malarial prevention through spreading chemical solution at site accommodation weekly and treating mosquitoes net, and distributed insect skin repellent to all field staff,
- Introduced and implemented Environmental friendly to, living condition of, the field staff as well as working environment,
- Monthly check and refill first aid kit for all platoons and teams, and
- Conducted the health care promotion by anthelmintic on field staff,

The disease statistics, suspicion of disease 80%, and mine and UXO accident can be summarized, as follows:

No.	Description	2006	2007	2008
1	Medical Consultations, cases	39,920	34,387	29,471
2	Hospitalized, case	210	211	174
3	Infirmary rest, case	305	289	203
4	Malaria, case	67	49	26
5	Mine/UXO accident	8	10	0

As mentioned in the table above, staff consultation, hospitalized, infirmary rest and malarias decreased from year to year, and no mine/UXO accident in 2008.

HUMAN RESOURCES MANAGEMENT

Staff Deployment

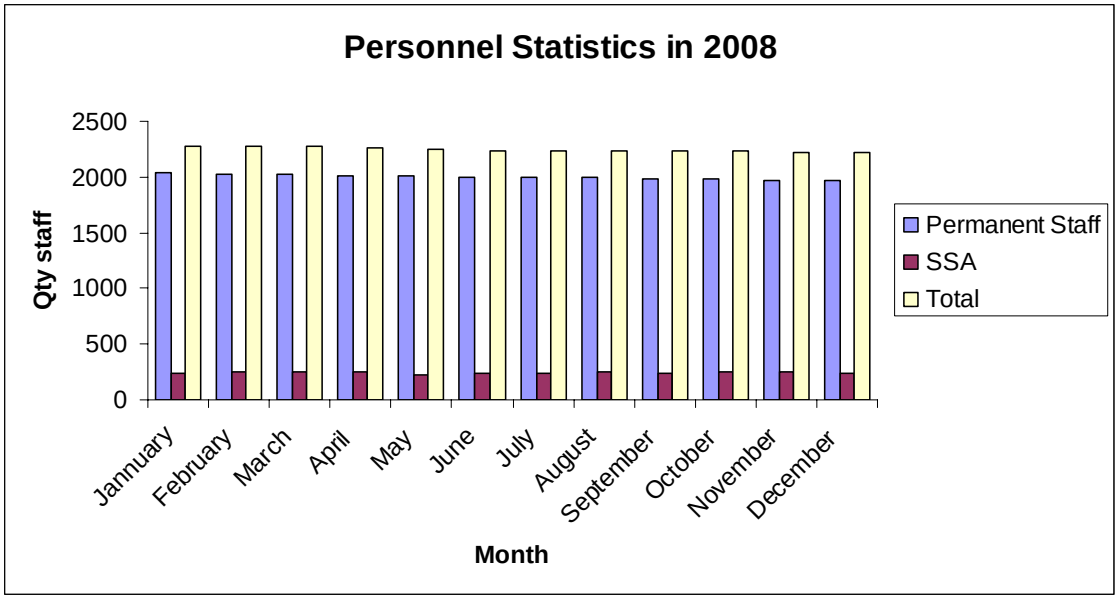
CMAC, by the end of 2008, deployed 2,220 staff including 1,976 is permanent staff and 244 SSA staff. By the end of 2008, CMAC has deployed 165 women staff or equal to

7.43% of the total staff. These staff was deployed in various locations and can be summarized, as follows:

No.	Location/ Operation Site	Permanent Staff	SSA Staff	Total (Dec 08)
1	Headquarters-PNP*	109	34	143
2	Training Center	49	22	71
3	De-mining Unit 1	331	20	351
4	De-mining Unit 2**	564	40	604
5	De-mining Unit 3	218	19	237
6	De-mining Unit 4	244	14	258
7	De-mining Unit 6	278	19	297
8	Eastern Regional Office***	168	68	236
9	ECOSORN	15	8	23
		1,976	**244**	**2,220**

Notes: ***** included mobile teams (49 per.), ****** included CW (22 per.)
******* included BHPB (97 per.)

The number of staff is slightly varied from month to month throughout the year. The maximum quantity was reached 2,283 in January and dropped to a minimum quantity 2,220 in December.



Staff and Teams Re-structure

CMAC has re-structured their resources, staff, to fit with the requirement of de-mining environment in Cambodia. In the process of re-structure, fund availability and the effective and efficient used of those limited fund were taken into consideration in order to minimize the production cost. However, in the re-structure process, the Personnel Committee as well as CMAC's top management have do all efforts to ensure that there is no staff lost their job. The re-structured can be summarized, as follows:

1- Demobilized 3 mobile platoons and re-arranged staff to fill up the other mobile platoons,
2- Restructured 22 mobile platoons from 30 persons per platoon to 25 persons per platoon in order to flexible implement de-mining method i.e. one lane one man drill or one lane two man drill,
3- Converted 3 CMC and 3 EOD teams to establish 8 teams of Battle Clearance Team (BAC) with 5 persons per team for BHPB Project in Modulkiri province,
4- Reviewed the structure of Mine/UXO Detection Dog teams by converting the cleaner position (SSA) to kennel hand/cleaner (permanent),
5- Revised the structure of DUs by integrated the Operation Section and Planning/socio-economic section to Operation and Planning Section, and
6- Established one new EOD team for JMAS project.

Staff Recruitment

Internal recruitment

- 8 staff including 5 EOD diving staff, 1 EOD team leader and 2 EDD Team Leader, was recruited to support CMAC's activities,
- 605 staff was re-allocated their work station to support the operation activities on the ground.

External recruitment

There are 70 staff including 21 permanent and 49 SSA were recruited, trained and deployed in CMAC in 2008. The detail on the recruitment position can be summarized, as follows:

- 8 medics were recruited, refresher training and deployed to mobile platoons,
- deployed 11 reserve community-based deminers to JMAS and AusCARE projects, and recruited 25 Community-based deminers reserve for JMAS in 2008 (3 already deployed),
- Recruited 11 drillers, trained and deployed for BHPB Project in Mondulkiri,
- Recruited 7 District Support Community (DSC) for ECOSORN project,
- Recruited 4 people well educated on UXO, explosive etc. from other sources rather than CMAC, trained and deployed (practices) with EOD teams,
- 8 Drivers and 4 Mechanics (3 volunteers) were recruited to support CMAC's activities,
- 14 support staff including 1 Officers, 9 Assistants, 1 interpreter, 1 receptionist, 1 IT Assistant, 1 Personnel/ Admin Clerk, and other cleaners and guards,

Staff Training and Motivation

Staff Training

CMAC top management has defines that staff capacity building into multi-skill, more professionalism and discipline is a key success

of CMAC as well as de-mining operation in Cambodia. In this connection, CMAC, in 2008, in collaboration with their partners has conducted:

- Massive training on battlefield area clearance (BAC) technique, 4 promotions with 648 Trainees,
- Reinforcement courses on one lane one man drill technique, 3 courses with 359 trainees,
- EOD level 2 courses, 3 courses with 50 trainees,
- Basic explosive harvesting techniques courses, 9 courses with 21 trainees,
- Operation dog handler, 3 courses with 6 trainees,
- Basic close marker, 1 course with 17 trainees,
- Basic kennel handler courses, 2 courses with 18 trainees,
- Technical survey clearance course, 1 course with 19 trainees,
- AutoCAD and GIS with 35 trainees,
- Basic de-mining course with 25 trainees,
- PARA Medical Course with 15 trainees,
- Integration tool boxes with 23 s trainees,
- SOP2100 with 8 trainees, and
- Other refresher courses. The refresher training courses were conducted not only at Training Centre but on site training.

