The Kingdom of Cambodia

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BANGKOK, a Mine-Free South East Asia
1-3 April 2009

CONTENTS OF PRESENTATION

- History of Landmine/UXO problems in Cambodia
- Mine Ban Convention Achievements
- Progress and Path Ahead
- Technologies Deployed
- Lessons Learnt and Experiences

Background of Landmine/ERW Problems

- WORLD WAR II
- FRENCH INDOCHINA WARS
- VIETNAM WAR
- 1970 – 1975: Rebellion against Lon Nol and rise of Khmer Rouge.
- 1975 – 1979: Border incursions into Vietnam by Khmer Rouge.
- 1979 – 1998: Guerrilla war through out Cambodia
- 1994 – 1995: Renewed Khmer Rouge offensives

- Four warring factions involved in intense fighting from 1979 to 1993. Heavy use of landmines during this period.

LANDMINES AT PREAH VIHEAR TEMPLE
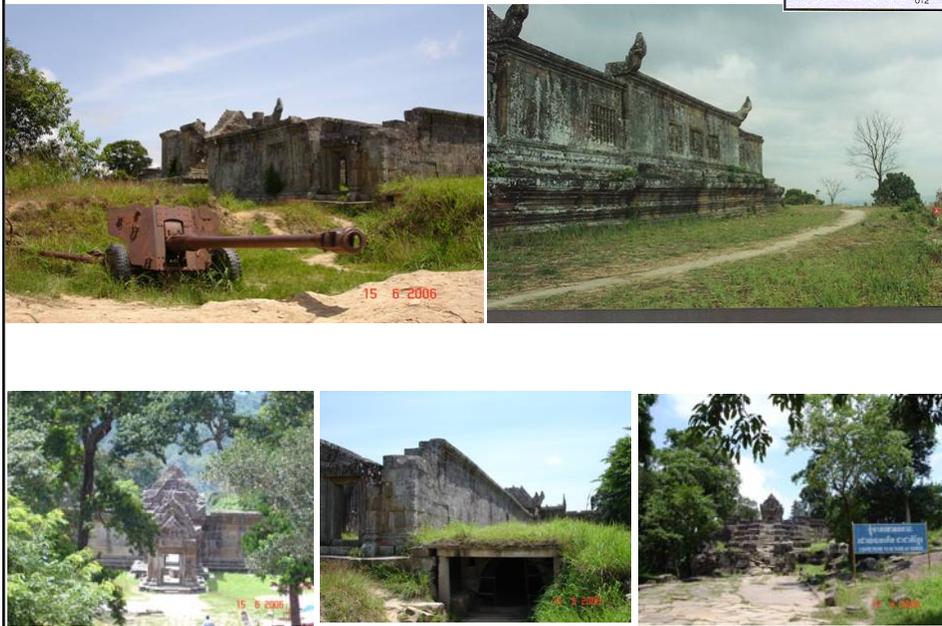
CAMBODIA'S UXO PROBLEM
1970-1975

POTENTIAL UXOs CONTAMINATIONS IN CAMBODIA
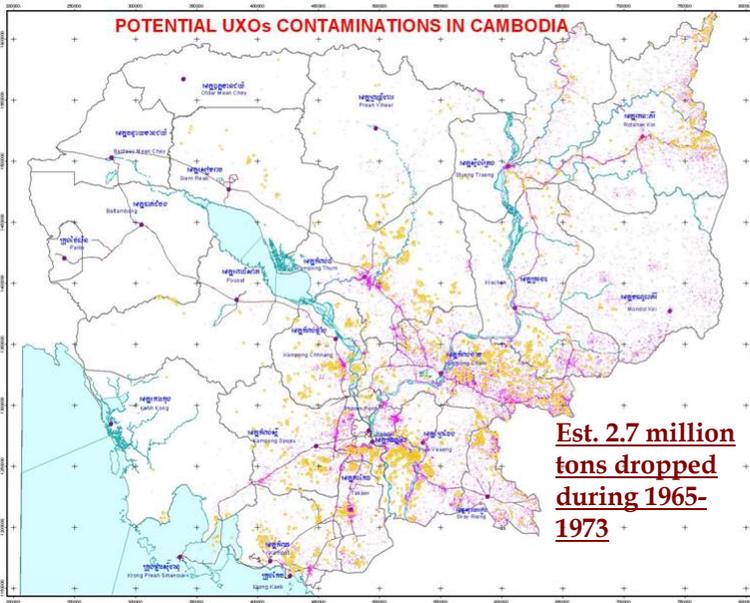
Est. 2.7 million tons dropped during 1965-1973

