Request for an extension of the deadline for completing the destruction of anti-personnel mines in mined areas in accordance with Article 5, paragraph 1 of the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction

Kingdom of Thailand

Submitted to His Royal Highness Prince Mired Raad Al-Hussein
of Jordan
President of the Eighth Meeting of the States Parties to the Convention

(Revised version - as of July 2008)

Table of contents

I. Executive Summary

II. Detailed narrative

1. Origins of the Landmine Problem
2. Nature and extent of the Landmine Problem: quantitative aspects
3. Nature and extent of the Landmine Problem: qualitative aspects
   - 3.1. The human impact
   - 3.2. Victims
   - 3.3. Socio-economic impact
4. Methods used to identify areas containing AP mines and reasons for suspecting the presence of AP mines in other areas
5. National demining structures
6. Nature and extent of progress made: quantitative aspects
7. Nature and extent of progress made: qualitative aspects
8. Methods & standards used to release areas known or suspected to contain AP mines
9. Methods & standards of controlling and assuring quality
10. Efforts undertaken to ensure the effective exclusion of civilians from mined areas
11. Resources made available to support progress made to date
12. Circumstances that impede compliance in a 10 year period
13. Humanitarian, economic, social and environmental implications
14. Quantity and quality of the challenge that remains
15. Amount of time requested and a rationale for this amount of time
16. Detailed annual cost work plan for the period of the requested extension
17. Institutional, human resource and material capacity available
18. Observations

Annexes:

Annex I: Map of affected communities identified by the Impact Survey

Annex II: TMAC Organization Chart

Annex III: Mine Clearance Equipments

Annex IV: Methods used in executing the Landmine Impact Survey

Annex V: List of Danger Areas identified by the Landmine Impact Survey, Safe Areas, and Minefields

Annex VI: List of abbreviations and acronyms

Annex VII: Glossary of terms used in the extension request

Annex VIII: Annual Work Plan (2009-2018)

Annex IX: Standard Operating Procedure for Locating Minefield Procedure

I. EXECUTIVE SUMMARY

1.Origins of Landmine Problem

Mine areas in Thailand are mostly lined along the borders with its neighbors, especially the border with Cambodia. Most of areas are contaminated with Explosive Remnants of War (ERW) such as landmines and Unexploded Ordnance (UXO). Two main causes are:

- Cambodia's Internal Conflict, many Cambodian factions fought in the border areas between Thailand and Cambodian. Millions of landmines and hundreds of shells were used, many of them still unexploded.

- Communist Insurgency Conflict: conflict between the Thai government and the communist insurgents (1965-1981) was another source of Thailand's landmine and UXO problems, especially in the Northern region. of Thailand.

Even though these two conflicts have ended over a decade ago, millions of ERW still present an ever eminent threat on the security and economy of local communities in the affected areas. Thousands of people have been killed or crippled by, while many more remain exposed to, landmines and UXO.

2. Quantity and quality of the problem/ challenge

Since becoming the State Party to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction in 1989, Thailand, through the implementation of the Norwegian People's Aid (NPA) started to conduct the Landmine Impact Survey (LIS) from May 2000 until June 2001. As recorded by the LIS, it has estimated that :

- total mine-contaminated areas in Thailand is accounted for 2,557 square kilometers
- 530 mine impacted communities that contain 933 distinct mine and UXO contaminated sites. The most seriously affected communities in the country are along the border with Cambodia.
- the contaminated areas affected the livelihood and safety of 503,682 persons.

- most of the suspected mined areas in Thailand pose low-impact to the communities. Only 69 out of the total 530 affected villages are considered to have high-impact on communities.

As for the landmine victim, from 1969-2007 a total number of casualties were 3,551, with 2,045 wounded and 1,506 fatal. These figures represented victims recorded by surveys taken in 131 of the 530 affected communities. Collection of forest products was the most frequently reported activity at the time of incident. Most of the affected communities depended on the forest of supplies of food, firewood, building materials, hunting, and a route to visit neighbors and family members. The presence of landmines and UXO also resulted in blocked access to, or restricted to the use of four major resources: forest, cropland, pasture, and water.

However, it is noteworthy to mention that in the past several years the number of landmine victims has significantly decreased as a result of continuous and effective Mine Risk Education (MRE) programs conducted by Humanitarian Demining Unit (HMAUs), related organizations, and NGOs.

3. **National Demining Structure**

Shortly after joining the Anti-Personnel Mine Ban Convention, the National Mine Action Committee (NMAC), comprising all major government ministries and departments concerned, was established to develop policies and to monitor the obligations set forth by the Convention.

The Thailand Mine Action Center (TMAC) was subsequently established by NMAC in January 1999 to function as the central coordinating agency for all landmine issues and operations in Thailand. The mission of TMAC is to coordinate, monitor and implement Mine Clearance, Landmine/UXO Survey, Mine Awareness and Victim Assistance throughout Thailand. TMAC is also responsible for establishing a program to meet Thailand's obligations as a signatory to the Ottawa Treaty. TMAC operates under the authority of The Supreme Command Headquarters, Ministry of Defence, and received Royal Patronage bestowed by the late Her Royal Highness Princess Galayani Vadhana Krom Luang Naradhiwas Rajanagarindra.

Four Humanitarian Mine Action Units (HMAU 1-4) were established to conduct de-mining operations and cooperates with other local organizations in conducting Mine Risk Education (MRE) and Victim Assistance (VA). However, due to limited budget each HMAU has approximately 100 personnel serving these tasks.

4. **Quantity of Progress Achieved**

At the beginning of the deming process TMAC has used traditional manual clearance to clear the suspected mine areas. However, as the LIS database is a result of rough method an limited time-span, and is needed for further revisit and detailed technical survey, TMAC has therefore apply the *Locating Mine Fields Procedure* deming process to identify the actual mine fields and enable TMAC to set up the national deming plan and accelerate the mine clearance process. From year 2000-2008, Thailand has precisely defined mine suspected areas (MSA), considerably reduced these areas and seen a reduction of mine incidents and number of mine victims:

- between 2000-2008 (as of April 2008) total ***1,354.75 sq. km.*** of

dangerous areas has been cleared by both traditional clearance and Locating Mine Fields Procedure. Of this number, ***1,299.19 sq. km.*** has been mainly cleared by Locating Minefield Procedure.

- Through the application of Locating Mine Fields Procedure conducted over the past 3 years, (***1,299.19 sq. km.***) of the total area has been cleared and released .
- most of the progress took place along the Cambodia border, which receives top first clearance priority as it is the most dangerous areas
- In 2007, there were 12 mine casualties the lowest annual number since entry into force and a dramatic reduction from 53 casualties recorded in 1999.

5. Pilot project: *Locating Mine Fields Procedure* at Sa Kaew Province

Back in 2007, TMAC launched pilot project of Locating Mine Fields Procedure in Sa Kaew Province. The main purposes were to record, mark, and gather mine information to plan an effective de-mining operation, as well as reduce and recheck the suspected mine/UXO contaminated areas as identified by Level I Survey to make sure that they are more precise and unambiguous.