In summary, in 2008, there were 59 internal courses with 2,075 trainees and 5 trainees were trained externally.

In term of knowledge and experiences sharing, CMAC has allowed 51 students from various universities to conduct their practices and writing their thesis in various fields including Human Resources Management, Staff Motivation, Recruitment Process, Logistics Management, Information System management, Mail Server Management, Networking, Account, Finance and administration affair.

In addition, CMAC also allowed 3 foreign students to conduct their practices and share experience in Project Management, Public Relation and Socio-economic impact of land mine.

Staff Motivation

In term of staff motivation, CMAC has provides an equal opportunity to all staff to get training (Detailed in point 4.4.1), promote to higher position, increase salary paid, change position, re-allocate work station etc. that can be summarized, as follows:

- Promoted to higher position = 298 persons
- Increasing the salary paid = 45 persons
- Changed position = 56 persons
- Re-allocation work station = 44 persons
  (Near to their house/their home town)
- Leave without pay = 22 persons
- Sick leave without pay = 07 persons
- Maternity/Pregnancy leave = 17 persons
- Job-reinstated = 02 persons

Staff Separation

From different reasons, there are 152 staff was terminated their contract with CMAC, as listed bellows:

- Abandon the post = 51 persons
- Disable and chronic illness = 34 persons
- Dismissed (Disciplinary) = 02 persons
- Resignation, and = 58 persons
- Retirement = 01 persons
- Death = 06 persons

Most of the resigned and abandon staff has get a new job, better work environment and/or better pay, from new de-mining companies, locally or oversea. Some of them resigned due to their family have changed the living place, and health issue.

Compensation and incentive paid

CMAC has committed to implement its human resources policies and continuously improve the policies to assist the staff and their family livelihood. In 2008, CMAC has spent $35,280 compensated to 34 disable and chronic illness staff, $20,000 to 6 death staff, $663 to one retired staff.

In addition, all CMAC staff received provision fund amount to $30 per month and 130 staff (Truck drivers and staff of the BHPB Project) received incentive from $10-25 per month according to the level of their performance.

5. FINANCIAL MANAGEMENT

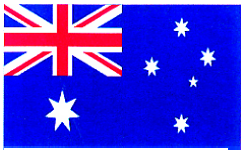
CONSOLOIDATED RECEIPTS AND PAYMENTS
For The period 01 January to 31 December, 08
Donor's fund (USD)

		Japan ASEAN Integrated Fund (JAIF)	AustCare	CARE,DDU,DIS, SCN& Others	General Donation (DON)	EUROPEAN UNION (ECOSORN)	Federal Republic of Germany (GER)	Japan Mine Action Service (JMAS)	Japan Government (Grassroot)
I. Incomes									
	1. Contribution	1,998,974	125,864	-	102,389	173,318	1,189,312	844,000	1,200,429
	2. Interests received	-	-	-	-	-	-	-	-
	3. Fee for Services	-	-	-	-	157,000	-	1,933	-
	4. Miscellenious income	-	-	465	5,802	-	-	9	-
	5. Remittances (internal)					-			
	Total Incomes	**1,998,974**	**125,864**	**465**	**108,192**	**330,318**	**1,189,312**	**845,942**	**1,200,429**
						-			
II. Expenditures						-			
	Operating Expenses					-			
	6. Salaries	472,969	80,209	-	40,483	208,575	477,925	297,012	1,039,699
	7. Accommodation	37,206	3,059	-	4,277	6,598	25,487	10,560	25,301
	8. Non-Exp. Equipment	526,126	-	-	68,735	16,314	38,527	55,905	144,590
	9. Expendable Equipment	141,359	30,650	-	17,968	44,373	118,244	104,398	198,347
	10. Equipment Maintenance	122,048	30,633	-	17,127	56,448	79,499	102,045	354,609
	11. Transportation	227,597	14,286	-	14,916	96,015	160,848	136,170	700,339
	12. Support	17,948	4,493	-	20,258	58,433	166,915	7,137	34,997
	13. Administration	8,383	283	-	4,483	9,965	111,980	1,225	17,090
	14. Other operating expenses	-	-	-	-	-	-	-	-
	15. Audit fee	-	-	-	-	7,095	-	-	12,600
	Sub-Total Operating Expenses (1)	*1,553,636*	*163,613*	-	*188,248*	*503,816*	*1,179,425*	*714,451*	*2,527,573*
	Miscellaneous Expenses					-			
	16. Training overhead	20,133	-	-	3,349	-	-	1,553	34,543
	17. Staff insurance premium	23,867	-	-	650	-	-	2,484	43,625
	18. Administrative overhead	180,816	-	-	5,311	-	-	-	-
	19. Miscellaneous expenses	-	-		-	-	-	24,036	27,168
	Sub-Total Miscellaneous Expenses (2)	*224,816*	-	-	*9,310*	-	-	*28,073*	*105,336*
	Total Expenditures (1)+(2)	**1,778,452**	**163,613**	**-**	**197,557**	**503,816**	**1,179,425**	**742,524**	**2,632,909**
	Surplus/(Deficit)	**220,522**	**(37,749)**	**465**	**(89,366)**	**(173,498)**	**9,887**	**103,418**	**(1,432,480)**
III. Opening Balance		**7,609**	**80,495**	**339,557**	**112,992**	**3,422**	**34,417**	**121,927**	**1,615,172**
						-			
	Balance Before Deduction	**228,131**	**42,746**	**172,835**	**23,627**	**(170,076)**	**44,303**	**225,344**	**182,692**
IV.	**Deduction (PR) transferred**	**-**	**608**	**-**	**72**	**-**	**-**	**12,393**	**1,946**
V. ENDING BALANCES=I-II+III-IV		**228,131**	**42,137**	**340,022**	**23,554**	**(170,076)**	**44,303**	**212,951**	**180,746**

CONSOLOIDATE RECEIPT AND PAYMENT BY DONORS
For The period 01 January to 31 December, 08
Donor's fund (USD)