CAMBODIA'S LANDMINE PROBLEM
1970-1998

POTENTIAL MINEFIELD CONTAMINATIONS IN CAMBODIA
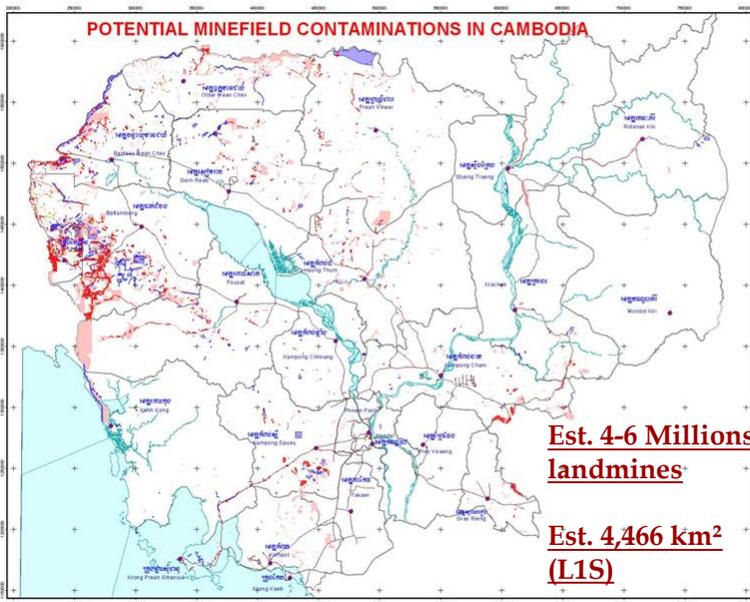
Est. 4-6 Millions landmines

Est. 4,466 km² (L1S)

Mine/ERW Survey

National Level One Survey as at June 2002.

- Number of villages contaminated 6,422 (46%)

- Number of areas contaminated 3,037

- Area of land suspected to be contaminated 4,466 Km²

- Number of Population being at risk 5,186,771 (45.3%)

- 11,429 EOD tasks identified

LANDMINE/ERW CASUALTIES
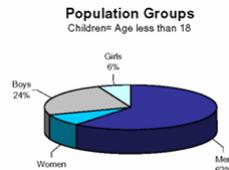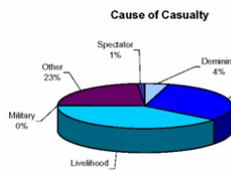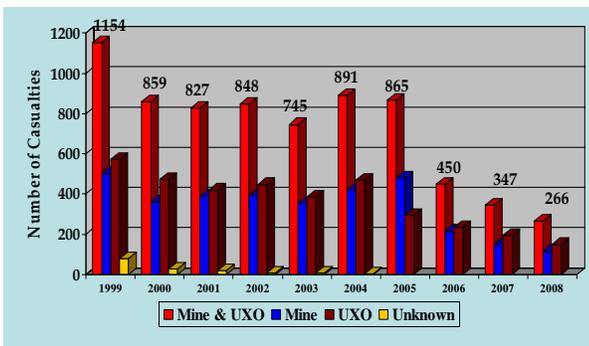
(Source: CMVIS Report by Cambodian Red Cross)

Compliance with the Mine Ban Convention

Cambodia sincerity and commitment for Mine Ban Convention

- Law on Prohibition of the Use of Anti-Personnel Mines (ratified by the Assembly on 28 April 1999)

- Sub-Decree on the Management and Control of Import, Production, Sales, Trade, Distribution and Use of all Types of Weapons and Ammunitions (30 April 1999)

- Law on the Control of Weapons, Explosives and Ammunitions (01 June 2005)

- Sub-Decree on Socio-Economic Management of Mine Clearance Operations (20 October 2004)