The Survey conducted by Humanitarian Mine Action Unit I (HMAU I) under the provision of TMAC from April 2007 to October 2007, could reduce suspected dangerous areas by 75%. Out of 41.21 sq. km. dangerous area, the real minefields of 9.19 sq. km. were located. The total area released was 32.02 sq. km.

In anticipation with the result from Technical Survey, TMAC continues to conduct Locating Mine Fields Procedure to dangerous area identified by NPA all over the country. In 2007-2008, *TMAC expects to reduce suspected dangerous areas to approximately 500 sq. km. after the completion of the Survey.*

The latest figure of mine field areas is estimated to be around ***528.2 sq. km.***. (**TMAC will estimate cost and clearance duration according to this number.)**

6. Circumstances that impede from complying with its Article 5 obligations within 10 years of entry into force are as follows:

6.1 Limitations of the Landmine Impact Survey and its problem

The procedure of Level I Landmine Impact Survey, which was conducted a very rough methods, restricted time frame and emphasized interviewing people in mine affected area rather than accessing to the suspected area and without the assistance of any technical means, has led to misjudgment. Boundary definition and area size estimates were less precise where the suspected area could not be visited, a very small proportion of the perimeters could be observed, or where the exact location of the contamination was not known by the key informants. Most areas with a surface estimate above one square kilometer represented an area where the location and/or extent of contamination are less known. Some safe areas such as rocky area, agriculture land, etc., hiding in the forest or beyond data collector's sight were included. Although the suspected contamination areas as large as 2,557 square kilometers gave a good coverage of mine risk area, it was rather vague on the other hand. It is regarded as the "preliminary database" which identifies only the suspected mined areas and needs to be revisited. As a result of imprecise suspected contamination area, TMAC had to spend unnecessary cost for clearance.

6.2 Geographical settings: Ongoing internal conflict in some of its neighbors and the unsettled border demarcation between Thailand and some of its neighbors have caused delays in demining operations.

6.3 The nature of the mined areas: Conflict resulted in minefields that were not marked and with few useful records of their placement retained. The borders of minefields were not marked and data from minefield records were inaccurate and incomplete. The number of mines was unknown. In addition, mines may have moved due to weather conditions and erosion. In Thailand most of mined-suspected areas are located in the tropical jungle and dangerous slopes and terrains. This nature of mined areas has caused varied difficulties for de-miners to access to the mine-fields and using their equipments.

6.4 Environmental challenges: Minefields are uneven and cluttered with obstacles due to the nature of the terrain (mountains, rocky terrains, river banks were used as confrontation lines during the war operations). Furthermore, heavy vegetation/forest has been a major circumstance impeding more rapid progress. Humidity and heat, leeches in forest during rainy season as well as virulent tropical diseases, poses health threats that further complicate de-miners' work.

6.*5 Limited resources and financial support:*

- As TMAC lies under the Ministry of Defense, its financial resources and personnel therefore, depend merely on the Ministry of Defense's budget, which has must be allocated according to different priorities in a given year. Unfortunately, TMAC annual budget has been decreased slowly from the beginning period from 38 million Baht to 18 million Baht in 2006. This decreased budget caused by the fact that in the past several years, Thailand has been burdened by highly urgent situations such as the flooding disaster in the north, the tsunami disaster, and unrest in the three southern provinces. These emergencies placed further budgetary created competing demand for resources. However, TMAC budget has just recently been doubled in the past few years.

6.6 Method of clearance

- Mine clearance is the dangerous and delicate nature process which has been both time-consuming and resource-intensive. By using the traditional manual method from 2002-2006, Thailand's mine clearance has been rather slow, when measured against a wide area, and resulted in low clearance rate.

- From 2006, Thailand has started to impose the method of Locating Mine Fields Procedure, which was more specific in identifying heavily concentrated mined-areas. As a result, the clearance rate in last year dramatically accelerated.

6.7 International Support in the past 7 years of de-mining operation, mine clearance in Thailand received financial support mainly from the Government's annual budget to TMAC. International funding and assistance has been coming from major supporters like the Japan and USA, and is increasing although at present remains relatively limited. As the task is a costly and time-consuming process, it is necessary to receive the concerted efforts from all stakeholders, not only the budget allocation by the government.

7. Remaining quantity and challenges

- At this stage, it is assumed that about ***528.2 sq. km.*** of mine field areas is still left for further clearance.

- TMAC has been working together with NGOs on the Locating Mine Fields Procedure to develop appropriate Standard of Procedure (SOP). The Locating Mine Fields Procedure SOP shall be an appropriate tool to release as much as 2,000 sq. Km. of areas that is proven not to be mined-contaminated.

8. Amount of time requested for the extension and rationale

- In its consideration of the amount of time needed, Thailand pays equal attention to its intention to finish its work within the timeframe granted and the present realistic and practical factors.

- Past experience proved that de-mining is a difficult and delicate task which requires time. Clearance productivity in Thailand is about 50 sq. Km. per year.

- Based on the Locating Mine Fields Procedure, TMAC will implement a new national annual de-mining plan of which the highly affected communities will be earmarked as priority. The mine clearance method for those remaining contaminated areas will be undertaken by the manual clearance method.

- geographical landscape, on-going conflict on the other side of the boundaries, and disputed borders waiting to be settled. Based on these factors, it is necessary for Thailand to

request the maximum period of extension of 9.5 years, from 2009 until 2018. By 2018, Thailand expects to complete landmine clearance on about ***528.2 sq. Km.***

9. Method the achieve the destination

TMAC has proposed a practical and realistic mine clearance plan for fulfilling its obligations by 1 March 2019 with some of the main features as follows:

- In general, mined fields will be cleared using the traditional manual method assisted by heavy machinery, mine detection dogs, and other tools.The appropriate SOP for heavy clearance machine is in the process of development.
- Thailand has prioritised the remaining mine fields according to: (first priority) those which affect safety, (second priority) those which pose barriers to the socio-economic development of Thailand, and, (third priority) those which affect the ecology/natural preserve in other ways and (lastly) those which remain attached to the unsettled demarcation line and the involvement of security concern.
- Thailand has projected that the ***528.2 sq. km.*** of minefields will be released by demining. Thailand has developed annual timelines for the release of area. These annual milestones will provide a benchmark for the country to report to the States Parties on progress made in implementing Article 5 during the extension period.
- On the basis of an analysis of the potential of current capacities, Thailand has projected annual increases in the amount of mine suspected area to be released by demining, from 43.08 square kilometres to be released in 2009 rising up to 169 square kilometres to be released in 2011.
- Given that the majority of mine suspected area can be found in forested areas, Thailand will apply the new standing operating procedures it has developed for the general survey of such areas. In applying these procedures along with cancellation practices, Thailand expects to release a significant amount of this area through the determination that it is indeed not a "mined area" as defined by the Convention. Research and development activities will also focus on more rapidly releasing forested areas.
- During the realisation of Article 5 implementation efforts during the extension period, Thailand will continue to comply with its obligations under Article 5, paragraph 2, by maintaining marking of all mine suspected areas, replacing existing markings or placing additional markings as required, and, covering the entire population in mine suspected areas with mine risk education. Summary of TMAC's plan for clearance can be illustrated as follows:

  - Manual De-mining: TMAC will have at least 4 field units, of which there will be about 300 de-miners per unit.
  - Mine Detection Dog:
  - Heavy Mechanical Equipment:
  - Other Clearance Equipment: Rake

It is estimated that fulfilment of Article 5 obligations in Thailand will cost a total of **18,492.25 million Bahts**. Annual projections for funding needs are based on sound formulas regarding extensive experience Thailand has with the real costs for releasing mine fields through the full range of methods (e.g., demining, mine detection dog, heavy machine). It is expected that the Thailand's Budget Bureau will continue to finance the majority of humanitarian demining activities with it projected that State funds will increase over time. State funds will be complemented by funds provided by or obtained from other levels of government, State enterprises, European Union pre-accession funds, the World Bank and domestic and foreign donors.

II. DETAILED NARRATIVE

1. Origins of the landmine Problem

Many areas in Thailand, especially along the Thai-Cambodia border, are contaminated with explosive remnants of war (ERW) in the forms of landmines and unexploded ordnance (UXO). Most of the contamination along the Thai-Cambodia border can be attributed to the spill-over from Cambodia during its years of internal conflict. Additionally, a lot of the contamination was caused by Thailand's own conflict with its communist insurgents. These two main causes of contamination can be summarized as follows:

a) Cambodia's internal conflict: Many Cambodian factions fought along unclear border areas between Thailand and Cambodia and could easily trespass onto Thai soil. Various factions used landmines and fired hundred of shells, many of which remain unexploded. The conflict ended around 1993, but many landmines/ UXO were left dangerously in the border areas.

b) Communist insurgency: Conflict between the Thai government and the communist insurgents (1965-1981) was another source of Thailand's landmine and UXO problems, especially in the northern region. Both sides fought mostly in deeply forested areas where insurgents hid themselves, in provinces such as Petchaboon, Chieng Rai, Nan, and others in the northeastern part of the country. However, not as many landmines/ UXO were left in comparison to the remnants from the Cambodian internal conflict. Nevertheless, dangerous objects still could be found in the areas, severely impacting the livelihood of the local people.

Even though these two conflicts have ended over a decade ago, millions of ERW present an ever eminent threat on the security and economy of local communities in the affected areas. Thousands of people have been killed or crippled by, while many more remain exposed to, landmines and UXO.

2. Nature and extent of the Landmine Problem: quantitative aspects

A Landmine Impact Survey (LIS) was conducted from May 2000 to June 2001. This identified 933 distinct areas of suspected landmine and / or UXO contamination in Thailand. These distinct areas were recorded on 1:50000-scale maps. The total surface area was estimated to be 2,557 square kilometers, which is approximately 0.5 percent of the total area of the country.

The LIS identified that 27 of Thailand's 76 provinces were affected. Within these provinces, 84 districts and 530 distinct communities with a total population of 503,682 persons were found to experience some impact due to the presence of landmines and / or UXO. Nearly all the affected communities are located in a narrow strip along Thailand's borders. Most affected communities identified are along the Cambodia border (297), while 139 communities are along the Myanmar border, 90 communities are along the Laos border and 4 near the border with Malaysia. Affected communities are, on average, found within 7.1 kilometers of Thailand's border with Cambodia, within 12.8 km of the border with Myanmar, within 14.1 km of the Thai-Malaysia border, and within 24.3 km of Thailand's border with Laos.

The entire borderline with Cambodia is enclosed by a dense band of affected communities. The Cambodia internal conflicts spilled over into Thailand's border and left the areas, which are mostly near the national reserve forests, severely contaminated by landmines and UXO since then.

Along the Laos border, most of the affected communities are located in the western portion of the region where the Mekong River does not provide an easy border reference. Although most impacted communities are close to the border, a significant number are located farther inland in mountainous forest areas that hosted communist insurgents.

On the Myanmar side, most of the affected communities are located in the north, where contamination is derived from the conflicts between ethnic armed factions and the Myanmar armed forces and/or conflicts related to drug smuggling. Mines have been laid along this border for decades. Conflict in the region continues and many communities face new or unknown threats from both mines and UXO.

Meanwhile, very few affected communities are located in the southern provinces near the Malaysia border.

A general overview of the location of affected communities can be seen on the map contained in Annex I. A complete list of the areas identified by the LIS and the size and status of these areas is contained in TMAC's data base

3. Nature and extent of the Landmine problem: qualitative aspects

3.1 The human impact

The LIS ranked communities in broad categories reflecting the degree of impact. Rankings took into account three major factors: the number of recent victims, blockages to livelihoods and infrastructure posed by mined areas, and, class of munitions. Of the 530 identified affected communities, 69 were considered "highly impacted", 233 "medium impact" and 228 "low impact." The LIS reported a total of 382,969 people who lived in village communities were affected by landmines / UXO and that 112,261 people living in other types of communities were affected. Three quarters of the village communities were reported to have an estimated populations of 940 or fewer and half of all these communities had no more than 590 inhabitants. The smallest affected community, a National Park station, reported six people. The largest was the dispersed village of Ban Peeing Lung, which composed of five sub-villages with a total population of 10,725. The only urban community reportedly affected, namely, Ban Khlong Yai in Trad province, has an estimated population of 3,000. In addition, nine of the affected communities were reported to be camps for displaced persons.

The LIS estimated that just under 504,000 people lived in mine-affected communities in Thailand. Of these, approximately 134,000 people lived in high impact communities, and an estimated 207,248 lived in medium-impact communities. Thus, the majority of people whose lives are affected by mines and UXO live in communities that the survey rated as high or medium impact. Camps for displaced people contribute significantly to the high population numbers observed for some impact categories. A summary of LIS identified affected communities, area and population is contained in Table 1 below.

Table 1: Summary of LIS identified affected communities, area and population

Border region	Number of affected provinces	Number of affected districts	Number of affected communities				Affected Area (km^2)	Affected population
			High	Medium	Low	Total		
Cambodia	7	24	51	161	85	297	1,943.6	216,034
Myanmar	9	32	16	38	85	139	400.4	229,781
Laos	9	25	2	34	54	90	211.5	55,687
Malaysia	2	3			4	4	1.2	2,180
Total	**27**	**84**	**69**	**233**	**228**	**530**	**2,556.7**	**503,682**

3.2 Victims

The LIS identified a total of 346 recent victims in Thailand in 2001-2002. These victims were recorded in 131 of the 530 affected communities. Males accounted for 282, or 81 percent, of the victims, and females for ten, or 3.5 percent, of the victims. No gender information was available for the remaining 54 victims. Among both male and female victims, the age range of the most affected was 15 to 44 year old. A total of 83 percent of the victims were civilians, 40 percent (138) of whom were farmers. An appreciable proportion (58 of 346) of the recent victims was military personnel, and most of these incidents occurred on the Myanmar border.