	Mine Awareness Day (MAD)	Norway People Aid (NPA)	UNICEF	United State of America (USA)	UNDP	Royal Government of Cambodia (RGC)	Development Project (OPS)	TOTAL
I. Incomes								
1. Contribution	-	133,922	45,546	1,325,195	-	312,409	11,000	7,462,359
2. Interests received	-	-	-	-	-	-	-	-
3. Fee for Services	-	-	-	-	4,000,000	-	842,307	5,001,240
4. Miscellenious income	390	281	1	-	-	3,152	6,620	16,720
5. Remittances (internal)								-
Total Incomes	**390**	**134,203**	**45,547**	**1,325,195**	**4,000,000**	**315,561**	**859,927**	**12,480,320**
								-
II. Expenditures			**-**					**-**
Operating Expenses								**-**
6. Salaries	**-**	**41,862**	**-**	**600,279**	**1,041,374**	**-**	**336,450**	**4,636,837**
7. Accommodation	**-**	**6,387**	**1,671**	**26,116**	**48,593**	**25,990**	**24,431**	**245,676**
8. Non-Exp. Equipment	**-**	**11,661**	**-**	**1,595**	**885**	**43,910**	**94,811**	**1,003,059**
9. Expendable Equipment	**484**	**17,519**	**15,029**	**173,269**	**257,349**	**119,394**	**80,542**	**1,318,924**
10. Equipment Maintenance	**-**	**21,991**	**1,585**	**178,954**	**373,641**	**24,711**	**65,110**	**1,428,403**
11. Transportation	**-**	**18,942**	**20,118**	**258,061**	**533,816**	**436**	**187,274**	**2,368,820**
12. Support	**30**	**4,811**	**826**	**25,048**	**33,786**	**2,192**	**76,840**	**453,712**
13. Administration	**-**	**1,208**	**10,062**	**8,199**	**6,653**	**44,059**	**7,027**	**230,616**
14. Other operating expenses	**-**	**-**	**-**	**-**	**-**	**(17,495)**	**-**	**(17,495)**
15. Audit fee	**-**	**6,012**	**-**	**22,656**	**-**	**-**	**-**	**48,363**
Sub-Total Operating Expenses (1)	***514***	***130,392***	***49,290***	***1,294,177***	***2,296,096***	***243,196***	***872,485***	***11,716,915***
Miscellaneous Expenses								**-**
16. Training overhead	**-**	**-**	**-**	**-**	**80,000**	**-**	**-**	**139,577**
17. Staff insurance premium	-	1,575	-	32,000	-	-	1,600	105,801
18. Administrative overhead	-	-	-	165,213	280,000	-	30,251	661,592
19. Miscellaneous expenses	-	10,918	-	-	-	-	-	62,122
Sub-Total Miscellaneous Expenses (2)	-	*12,493*	-	*197,213*	*360,000*	-	*31,851*	*969,092*
Total Expenditures (1)+(2)	**514**	**142,886**	**49,290**	**1,491,391**	**2,656,096**	**243,196**	**904,336**	**12,686,007**
Surplus/(Deficit)	**(124)**	**(8,682)**	**(3,743)**	**(166,196)**	**1,343,904**	**72,364**	**(44,409)**	**(205,687)**
								-
III. Opening Balance	**616**	**7,688**	**11,014**	**303,261**	**141,946**	**(307,250)**	**301,273**	**2,774,138**
								-
Balance Before Deduction	**492**	**(994)**	**7,271**	**137,065**	**1,485,850**	**(234,885)**	**256,864**	**2,401,265**
IV. Deduction (PR) transferred	**-**	**175**	**2**	**-**	**1,430,299**	**-**	**149,537**	**1,595,032**
								-
V. ENDING BALANCES=I-II+III-IV	**492**	**(1,169)**	**7,270**	**137,065**	**55,551**	**(234,885)**	**107,327**	**973,420**