- Five-Year Mine Action Plan of the Royal Government of Cambodia 2005-2009

Main Players for Mine Action in Cambodia

- All Government Authorities from Centre Government to Village Levels

- Coordination Body: Cambodian Mine Action Authority (CMAA)

- Demining Operators, Namely:
  - The Cambodian Mine Action Centre (CMAC)
  - The Halo Trust
  - Mine Advisory Group (MAG)
  - The Royal Cambodian Armed Forces (RCAF)
  - Japan Mine Action Service (JMAS), and
  - Private Demining Companies

- Development Partners:
  - Auscare, Care International, World Vision, EC, HIB, NPA, Adopt-A-MineField, other NGOs
  - UN Corps: UNDP, UNICEF, UNHCR, UNMAS, UNOPS
  - GICHD, ITEP, and
  - Others

- Donor Community: Australia, Belgium, Canada, EC, Germany, Japan, Norway, Sweden, Spain, USA, UK

Activities Related to Mine Ban Convention

- Article 5 (Destruction of AP mines in mined areas):
  - Extension request is being prepared and will be submitted in April this year for an extension of 10 years.

- Article 7 (Transparency Measures):
  - Cambodia submits transparency reports on a regular basis in accordance with the Convention requirements

Mine Risk/ERW Education

Community-Based Focal Points for Mines and UXO:

To establish an effective and sustainable community-based mine risk reduction network at district, commune & village levels.

- 26 x Districts of Community-Based Mine Risk Reduction (CBMRR)
- 37 x Districts of Community-Based UXO Risk Reduction (CBURR)
- Volunteer Network Villagers: 434 in 139 villages

- Mine/UXO risk education
- Liaison with the local authorities
- Information collection and update
- CMAC's focal point for District
- Close collaboration with Mine Action Teams
- Village map update
- Mine action planning
- Community development planning

Mine/UXO Risk Education and Reduction Teams

quick response multi-skill mine risk education and reduction team which is deployed to prevent mine and UXO accidents and to alleviate risk to the affected community through:

- Mine/UXO risk education
- Battlefield clearance
- UXO disposal

- Very effective quick response
- Very mobile
- High demand
- Suitable for small and medium tasks
- Very effective UXO risk reduction
- Work closely with CBURR

Land Release (Non-Technical Survey)

Site Sketch of Pailin City
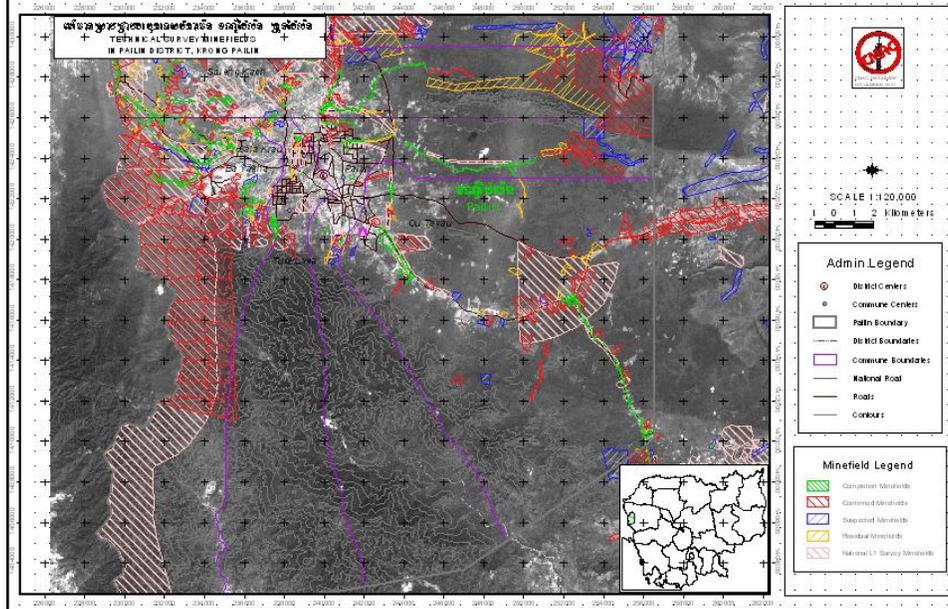
Land Release Through Full Clearance (by Mine Detection Dog Teams)

- 14 Landmine Detection Dog Teams
- 04 UXO Detection Dog Teams (deep search)
- Total: 87 Dogs