Collection of forest products was the most frequently reported activity at the time of an incident. Of the 346 recent victims, 148 fell into this category. Most of the affected communities depend on the forest for supplies of food, firewood, building materials and wildlife. They also use it as a transit route to visit neighbors and family members. The number of victims in this category may actually have been higher than reported as the activity of "traveling" may have reflected a mixed activity that also involves the collection of forest products.

Military activity accounted for 50 recent victims who were largely engaged in border patrol or military police actions at the time of injury. Areas adjacent to the border with Myanmar posed the greatest risk in this regard. Tampering with mines and UXO was insignificant as an activity leading to accidents. Only three of the recent victims were engaged in landmine clearance at the time of the report. A summary of landmine victims identified by the LIS is contained in Table 2 below.

Table 2: Landmine victims 2001-2002

Activity at the time of incident	Total
Military	50
Accompany military	5
Civilian	
Collecting food, water, wood; hunting/fishing	148
De-mining	3
Farming	18
Herding	2
Household work	1
Tampering	2
Trading	6
Travel	30
Other	9
Unknown	62
Total	**346**

3.3 Socio-economic impact

The LIS reported that the presence of landmines and UXO resulted in blocked access to, or restricted use of four major resources: forest, cropland, pasture, and water. Forest area was the resource most frequently reported to be affected by the presence of mines because most of the armed conflicts took place in the forested border areas.

The LIS reported that very few communities experienced blocked access to irrigated land and roads, housing areas, infrastructure, or utilities were rarely affected. Only ten out of 933 mined areas reportedly experienced obstructed access to an educational facility. Only two communities experienced landmines blocking roads to their district centers. Mined minor roads and trails were reported as posing an infrequent yet serious hazard and potentially hindering access to forest areas, farms, and border passes. Nineteen communities mentioned this kind of problem.

A number of communities reported blocked access to water resources. 53 communities reported blocked access to drinking water, and 133 reported block accessed to water resources for other usage. However, the LIS concluded that these problems were not particularly serious.

The LIS identified that in many instances communities suffered from clusters of impacts as follows:

- Type A: Communities that did not report blocked access to the forest. Other than this negative definition, they had little in common. Several communities reported no impact at all. A significant number of communities complained of blocked access to some of their cropland or to infrastructure other than roads and housing. This cluster included 88 communities.

- Type B: Communities suffered from blocked access to some forests. No other impacts were associated with this type, which comprised 152 communities.

- Type C: Communities that relied heavily on forest and cropland. There were minor affiliations with pasture, housing, and other infrastructure. This cluster included 154 communities.

- Type D: Communities that experienced blocked access to water for non-drinking uses, and also to forest and cropland. Many of the 132 communities in this category also had problems with pasture and drinking water, and a significant minority complained of blocked access to housing and other infrastructure.

A review of the impact combinations suffered by communities in Thailand led to several conclusions. While the humanitarian impact and the number of landmine victims remain the primary concern for Thailand, attention was directed to the relationship between landmine contamination and socio-economic development which is equally important, and must be in line with the national development plan. Instances can be seen where economic activity has been hindered by the threat of landmine and UXO contamination. Thus, it was recognized that the important socio-economic dimension be increasingly taken into account along with the humanitarian impact.

4. Methods used to identify areas containing AP mines and reasons for suspecting the presence of AP mines in other areas

Landmine Impact Survey

The Landmine Impact Survey was intended to provide Thailand and its partners in mine action with a common dataset: defining the entire problem in terms of scale, type, location, hazard and social and economic impacts experienced by local communities; improving national planning efforts by allowing for clear prioritization of resources; fostering the development of a national plan with well-defined immediate, intermediate and end-state objectives; and, establishing baseline data for measuring performance.

The findings were stored in the Information Management System for Mine Action (IMSMA) database and provided the best and most comprehensive picture of the nature of the mine and UXO threat experienced by communities in Thailand.

The survey in Thailand followed the standard Survey Action Centre (SAC) practices of engaging in a two tiered process of investigation. First, there was the systematic collection and analysis of "expert opinion" to determine the locations of communities likely to be impacted by landmines and UXO. The second avenue of investigation, the "community interview" with its associated component activities of interviewing, mapping, and visual inspection, was then conducted in all contaminated communities. The LIS adapted some aspects of the standard methodology to adjust to local conditions and addressed the requirements of identified end users.
It should be emphasized that the LIS had several significant limitations:

a) The LIS report of 2,557 square kilometers of "contaminated land" became the benchmark from which process was to be measured. However, it is now well known that this was a gross overestimation of areas known or suspected to contain mines. Moreover, it was an overstatement to refer to areas identified as "contaminated land" as each needed or needs to be resurveyed to determine the actual size and location of mined areas.

b) While regarded as a gross overestimation of the magnitude of the problem faced by Thailand, the LIS report was perceived as credible given that the survey results were certified by a United Nations process. Nevertheless, it was impossible and illogical for Thailand to initiate an effective mine clearance plan based on the suspected dangerous areas identified by the LIS. Areas for which clearance proceeded on the basis of the LIS results produced few if any mines pointing again to the overestimate of area identified and the questionable utility of the LIS as a planning tool.

c) Many of the "contaminated areas" reported by the LIS have included some safe areas hidden in the forest or beyond data collectors' sight such as lakes, water resources, rocky areas, agriculture lands and so on. The initial estimate of suspected dangerous areas could have been reduced significantly if there was more accurate information produced by the LIS and subsequently converted into a clearance plan.

***Locating Minefield Procedure (LMP)* pilot project**

As a result of the limitations of the LIS, Thailand more recently developed a pilot project for area locating minefield procedure in Sakaeo Province as follows:

Based on the results of LIS, there were 63 impacted communities in Sakaeo Province with 189 mined areas covering an estimated surface of 181.6 square kilometers and affecting the

lives of 31,221 people. The LIS emphasized interviewing the people in the mine affected area without the assistance of any technical means which restricted the ability of the LIS to produce boundaries of the contaminated areas. This sometimes led to misjudgment which had an enormous effect on the livelihood of the people. Besides, there were not enough details and sufficient information for planning the clearance of mines and UXOs to be completed within the deadline in accordance with the Convention.

Moreover, the fact that many contaminated areas were used for planting crops, buildings, and as pastures for cattle without any accident for years seems to provide evidence that the result of LIS were overestimated. Therefore, Pilot Project for locating minefield procedure was introduced in 2006 to locate minefields and to collect precise information for future effective demining plan and reduce some overestimated dangerous areas.