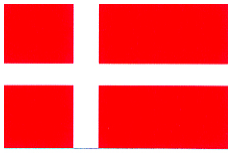
7. SPECIAL THANKS TO THE FOLLOWING DONORS AND PARTNERS


Australia

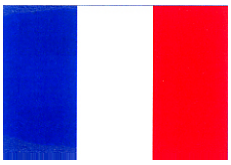

Belgium


Cambodia

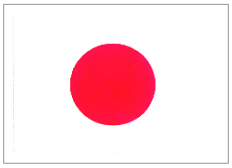

Canada


Denmark

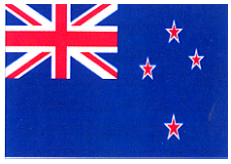

EU

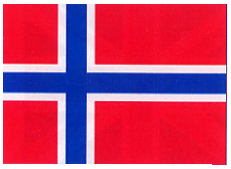

France


Germany


Japan


Netherlands

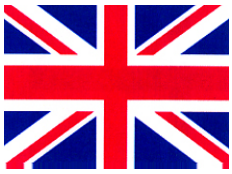

New Zealand


Norway

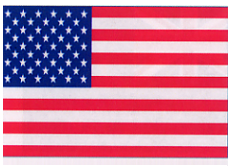

Spain


Sweden


Switzerland


UK

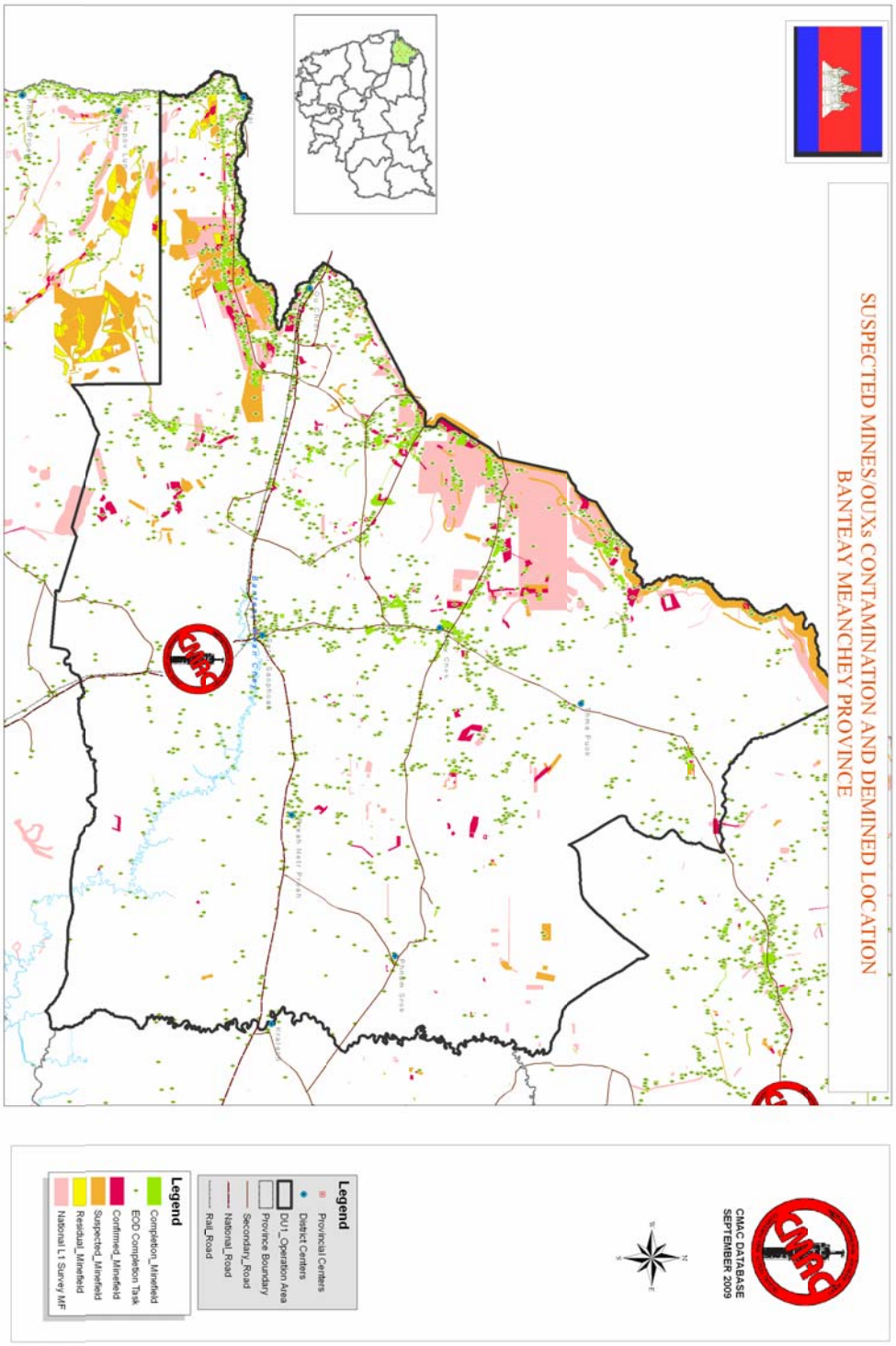

UN


USA

- AUSTCARE
- CARE International
- CMAA
- ECHO
- HI (HIB)
- GICHD
- JMAS
- Local Authorities
- Peace Boat
- NPA
- Rotary International District 2650
- Save the Children Norway
- UNDP
- UNHCR
- UNICEF
- UNMAS
- UNOPS
- NGOs
- Privates

8. ANNEXES

Annex 1: Annex 1 provides a MAP of geographic location of each of the CMAC 6 Demining Units



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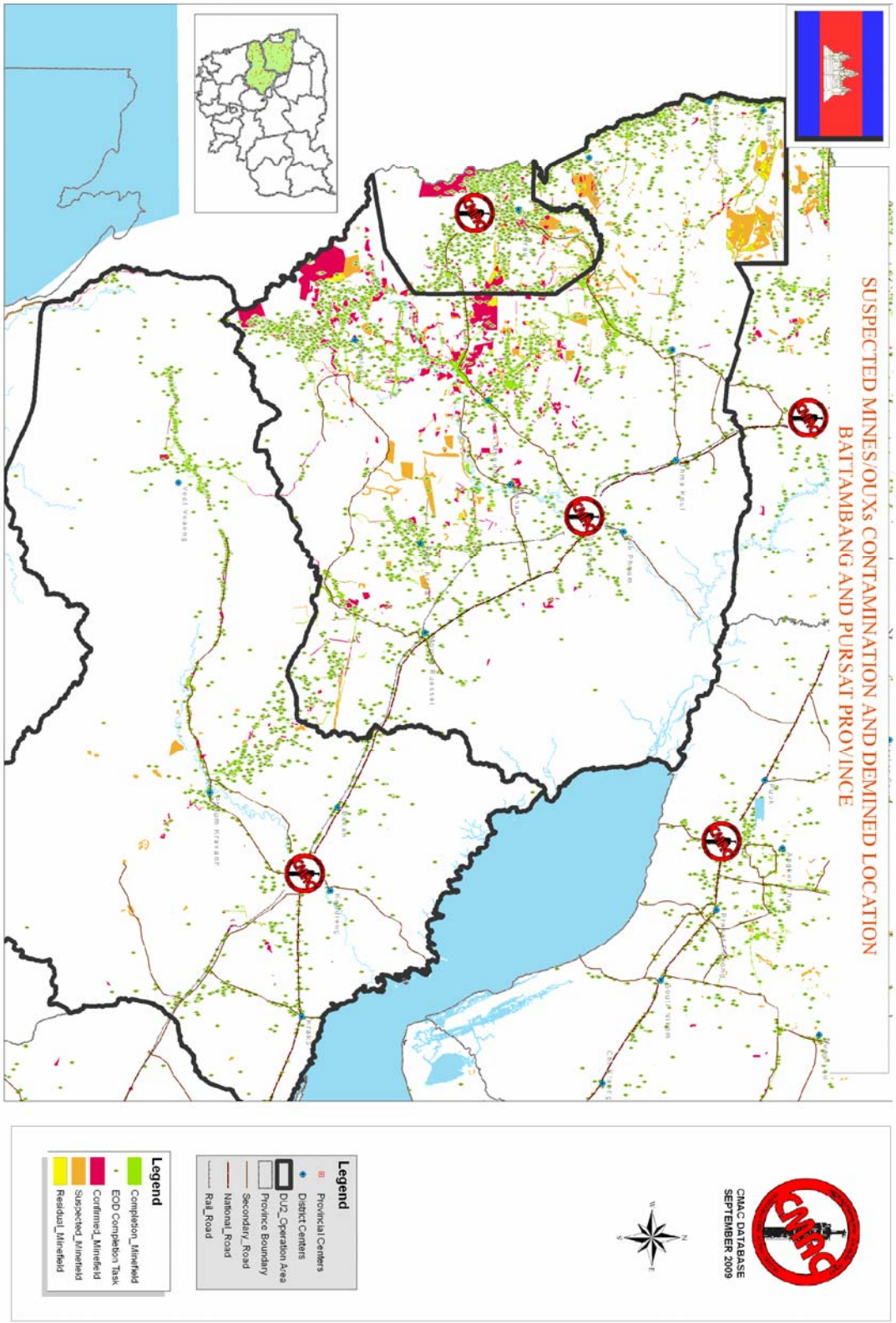