- MDD sniffs for explosives
- Area Reductions
- Hard Ground and heavy fragmentations

Land Release Through Full Clearance (by Mine Detection Dog Teams)

Mine Detection Dogs
MDD: Breeding Program

Mine/UXO Clearance

Manual Clearance Teams CMAC, RCAF, Halo Trust and MAG: Approx 5,000 deminers

Mine/UXO Clearance

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Mine/UXO Clearance Toolboxes –

(Full Clearance and Technical Survey (Mechanical Systems)

Full Clearance and Technical Survey conducted by demining Operators

UXO Clearance By Cambodia EOD TEAM CMAC, RCAF, Halo Trust and MAG

-Collected Information related to UXO
-Destruction all types of UXOs
**** Explosive Harvesting Programme

UXO Clearance By Cambodia EOD TEAM CMAC, RCAF, Halo Trust and MAG

UXO Clearance By Cambodia EOD TEAM CMAC, RCAF, Halo Trust and MAG

Mine/UXO Clearance and Disposal (continued)

Explosive Ordnance Disposal (EOD): 27 team

- CMAC has more than 800 strong men for this field
- Quick response to ERW including cluster munitions
- Collect information on UXO
- UXO collection and disposal
- Terrorist IED response

CMAC's Mine/UXO Clearance Achievement (1992- Feb 2009)	
- Area Cleared (Minefields & UXO Fields)	: 233 km^2
- Anti-Personnel Mines Found	: 408,816
- Anti-Tank Mines Found	: 7,845
- UXO Found	: 1,397,045
- EOD Tasks Responded (2006-2008)	: 29,981 tasks

Total mines/UXO destroyed by CMAC = 1,813,706 landmine/UXOs

Nationwide Mine/UXO Clearance Achievement (1992- Feb 2009)	
- Area Cleared (Minefields & UXO Fields)	: > 500 km^2
- Anti-Personnel Mines Found/Destroyed	: 820,911
- Anti-Tank Mines Found/Destroyed	: 19,196
- ERW Found/Destroyed	: 1,756,914

Total **mines/UXO Destroyed nationwide :**

2,597,021 landmine/UXOs

PATH AHEAD (THE FUTURE)

Jim Rider / South Bend Tribune

National Strategic Plan for Landmine/ERW
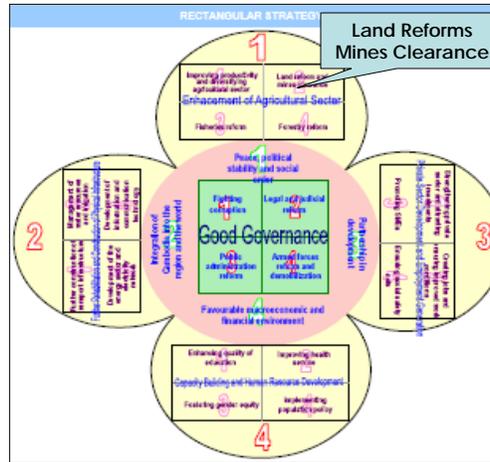
National Strategic Plan for Landmine/ERW

Domestic Policy framework:

- The Millennium Development Goals (UN and Cambodia-specific)
  - Goal 1: Eradicate extreme poverty and hunger
  - Goal 2: Achieve universal primary education
  - Goal 3: Promote gender equality and empower women
  - Goal 4: Reduce child mortality
  - Goal 5: Improve material health
  - Goal 6: Combat HIV/AIDS, malaria and other diseases
  - Goal 7: Ensure environmental sustainability
  - Goal 8: Develop a global partnership for development
  - Goal 9: De-mining, UXO and victim assistance (Cambodia-specific)

National Strategic Plan for Landmine/ERW

The Kingdom of Cambodia:
- signed the Mine Ban Treaty on 3 December 1997,
- ratified on 28 July 1999, and
- the treaty entered into force on 01 January 2000

Article 5

Destruction of anti-personnel mines in mined areas

1.   Each State Party undertakes to destroy or ensure the destruction of all anti-personnel mines in mined areas under its jurisdiction or control, as soon as possible but not later than ten years after the entry into force of this Convention for that State Party.