The methodology of the Locating Minefield Procedure are collecting and analyst data of level 1 impact survey and past accidents from TMAC data base room, satellite images, history of fighting, local military units and interviewing with the local villager, ex- military, and ex-insurgent in order to identify possible minefields then draw draft mapping of possible minefield in the suspected areas for the final phase, field confirmation by technical survey team. There are 3 models for this procedure; Canceling Survey, Releasing Survey and Boundary Survey. Canceling Survey by analyzing data from level 1 Impact Survey and the fact that those areas that have been used for over confident period of time such as farm land, recreation areas, lakes, etc. and no evidence of explosive hazard. They will be identify as safe areas. Releasing Survey for low contaminated areas where random check is made by technical survey the areas with negative result will also be identify as safe areas. And Boundary Survey for high contaminated area where majority of the area show evidence of explosive hazard, will be marked and identify as minefields. The Methods and Equipments that could also be used together with the Locating Minefield Procedure are deminers, Mine Detection Dogs, and Mechanical Equipments for technical survey. And EOD teams would also be deployed to clear spot tasks during the procedure.

The Locating Minefield Procedure was conducted by Humanitarian Mine Action Unit 1 (HMAU1) in Sakaeo Province under the provision of TMAC from April 2007-October 2008. The purpose of the procedure was as follows:

a) To record, mark and gather sufficient mine information in order to help plan effective future demining operations.
b) To recheck the suspected mine/UXO contaminated areas as identified by the LIS in order to be more precise and clear.
c) To increase the area of safe land for people to maximize benefits and to reduce the hazards of uncleared land.
d) To use as a template for other dangerous areas all over the country.

The Locating Minefield Procedure consisted of 25 weeks of work to establish safety lanes, to put in place fencing and warning signs, to gather data in the area, and, to demine in Sakaeo Province. It was expected that the procedure would reduce suspected mined areas by 70 percent. In fact, 75 percent was actually released. (See Table 3 below.)

Table 3: Outcome of the locating minefield procedure pilot project in Sakaeo province

Size of area identified by the LIS	Actual mined area located	Total area released through LMP	Percentages of LIS-identified area released
41.21 km^2	9.19 km^2	32.02 km^2	**75%**

The outcome of the pilot project in Sakaew Province has proven that this procedure could be the right strategy to improve and speed up landmine problem in Thailand.

5. National demining structures

In August 1998, the Office of the Prime Minister of Thailand issued an Order No. 151/1998 forming the National Mine Action Committee (NMAC), chaired by the Prime Minister and comprising all major government ministries and departments. NMAC was created to develop policies and to monitor the obligations set forth by the Convention. On 18 January 1999, NMAC established the Thailand Mine Action Centre (TMAC) to serve as the implementing agency for mine action operations and to coordinate among national and international organizations and donors. On 18 January 2000, TMAC was officially declared a working

facility under the authority of the Thai Supreme Command and received Royal Patronage bestowed by the late Her Royal Highness Princess Galiyanivadhana. Specific duties of NMAC include: coordination of national and international support for demining activities; and, dissemination of information about the threat posed by landmines and the progress made to remove that threat; and provide a safe environment to those people affected by anti-personnel landmines;

NMAC is responsible for decision-making of and monitoring Thailand's overall progress toward implementing its obligation as a State Party to the Convention, including:

- Implementation of the law prohibiting the use of anti-personnel landmines;
- Implementation of demining operations and mine risk education (MRE);
- Establishing the minimum quantity of anti-personnel landmines to remain in Thailand for education and demining purposes; and the destruction of all anti-personnel landmine stocks in excess of this established minimum.
- Implementation of the landmine victim assistance activities.

The Thailand Mine Action Center (TMAC) was established in January 1999 to function as the central coordinating agency for all landmine issues and operations in Thailand. The mission of TMAC is to coordinate, monitor and implement mine clearance, landmine / UXO survey, mine awareness and victim assistance activities throughout Thailand. TMAC is also responsible for establishing a program to meet Thailand's obligations as a State Party to the Convention.

TMAC offices were established at the Supreme Command Headquarters in Bangkok (Don Muang). TMAC's Humanitarian Mine Action plan envisions the creation of up to seven multi-skilled Humanitarian Mine Action Units (HMAU) to work in the most affected sections of Thailand's borders. Currently, three Humanitarian Mine Action Units (HMAU) have been established to conduct demining operations along the Cambodia-Thailand border and one HMAU along the Laos-Thailand border:

- HMAU-1 Burapha Task Force, responsible for Sakeo province
- HMAU-2 Chantaburi Marine Task Force, responsible for Chantaburi and Trat provinces
- HMAU-3 Suranaree Task Force, responsible for Buriram, Surin, Si Saket and Ubon Ratchatani provinces
- HMAU-4 Phamuang Task Force, responsible for Phitsanulok, Phetchabun, Uttaradit, Nan and Phayao provinces

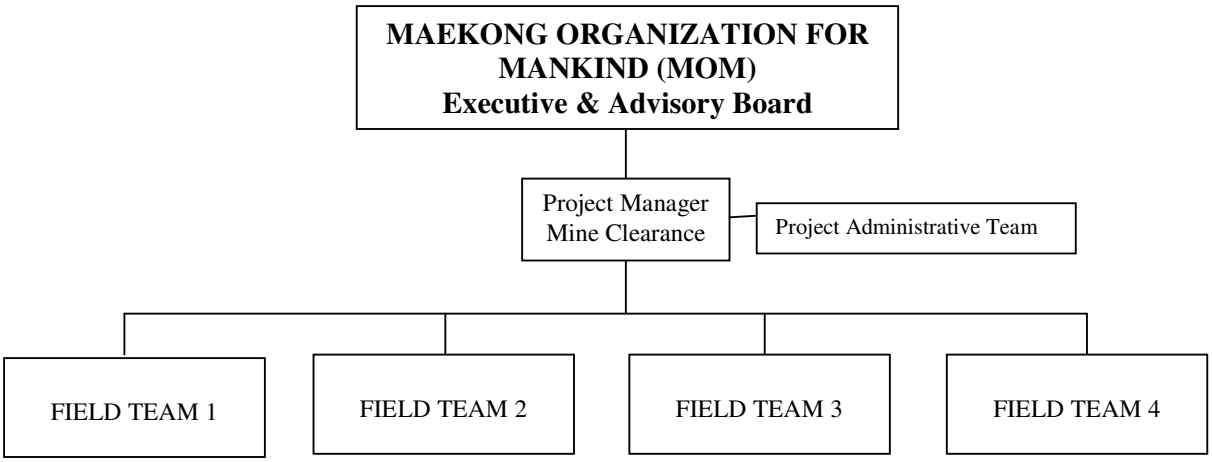
Three Training Programs have been established:

- Humanitarian Demining Training School - located in Ratchaburi province
- Mine Detection Dog Training School - located in Nakhorn Ratchasima province
- Mine Risk Education Training School - located in Lopburi province

An organizational chart for TMAC can be found in Annex III.

There are other non-governmental organizations who are actively engaging in landmine clearance in Thailand. The main NGO(s) in this field are:

Maekong Organization for Mankind (MOM): MOM was established in 2003. It undertakes the project entitled Integrated Area Reduction Project at Trad province between November 2007 to October 2009. This project will support TMAC in locating the actual minefield. After completion of the work in Trad, MOM will continue to undertake reduction survey at Sakaeo, Buriram, Surin, Sri saket, and Ubonratchathani provinces.