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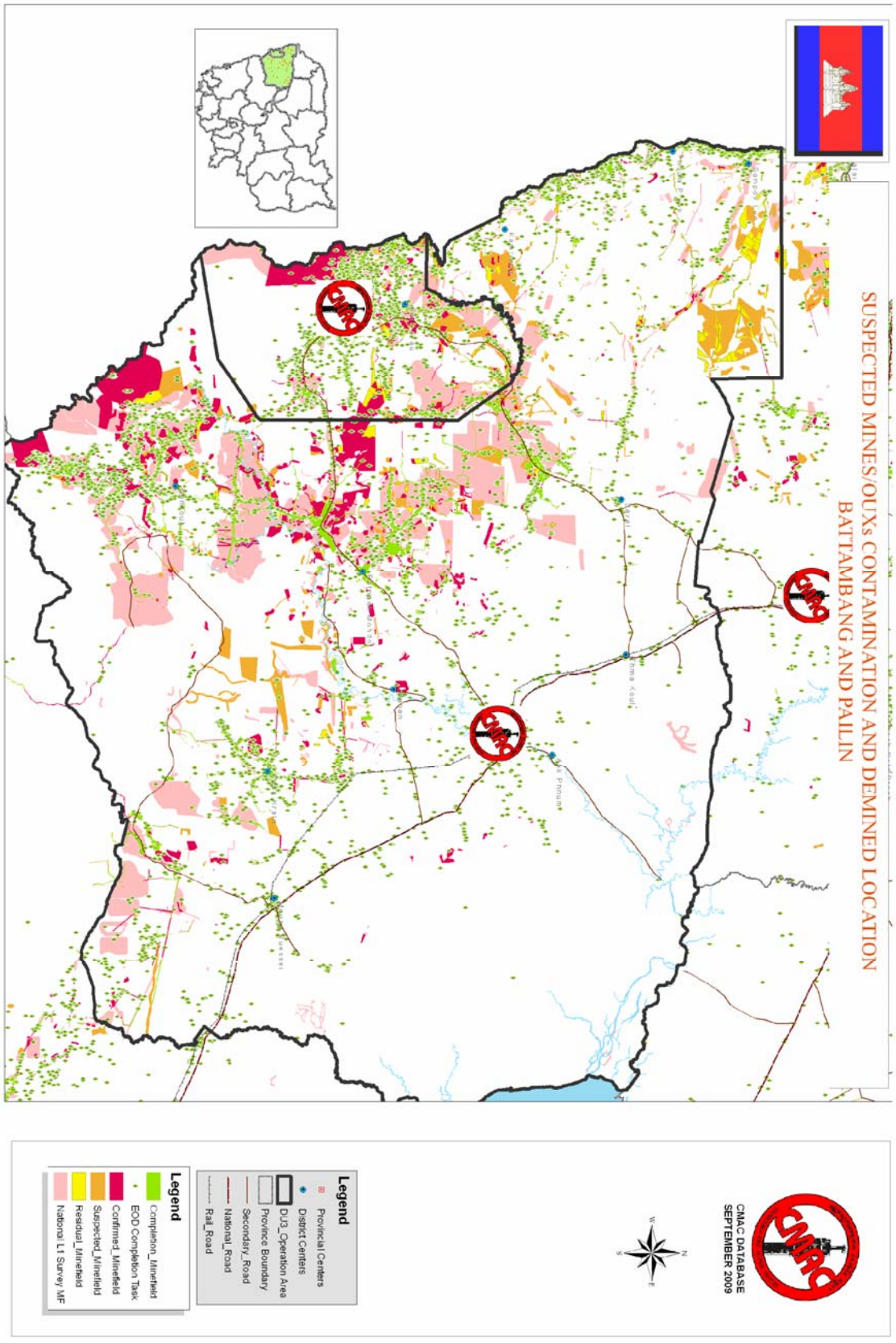

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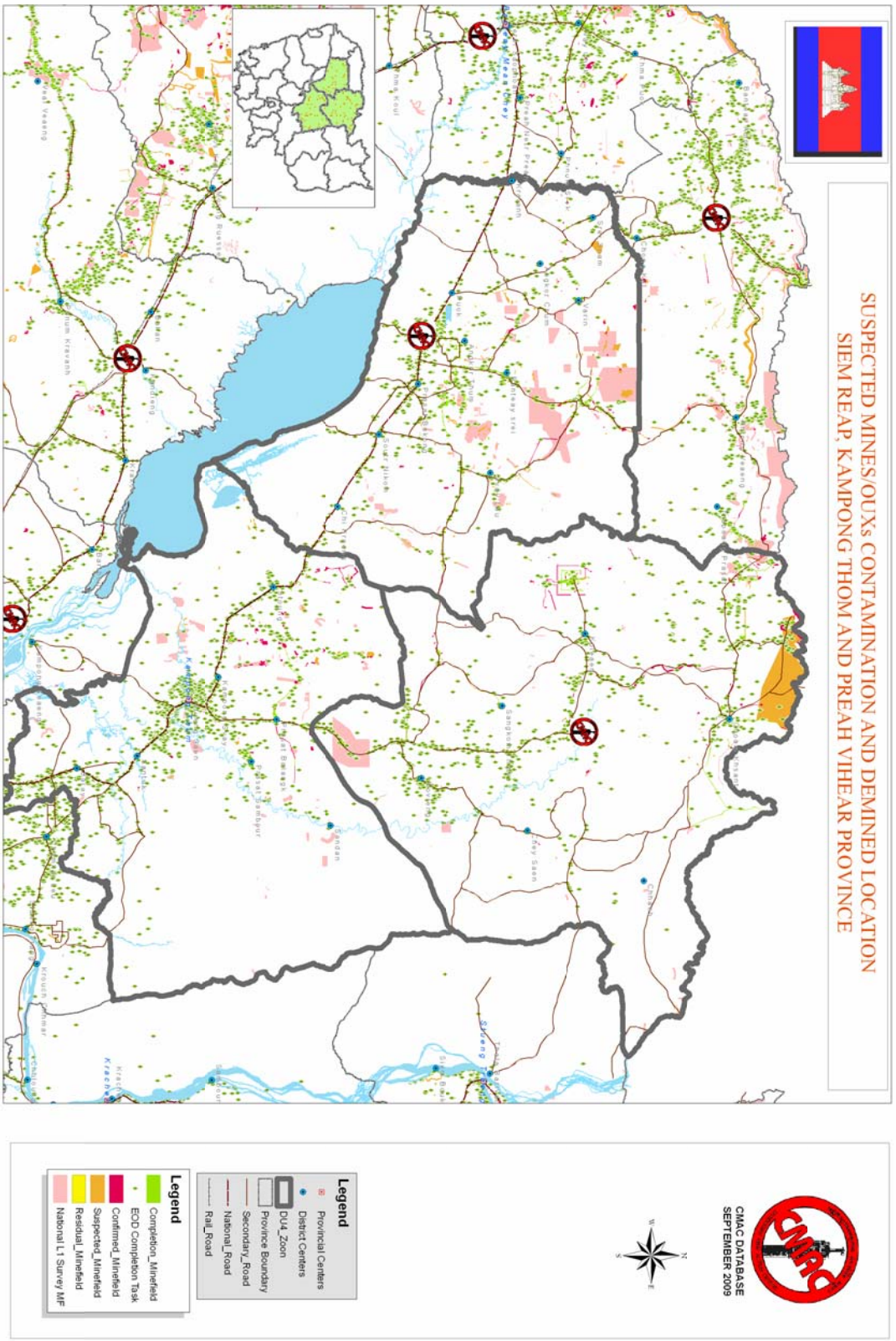
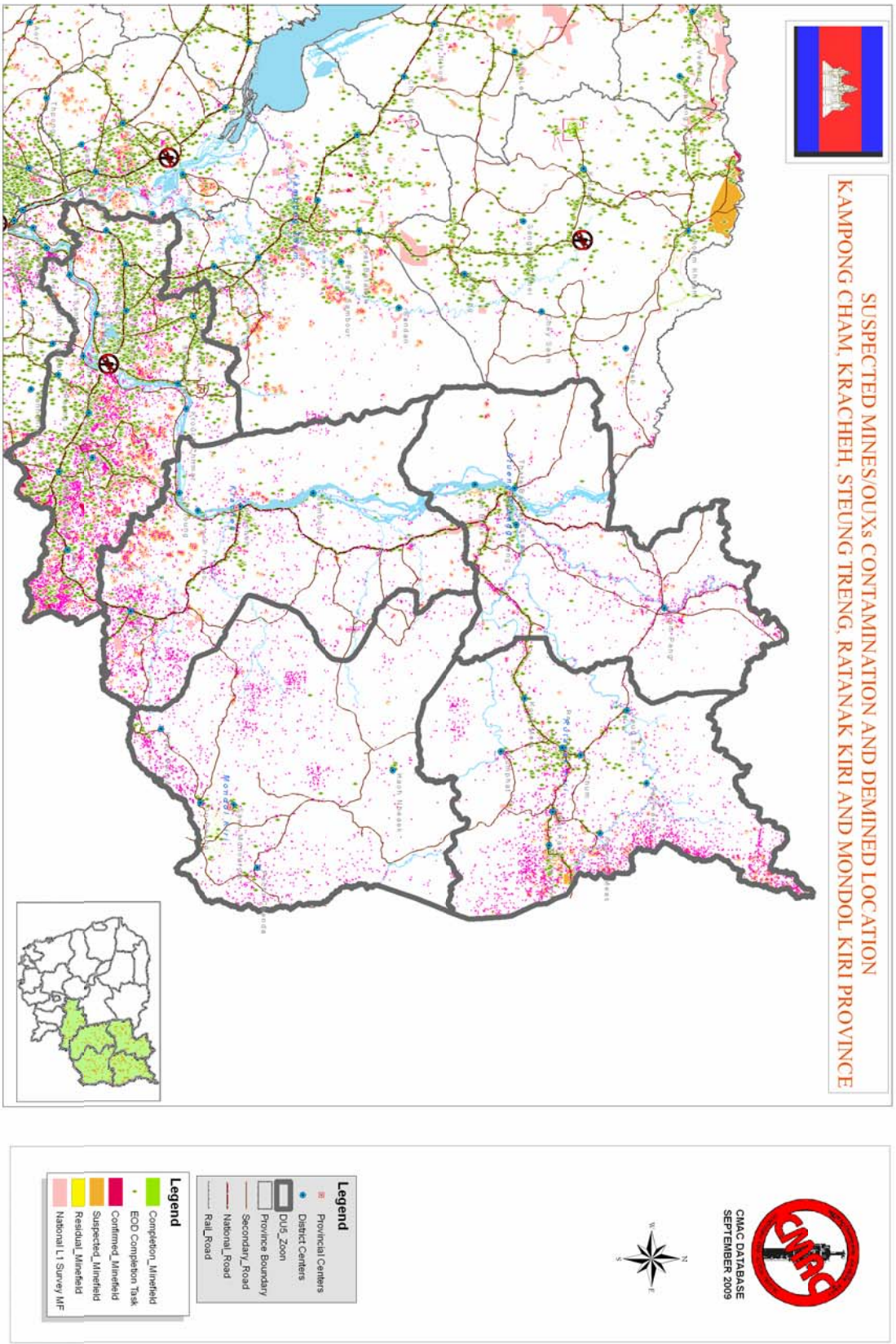