Cambodia's deadline: 01 January 2010

National Strategic Plan for Landmine/ERW

To address the problem, Cambodia is preparing to submit a Request for Extension of the life of Ottawa Mine Ban Treaty for another ten years: 2010 – 2020.

Article 5

Each State Party…

- "shall make every effort to identify all areas under its jurisdiction or control in which anti-personnel mines are known or suspected to be emplaced."

- "shall as soon as possible" ensure that these mined areas "are perimeter marked, monitored and protected by fencing or other means, to ensure the effective exclusion of civilians, until all anti-personnel mines contained therein have been destroyed."

- "undertakes to destroy or ensure the destruction of all anti-personnel mines in mined areas under its jurisdiction or control, as soon as possible but not later than ten years after the entry into force of this Convention for that State Party."

Each State Party may…

- if it believes that it will be unable to destroy or ensure the destruction of all anti-personnel mines in ten years, submit a request for an extension of the deadline for completing the destruction of such AP mines, for a period of up to ten years.

National Strategic Plan for Landmine/ERW

Article 5: Extensions request calendar

Now – March 2009	November 2008	March 2009	December 2009	1 January 2010
Opportunity to prepare the request.	Ninth Meeting of the States Parties: Opportunity to provide an update on "work in progress."	Request submitted (nine months prior to the last Meeting prior Cambodia's deadline for completing implementation of Article 5).	Request formally considered (Likely timing for the last Meeting prior to the deadline for Cambodia to complete implementation of Article 5).	Deadline for Cambodia to implement Article 5

National Strategic Plan for Landmine/ERW

Remaining problem:	Size (km²)	Remarks	
1. Remaining problem based on Level 1 Survey			
Original problem	4,466	L1S	
Progress	500	All operators	
Remaining	3,966		
2. Classification of remaining problem based on calculated estimation			
Confirmed	685	For full clearance	
Suspected + residual	1,806	For further technical survey and NTS	
3. Ways of addressing the remaining problem			
LR (full clearance)	956	Confirmed +15% of Suspected & Residual areas	
LR (TS+NTS)	1,535	15% goes to full clearance	
LR (GS)	1,475	Cancelling L1S from database	
Total:	3,966		
4. Cost of addressing the remaining the remaining problem			
Description	**Outputs (m²)**	**Total Cost ($)**	**Remarks**
Full Clearance	959,790,000	479,895,000	
Survey	3,010,100,000	17,760,000	
Equipment		99,531,000	
Management		39,812,400	
TOTAL:	3,969,890,000	636,998,400	

National Strategic Plan for Landmine/ERW

Demining Force Chart

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019

(Y-axis: 0 – 8,000 in increments of 2,000)

Full Clearance Outputs

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019

(Y-axis: 0 – 140,000,000 in increments of 20,000,000)
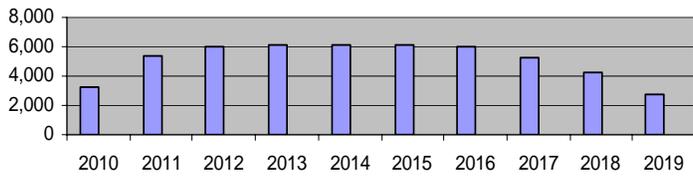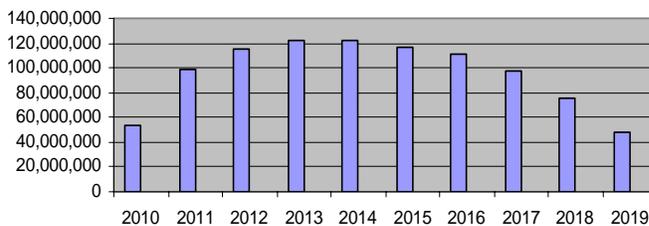
NATIONAL STRATEGIC PLAN: LAND RELEASE CONCEPT

The Land Release Concept and Process and how this can relate to the Baseline Survey Concept – a Perspective:

Definition

Classification A
Mined Area
ground that presents compelling evidence of protective, defensive, or denial mine laying

Classification B
Residual Threat
land presenting an indeterminate or scattered presence only of mines and UXO

Classification C
End State Land
impact free ground on which deployment of demining resources is no longer considered necessary or economically viable