MOM currently has 48 staff, as follows;

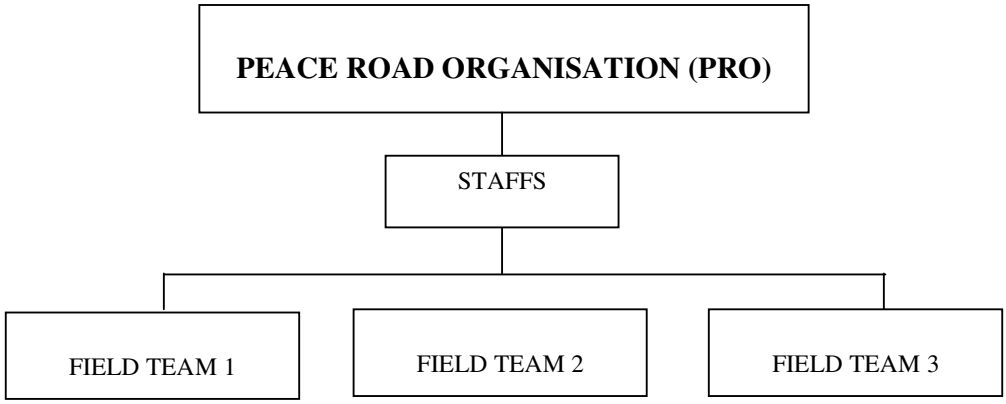
- De-miners - 36 persons
- Team Leaders - 4 persons
- Data-base staffs - 2 persons
- Administrative staffs/ Accountants - 5 persons
- 1 Project Manager

The staff are currently grouped into **4 field Teams**, and might be changed in the future in accordance with the situation at the time.

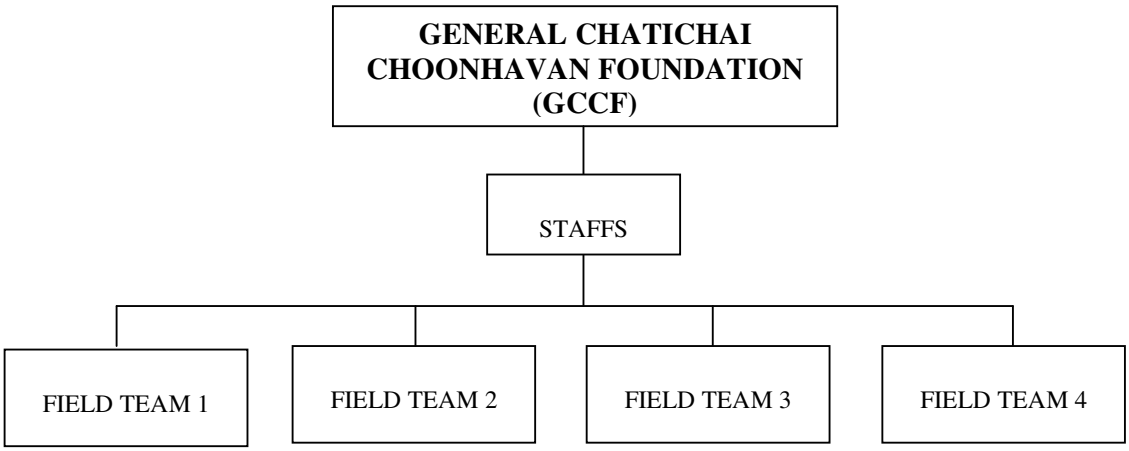
MOM has the following equipment:

- Metal Detector 10 (being purchased)
- Car-Pick-up 2 units
- Car-Ambulance 1 unit
- De-miner Personal Equipment (Probing set) 36 sets
- GPS 20 sets
- Range Finder 10 sets
- Camera 13 set
- Notebook 11 set
- And other office equipment

Peace Road Organization (PRO): PRO was established in 2006. It currently undertakes landmine clearance at Si Saket province adjacent to the Cambodia border. PRO has 28 staff, 24 of which are de-miners. As for equipments, PRO has acquired 2 heavy machines-BOZENA and Rotary Brush Cutter. It also has 45 metal detectors and 25 sets of probing equipment. PRO also possesses 3 pick-up trucks.



General Chartchai Chunhavan Foundation (GCCF): GCCF was established about 7 years ago. GCCF has reported that it has 51 staffs and some relevant equipment such as 1 four wheel drive truck, 40 sets of personal protective gear, 2 metal detectors, etc. GCCF has performed landmine clearance in Thailand over the past 7 years.



6. Nature and extent of progress made: quantitative aspects

Most of the progress achieved to date was along the Cambodia border, which receives top clearance priority as it is the most dangerous area. Over the past 8 operational years, ***1,354.747 sq. km.*** of what the LIS considered to be "contaminated sites" have been released, with ***1,299.192 sq. km.*** released in the past two years. This figure reflects an improvement in TMAC's methods to release the contaminated areas. An overview of progress made can be seen from Table 4 and Table 5 below.

Table 4: Quantity progress by types of work in each province (as of April 2008)

Bordering country	Province	LIS identified area	Area released by clearance	Projected application of LMP		Remain Minefield.
				Size of area	Safe area	
Cambodia	Ubonratchatani	510.9	0.005	510.9	100.2	410.7
	Srisaket	541.7	2.8	538.9	301.4	237.3
	Surin	260.4	0.1	260.2	106.9	153.3
	Buriram	37.5	0.05	37.4	4.3	33.1
	Sa Kaeo	181.6	51.3	130.3	109.4	20.8
	Chanta-buri	96.3	0.4	95.9	91.6	4.3
	Trad	312.8	0.6	312.1	194.3	122.3
Subtotal		**1,941.28**	**55.255**	**1,886.025**	**908.1**	**981.8**
Laos	Loei	15.4	0	15.4	15.4	0
	Nan	22.7	0	22.7	15.9	6.8
	NongBua Lampu	0	0	0	0	0
	Nong Kai	0	0	0	0	0
	Phayao	76.3	0	76.3	69.2	7.1
	Phetchabun	50.3	0.3	50	49.9	0.1
	Phitsanulok	40.3	0	40.3	0	37.2
	Udon Thani	0	0	0	0	0
	Uttraradit	7.5	0	7.5	3.3	4.2
Subtotal		**212.5**	**0.3**	**212.2**	**153.7**	**55.4**
Myanmar	Chiang Mai	131.9	0	131.9	91.5	40.4
	Chiang Rai	41.5	0	41.5	40.4	1.1
	Chumporn	6.9	0	6.9	0	6.9
	Kanchanaburi	17.8	0	17.8	0	17.8
	Mae Hong Son	103	0	103	97.4	5.6
	Phetchaburi	31.3	0	31.3	0	31.3
	Prachuap Khirikhan	18.4	0	18.4	0	18.4
	Ratchaburi	31.8	0	31.8	0	31.8
	Tak	20.4	0	20.4	0.8	19.5
Subtotal		**396.1**	**0**	**396.1**	**230.1**	**172.8**
Malaysia	Nakhon Si Thammarat	0	0	0	0	0
	Yala	1.1	0	1.1	0	1.1
Subtotal		**1.1**	**0**	**1.1**	**0**	**1.1**
Grand Total: Thailand		**2,558.8**	**55.555**	**2,495.4**	**1,291.9**	**1,211.1**