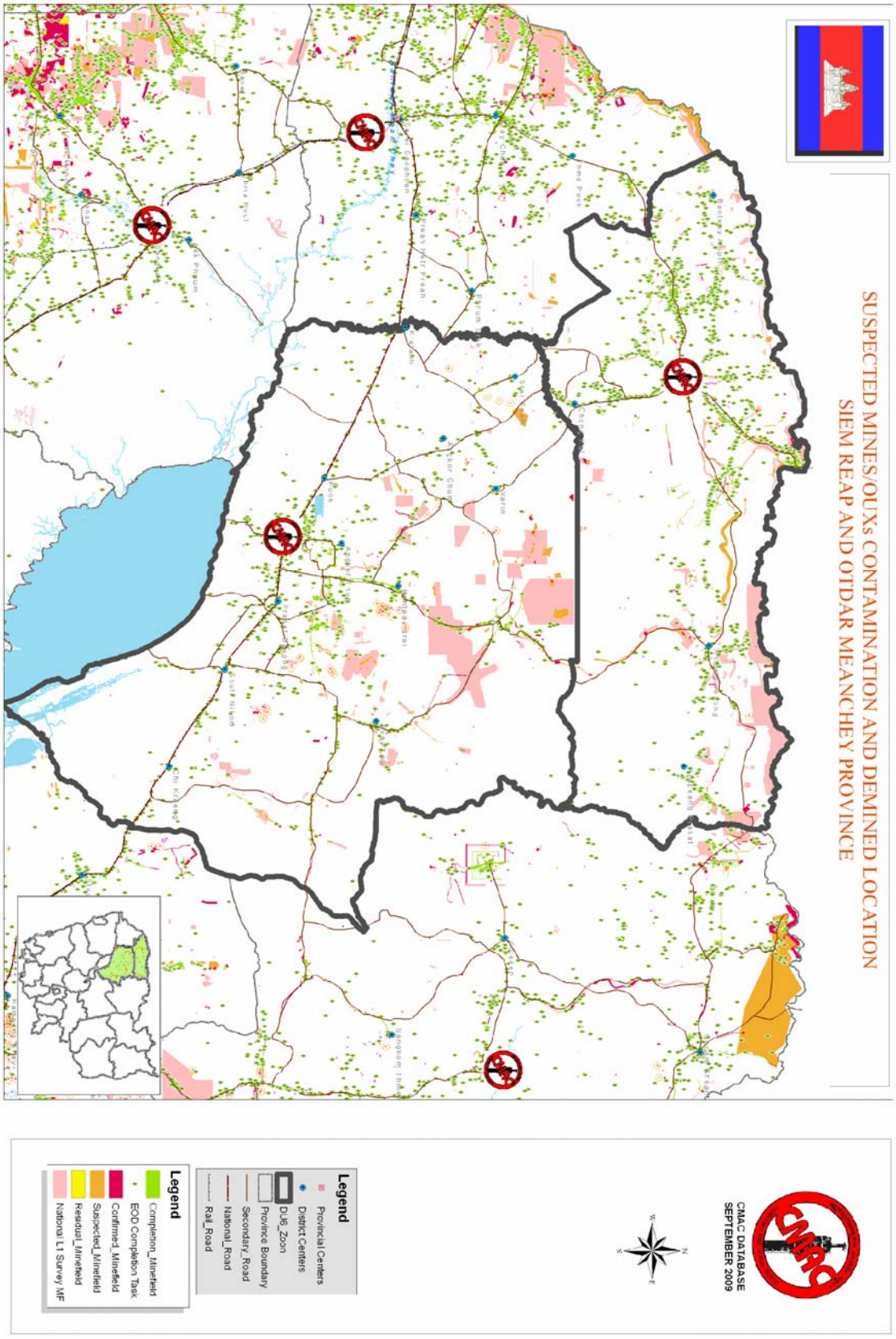
Annex 1: Annex 1 provides a MAP of geographic location of each of the CMAC 6 Demining Units