Full Clearance

Overlapping area

Technical survey

Non-technical survey

Assessment of land use

Analysis of existing survey data

Released land

NATIONAL STRATEGIC PLAN: FUTURE LAND CLASSIFICATION AFTER BASELINE SURVEY

Definition	Criteria	Sub-Category	
Classification A **Mined Area** *Land that presents evidence of mines*	• Presence of high density mine concentrations, lines, clusters (including but not restricted to border mine belts, mined defensive positions, mined road alignments) • Historical information of mine laying, ideally from multiple sources • Verifiable or confirmed incidence of casualties inside area • *Any* in-use or abandoned route alignment presenting a possible threat of anti-tank mines, regardless of density, and regardless of the presence or absence of anti-personnel mines	**A1** **A2** **A3** **A4**	Land containing dense concentration of AP mines Land containing mixed AP and AT mines Land containing AT mines **Land containing scattered or nuisance presence of AP mines**
Classification B **Residual Threat Land** *Land that presents ERW or an indeterminate presence of mines*	• Possible or unconfirmed presence of mines • Confirmed presence of mines in low 'nuisance' densities only • Evidence of regular use of ground by local people, whether for transit, resource collection, livestock grazing or agriculture production, and where there are… • …few, none or an unverifiable incidence of casualties in area • Presence of ERW possibly justifying formal BAC only	**B1** **B2**	Land containing ERW (not including mines) Land with no verifiable mine threat
Classification C **End State Land** *Land that presents no obvious threats*	• Land formally cleared by accredited operators and handed back to local authorities • Land put back into productive use, where there has been no accident or evidence of mines in the past three years (as per CMAA Area Reduction Policy) • Land with no indication from communities or previous survey to have any mine threat	C1 C2 C3 C4	Reclaimed land Threat reduced land Cleared land Unmined Land

National Strategic Plan for Landmine/ERW Technology Employed

- **Manual deminers with mine and UXO detectors**
- **Mine and UXO detection dogs**
- **Mechanical vegetation cutting machines (Brush Cutters)**
- **Landmine clearance machines (Demining machines)**
- **Integration of toolboxes:**
  - **Combination of MDD with manual deminers**
  - **Combination of mechanical systems with MDD**
  - **Combination of mechanical systems with manual deminers**

Teams	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Survey	40	40	40	45	45	45	45	40	20	10
MP	60	130	150	150	150	150	150	130	100	50
SLD	10	15	15	20	20	20	15	15	10	10
LLD	4	10	10	10	10	10	10	10	8	5
EDD	4	6	6	6	6	6	6	6	6	6
CMC	13	20	25	25	25	25	25	20	15	10
CBD	5	4	4	4	4	4	4	4	4	4
DM	4	20	25	25	25	25	25	20	15	10
BC	23	35	50	50	50	50	40	30	25	10
MRE	6	6	6	6	6	6	6	6	6	6
EOD	24	30	30	30	30	30	30	30	30	30
CBM	26	33	33	20	20	20	20	20	20	20
CBU	37	40	50	60	60	60	60	60	60	60
ERC	12	12	12	12	12	12	12	12	12	10
BAC	15	15	15	15	15	15	15	15	10	10

CMAC Research and Development Activities

Development of Standard Operating Requirements (SOR)

↓

Development of Test and Evaluation Plan (Policy Approval)

↓

Performance, Survivability and Acceptance Tests

↓

Test Report

↓

Recommendations and Modifications

↓

Integration Trial
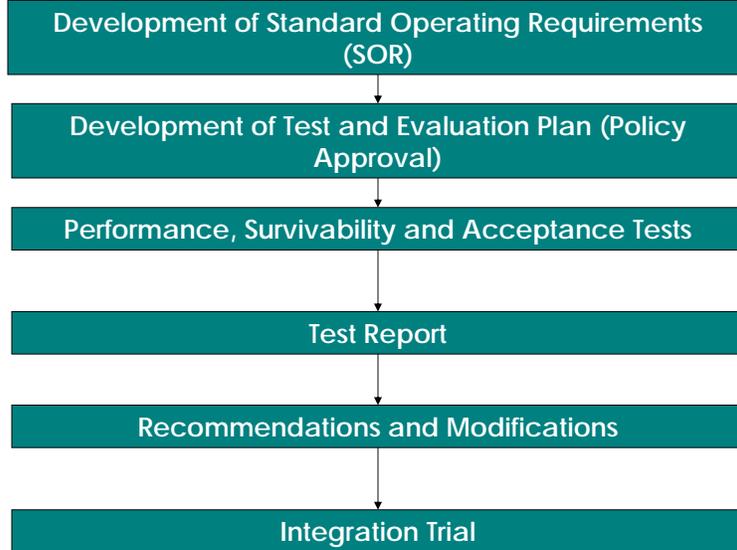
CMAC Research and Development Activities