Remark: The Locating Minefield Project is executed from October 2007 – September 2008, estimate that by the end of this Project (September 2008) the final area of minefields will be ***528.2 Sq. km.*** out off ***1,211.1 Sq. Km.*** from table 4

Table 5: Area released by year and by method (as of April 2008)

	2000-01	2002	2003	2004	2005	2006	2007	2008	Total
Clearance	0.044	0.398	0.718	2.011	5.975	10.967	35.218	0.224	**55.555**
Locating minefield procedure	0	0	0	0	0	0	133.758	1,165.434	**1,299.192**
Total (sq km)	**0.044**	**0.398**	**0.718**	**2.011**	**5.975**	**10.967**	**168.976**	**1,165.658**	**1,354.747**

7. Nature and extent of progress made: qualitative aspects

By the year 2008, TMAC has released ***1,354.747 Sq. km.*** of suspected areas. Of these, ***55.5 Sq. Km.*** were cleared by traditional method and ***1,299.192 Sq. Km.*** by Locating Minefield Procedure (see Table 6).

Table 6: Quantity of progress by years (as of April 2008)

Activities	2000-2001	2002	2003	2004	2005	2006	2007	2008	Total
Clearance (sq. km)	0.044	0.398	0.718	2.011	5.975	10.967	35.218	0.224	55.555
Land released through LMP (sq. km)	0	0	0	0	0	0	133.758	1,165.434	1,299.192
Total safe areas (sq km)	**0.044**	**0.398**	**0.718**	**2.011**	**5.975**	**10.967**	**169.976**	**1,165.658**	**1,354.747**

The fact that Thailand's LIS was carried on just during the high impact of Thailand's economic crisis known as "Tom yum kung disease", socio-economic impact caused by landmine/ UXO revealed from LIS survey was therefore not really proportionate because that then economic difficulty had drove local people (or those who laid off from factories back to their local communities) to enter forest more often than usual to collect forest products for daily life or sale. Thus, during the then period it was obviously that landmine/ UXO always blocked access to forest land, untitled cropland and other natural resources.

As can be seen in Table 7 below, in the past several years the number of landmine victims has significantly decreased as a result of the continued effective MRE programs conducted by Humanitarian Demining Unit (HMAUs), related organizations, and NGOs.

Table 7: New landmine victims

Year	Total	Wounded	Fatal
1969-2001	3,122	1,704	1,418
2001-2002	346	267	79
2003	29	25	4
2004	23	19	4
2005	18	17	1
2006	16	16	0
2007	12	12	0
2008 (until March)	5	5	0

8. Methods & standards used to release areas known or suspected to contain AP mines

TMAC has used 2 main methods to clear dangerous areas: Traditional Manual Clearance Method (as written in TMAC SOP) and Locating Minefield Procedure (LMP)

Locating Minefield Procedure (LMP):
In the first period, sufficient number of staffs will be tasked to analyze available data and to gather more information prior to field survey

1. Data analysis: It is vitally important that all data and information obtained from LIS and kept in TMAC's data base room are studied and analyzed. In charged staffs will collect, study and analyze data together with other key informants e.g. ex-military, local people, wildlife hunter, etc. Satellite images will be obtained for the detail study of all mined fields in order to assess the current condition of mined fields. Distance from Bangkok to all different mined fields will be recorded for logistic planning. Interviewees in each communities during LIS will be recorded in order to find out key informants for the coming Area Reduction Survey. Outcome of this study will outline tentative plan for locating minefield
2. Field survey to locate minefield: Different types of mine field that represents all contaminated areas in Thailand; spot task, size of around 100,000 sq m, and size of beyond 1,000,000 sq m will be surveyed or given action differently

Table 8: Activities for Locating Minefield Procedure (LMP)

Size of minefield (sq m)	Activities
0 to 1,000	Clearance
1,001 to 100,000	Technical survey; putting benchmark, safe lane around, marking, SP, TP
100,000 to 1,000,000	Dividing minefield to more than one, then doing technical survey; putting benchmarks, safe lane around, marking, SP, TP to each sub-minefield. Confirm with local key informants. Other equipment may be applicable; rake, heavy machine
1,000,000 up to 140,000,000	Dividing minefield to more than one, then doing technical survey; putting benchmarks, safe lane around, marking, SP, TP to each sub-minefield. Detailed check with local key informants. May redo LIS. Other equipment will be used such as rake, heavy machine
Field re-interview	Prior to field survey, field staffs will interview nearby affected communities
Local guide	In communities interviewing, staffs will try to have local guides who have best knowledge about condition of suspected areas
Tentative minefield location	Day one, staffs and local guides will research minefield condition and try to divide land category; rock, farm land, low suspected part, highly intensified part.
Random sampling	Exclude safe parts, random every 50 to 200 meters (depending) to suspected parts and exclude safe areas while make boundary to minefield.
Following local guide	Staffs will follow local guides while working in field, and will go after metal detector. Ambulance stand by.

Condition of suspected landmine contaminated areas in each affected provinces is different. Thus LMP to affected provinces differ slightly**.**

Outcome of LMP:

LMP is now on the process (From October 2007-September 2008), being conducted by TMAC and MOM. It is likely that **minefields will be around *528.2 sq km*. This figure of *528.2 sq. km.* is real minefield** and so will be cleared by Traditional Landmine Clearance Method.

Traditional Landmine Clearance Method

TMAC's SOP of Traditional Landmine Clearance Method is derived from IMAS, but adapted to be more suitable for Thailand's landmine condition.

9. Methods & standard of controlling and assuring quality

TMAC employs a system for controlling field operation, assuring the quality of work, and sustaining moral support of field units. The methods could be briefly summarized as follows:

Control of Field Operation: Staff members from TMAC Head Office in Bangkok visit each field unit at least every 3 months to audit their work against their submitted plan or schedule. They also assess field staff's ability to use material and tools effectively and efficiently. Each field unit also has its own internal control system (as written in Field SOP.)

Quality Assurance: TMAC's Quality Assurance System follows the guidance of GICHD and UNMAS to assure all cleared area plot before its handover to local land users. There are 2 main Quality Assurance (QA):

1. QA for traditional clearance: TMAC staffs from Bangkok, together with representatives from TCBL, local NGOs, and local authorities jointly witness the field QA. Small portion of cleared land (about 10%) will be randomly checked. Standard amount of metal from cleared land is set for acceptance.
2. QA for locating minefield procedure: It is being adopted.