- DU5: Eastern Provinces



DU5: Eastern Provinces

Annex 1: Annex 1 provides a MAP of geographic location of each of the CMAC 6 Demining Units



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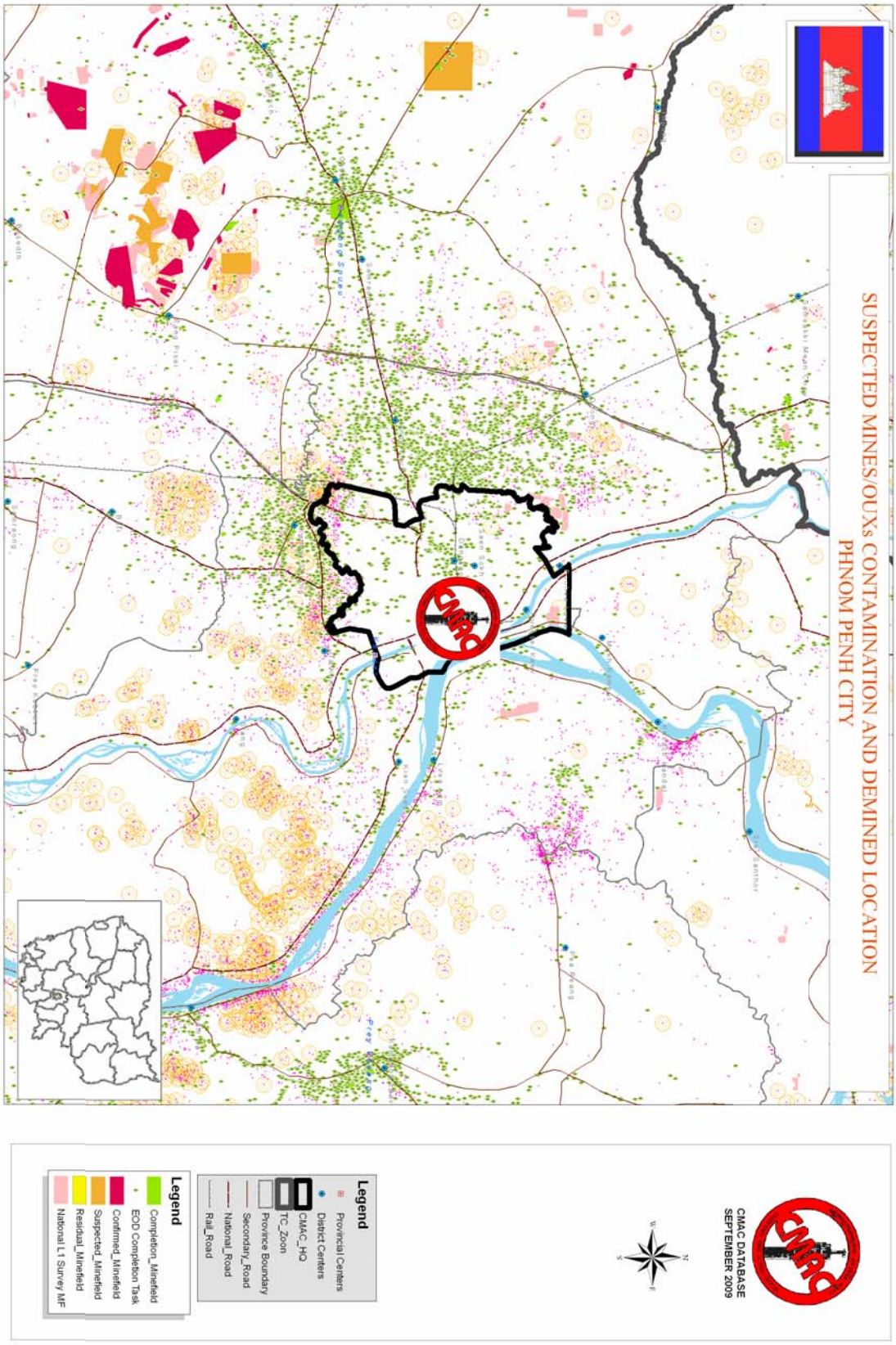
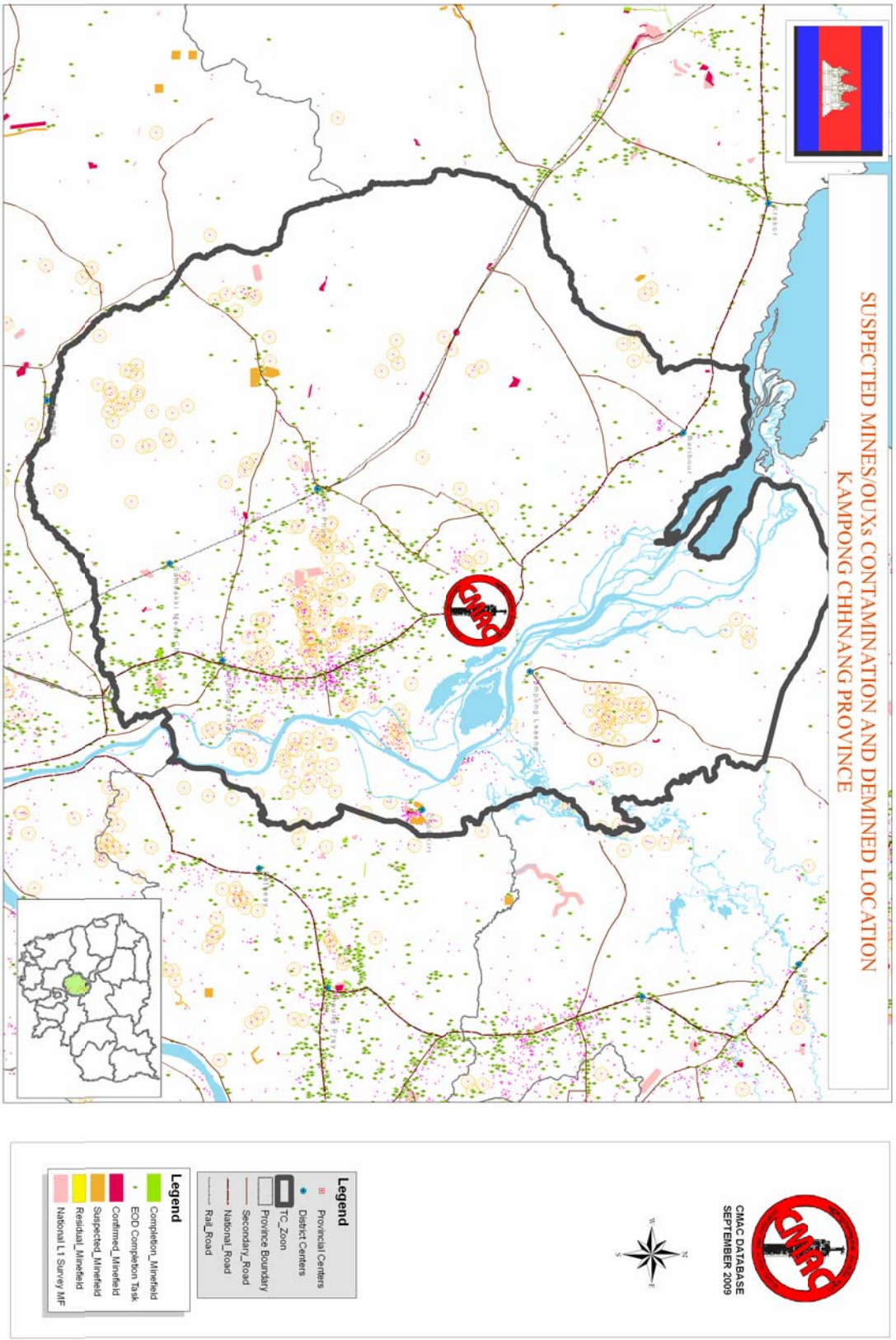