THE PROJECT FOR RESEARCH AND DEVELOPMENT OF MINE CLEARANCE RELATED EQUIPMENT

CMAC Research and Development Activities

Test Demining Machines from Japan 2007-late 2008

CMAC Research and Development Activities

Selection process

CMAC Research and Development Activities

MINE DETECTOR – ALIS

MINE DETECTOR - GRYPHON

- From Tokyo Institute of Technology
- Test Star 22.11.06
- Finish on 15.01.07
- Now test is in progress…

CEIA DETECTORS

CEIA DETECTORS TEST AND DEPLOYMENT

UXO Detection Dog (EDD)

Survivability Test – Push machine

Current Research & Development (With USA)
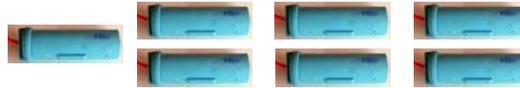
One USSR RPG-2 Anti-tank Grenade contains 535 grams of TG-50 (50% RDX)
Total 70 gram cast charges possible: 7 each

One USSR 152 mm OF-540 Projectile contains 6.0 kg of pressed TNT
Total 100 gram wedge charges possible: 60 each
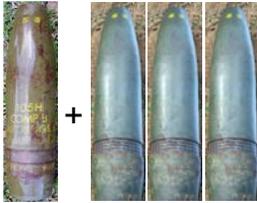
One US 105 mm Comp B + Three US 105 mm TNT Projectiles creates 8.6 kg of sensitized explosive mix
Total 120 gram cast charges possible: 71 each

Charge Design: AP Mine Neutralization

- Smaller charge face, route initiation wave up through the center.
  - Consistent neutralization of PMN-2
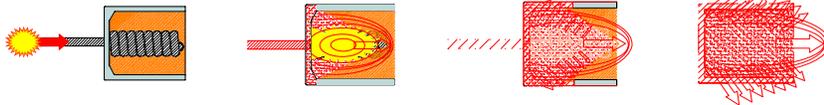
Facilities Availability in Cambodia For any R&D of Demining Technologies and its real applications

- Five different types of soil, 60+ mines per lane and plenty of natural "clutter".
- Flat and smooth; intended to test "Proof of Principle" against various backgrounds
- All mines and clutter is DGPS recorded to within 10cm of the exact location
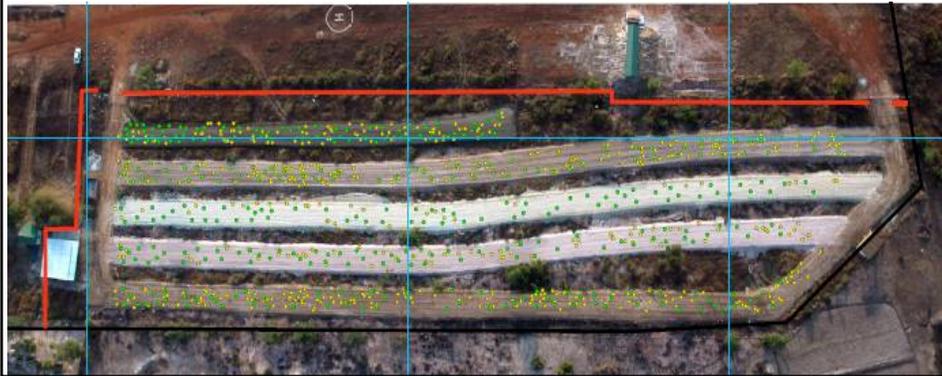
Mine Detectors Test Sites

THANK YOU!

DO YOU HAVE ANY QUESTIONS?