CMAC HQ: Phnom Penh and all areas

Annex 1: Annex 1 provides a MAP of geographic location of each of the CMAC 6 Demining Units



Annex 2: 2008 Clearance and Survey actual outputs achieved comparing to targets

Type of activity	Description	Actual 2008	IWP Target in 2008	Percentage (%)
Clearance	Total area cleared (m^2)	27,653,389	29,705,098	93.09 %
	Total number of minefields cleared completely	569		
	Minefields marked in linear meters (m)	3,933,657	2,100,000	187.32 %
	Vegetation clearance by brush cutters (m^2)	7,530,515		
	Excavation of the beam soil by brush cutters (m^3)	146,707		
	Found and destroyed: - AP& Improvised mines	25,709		
	- AT mines	497		
	- UXO	114,101		
	Total devices found and destroyed	140,307	124,200	112.97 %
	- Small calibres (kgs)	7,001		
	Fragments unearthed (pieces)	19,874,891		
	Number of tasks responded by EOD & MRE teams	9,478		
Technical Survey	Number of villages surveyed	250		
	Total MF areas of Level One Survey <L1S> (ha)	73,744.24		
	Total Areas had been cleared (ha) by CMAC, Halo& MAG in L1S	239.42		
	Total area reduction from L1S – (ha)	64,322.25	7,200	893.36 %
	Total Contaminated area in L1S identified/marked (ha)	9,183.18		
	Confirmed minefields (ha)	3144.17		
	Suspected minefields (ha)	4813.89		
	Residual minefields (ha)	1225.12		
	Contaminated area found outside L1S (ha)	28,384.64		
	Confirmed minefields (ha)	8586.32		
	Suspected minefields (ha)	12179.67		
	Residual minefields (ha)	7618.64		

Note: *1. The clearance outputs in 2008 is lower than that in the target set the IWP 2008 because of massive training through out the year, and seven hundred trainees was trained in 2008.*

2. The result of non-technical survey conducted in Siem Reap has not been fully registered at the time this report is written. It was assessed that large area covered under L1S will be release through this survey process.

Annex 3: Comparison between the Overall Demining Achievements of 2008 Vs 2007

Type of activity	Description	Actual 2008	Actual 2007	Variance (%) In (+) & (-)
Mine/UXO Clearance	Total area cleared – m²	27,653,389	27,666,058	± 0.05%
	Total number of minefields cleared	569	570	
	Minefields marked in linear meters – m	3,933,657	2,893,884	+35.93%
	Vegetation clearance by brush cutters – m²	7,530,515	8,048,382	-6.43%
	Excavation of the beam soil by brush cutters – m³	146,707	178,817	±17.96%
	Found and destroyed: - AP mines	25,709	32,518	-20.94%
	- AT mines	497	587	-15.33%
	- UXO	114,101	114,755	± 0.57%
	- Small Calibers – kgs	7,001	6,706	+4.40%
	Fragments unearthed (pieces)	19,874,891	24,732,667	-19.64%
	Number of tasks responded by EOD &MRE teams	9,478	9,334	+1.54%
Technical Survey	Number of villages surveyed	250	174	+ 43.68%
	Total MF area of Level One Survey (L1S) – ha	73,744.24	25,232.28	+ 191.76%
	Total Areas had been cleared (ha) by CMAC, Halo& MAG in L1S	239.42		+ 237.42%
	Total area reduction from L1S – ha	64,322.25	19,062.94	+ 102.67%
	Contaminated area found outside L1S – ha	28,384.64	14,005.33	+ 86.21%
	Total contaminated Areas after TS In L1S & Outside– ha	37,567.81	20,174.66	+ 28.91%
	Confirmed minefields – ha	11,730.49	9,099.96	+ 833.67%
	Suspected minefields – ha	16,993.56	9,254.62	± 4.44%
	Residual minefields – ha	8,843.76	1,820.08	+ 43.68%

CMAC Annual Report 2008

1. Nonconformity Statement

Reported by (All staff)	**Signed**	**Date**

2. Action Planned

Planned by (DOP)	**Signed**	**Date**

3. Action Taken

Action taken by (Person in-charge)	**Signed**	**Date**

4. Results

Checked by (QM)	**Signed**	**Date**

Note:

- Any staff members can report nonconformity to the Quality Manager,
- When the action has been taken to solve the nonconformity successfully, the record is sent to Quality Manager for filing.

*Please cut and pass this paper to **Mr. Khun Ratana –CMAC Chief of Secretariat** after you completed your writing.*

CMAC Annual Report 2008

The CMAC's Operations & Planning Department is implementing the ISO 9001:2000 Quality Management System (QMS). To fulfill the QMS requirements, we need to survey our customer satisfaction on our products/services.

Your feedback is valuable for the improvement of our quality management system. We appreciate very much if you could spend your time to complete and return this survey form to CMAC Chief of Secretariat. Please rate (circle) your satisfaction appropriately.

Please specify the report your comments refer to:

Title of Report: _____ Dated: _____

1. Report presentation

☹ Not satisfied →									Very satisfied ☺
1	2	3	4	5	6	7	8	9	10

Write any comment here:

2. Do you find all the information you need?

☹ Not satisfied →									Very satisfied ☺
1	2	3	4	5	6	7	8	9	10

Write any comment here:

3. Is the language clear and understandable?

☹ Not satisfied →									Very satisfied ☺
1	2	3	4	5	6	7	8	9	10

Write any comment here:

4. Your general comments to improve our reports?

_____
_____
_____
_____
_____

(Optional)
Name:
Position:
Organization:
Date:

*Please cut and pass this paper to **Mr. Khun Ratana –CMAC Chief of Secretariat** after you completed your writing.*

SAVING LIVES AND SUPPORTING DEVELOPMENT FOR CAMBODIA

Annual Report

January - December 2008

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Tel: 855-23-995 437/8, Fax: 855-23-360096, 855-23-367096
E-mail : info@cmac.org.kh
Website : www.cmac.org.kh

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រាជធានីភ្នំពេញ កម្ពុជា, ប្រអប់សំបុត្រ ១១៦, email: info@cmac.org.kh
ទូរស័ព្ទ:៨៥៥-២៣-៩៩៥ ៤៣៧/៨, ទូរសារ:៨៥៥-២៣-៣៦០០៩៦,៨៥៥-២៣-៣៦៧០៩៦
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