Moral Support: TMAC staff from Bangkok regularly visit field staff to boost their morale. Staff moral support is quite important because landmine clearance is a tough job in harsh conditions, and can be discouraging. Regular morale boosting can be helpful in keeping staff motivated and on schedule.

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

TMAC as well as local NGO(s) have conducted Mine Risk Education (MRE) in communities affected by landmines/ UXO. Up to date, about 140 MRE courses have been provided to all affected communities (an average of at least 2 MREs programs per one community). These intensive MRE courses have contributed to significantly lower landmine accidents.

11. Resources made available to support progress made to date

As noted, the primary source of funding for Article 5 implementation by Thailand has been Thailand's State budget through funds allocated to the Ministry of Defence. An overview of funds obtained for Article 5 implementation since entry into force can be seen in Table 9 below:

Table 9: Resources made available to date (million baht)

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
State funds to TMAC	18	16.25	40	32	35	38.8	38.3	18.3	88.3	106	430.95
Donors: to NGOs	0	20	23	30	30	40	40	30	30	50	293
Total	**18**	**36.25**	**63**	**62**	**65**	**78.8**	**78.3**	**48.3**	**118.3**	**156**	**723.95**

12. Circumstances that impede compliance to the 10 year period

a) Gross overestimation of the magnitude of the challenge: As noted, the Landmine Impact Survey, which was perceived to be credible given that it followed international protocols and was certified by a UN process, suggested an illogically great amount of what the LIS report referred to as "contaminated area." The LIS report complicated efforts to proceed with Article 5 implementation in a coherent manner because of its lack of utility as a planning tool.

b) Border demarcation issues: Mined areas in Thailand are along its borders with neighboring countries. In many instances, however, borders are not demarcated and ongoing internal conflict in neighboring States prevents progress in border demarcation and hence in mine clearance in disputed areas.

c) Landscape and climate: A significant number of landmines are buried deep in the tropical jungle and dangerous slopes and terrains that provide difficult access to de-miners and their equipment. Some contaminated areas along the Thai-Cambodia border such as Trat and Chantaburi province present a particularly difficult geographical challenge for high slop mountain. As such, the average working time for clearance in these places can take up twice longer than others place. Humidity and heat, as well as virulent tropical diseases, poses health threats that further complicate de-miners' work. Moreover, there area many leeches in some contaminated areas during rainy season; these small animal will surely suck blood from deminers.

d) Financial constraints: TMAC falls under the Supreme Command Headquarters, Ministry of Defence. Its budget is derived from the Ministry of Defense's annual budget, which must be allocated according to different priorities in a given year. In this regard, TMAC's de-mining budget has to directly compete with the budgets of other divisions and sub-divisions within the Ministry. TMAC's annual budget which has been lowered from the beginning period has just recently been increased in the past few years. In addition, other emergencies (e.g., flooding disaster in the north, the tsunami disaster, and unrest in the three southern provinces) have emerged as more pressing demands on finite government resources.

e) Low levels of external financial support: In the past seven years of de-mining operation, mine clearance in Thailand received financial support mainly from the Government's annual budget to TMAC. This has been inadequate for Thailand to accomplish the mine clearance task within its 10-year deadline. International funding and assistance has been coming from major supporters like the US and Japan, and is increasing although at present remains relatively limited.

13. Humanitarian, economic, social and environmental implications

According to the LIS, most of the suspected mined areas in Thailand pose low-impact to the communities. Only 69 out of the total 530 affected villages are considered to have high-impact on communities. Although the landmine problem in Thailand presents threats to local communities at some level, it rarely affects roads, housing areas, public infrastructure, schools and public health buildings. The major problem with mines and UXO is that they block access to resources such as forest, cropland, pasture and watering holes. However, this problem is less serious than it used to be in the past because most villagers are less reliant on natural resources for their livelihood.

The fact that Thailand's LIS was carried out during the height of Thailand's economic crisis meant that its conclusion of the socio-economic impact caused by landmines/ UXO was skewed. Economic difficulties at the time forced more villagers (or those who were laid off and returned to their villages) to earn their livelihood from collecting forest products. As the Thai economy returned to normal and growth picked up, urbanization and better job opportunities decreased the rural communities' reliance on natural resources for income.

Furthermore, as the work of TMAC's field units progressed, many high priority mine fields were cleared and marked. As a result, the number of accidents decreased and more forests and untitled cropland are safe and accessible to the local people.

That said, mined areas continue to result in victims and pose barriers to the socio-economic development of communities. Work to be carried out during the proposed extension period would address these concerns conclusively.

14. Quantity and quality of the challenge that remains

As noted in Table 4, it is assumed that about ***528.2 Sq. Km.*** remain to be released.

TMAC has been working together with NGOs on the Area Reduction Project to develop appropriate Standard of Procedure (SOP). The Area Reduction Survey SOP shall be an appropriate tool to release as much as 2,000 sq. Km. of areas that is proven not to be mined-contaminated. However, in some dangerous areas like in Chantaburi and Trad provinces, the traditional manual clearance method will be used as the contamination is very high there.

Based on the Area Reduction Survey, TMAC will implement a new national annual de-mining plan. According to the plan, highly affected communities will be earmarked as priority. On the other hand, areas which pose less threat to the people, such as mined areas in national forest reserve, will be cleared at a later stage. The mine clearance method for those remaining contaminated areas will be undertaken by the manual clearance method.

Annex II contains the status of areas originally identified by the LIS thus providing an indication of which areas remain suspect.

15. Amount of time requested and rationale for extension request

Thailand is request a 9.5 year extension (i.e., until 1 November 2018). In its consideration of the amount of time needed, Thailand pays equal attention to its intention to finish its work within the timeframe granted and the present realistic and practical factors. Past experience proved that de-mining is a difficult and delicate task which requires time. Clearance

productivity in Thailand is about 50 square kilometers per year. External and independent factors also act as sources of delay. These include geographical landscape, on-going conflict on the other side of the boundaries, and disputed borders waiting to be settled.

Potential risk factors: Risks against completion of the project within the requested extension period are low. The Thai Government is aware of its obligations under the Mine Ban Treaty and has increased its annual budget allocation to TMAC for both operational and staffing costs. However, a couple of potential risks remain:

- *Force Majeure*, such as heavy rain or other unfavorable weather patterns that could affect field operation.
- Drastic political change (that is not expected over the next 10 years.)

Existing Institutions: TMAC will be working in cooperation with other NGOs in Thailand, namely the Peace Road Organization (PRO), Maekhong Organization for Mankind (MOM), and General Chatichai Choonhawan Foundation (GCCF).

It should be noted that Thailand's planning will include the following additional components:

- Awareness raised at the community level: Mine risk education programs are worthwhile initiatives since they can help prevent mine-related accidents and the loss of lives of those living in communities at risk. TMAC, the competent ministries and other agencies concerned have been doing their utmost to ensure that such programs are systematically incorporated into the local education curriculum.

- Enhanced and strengthened close cooperation at the regional level: Realizing that each individual State Party is legally responsible for implementing the Convention's obligations in areas within its jurisdiction, Thailand supports closer cooperation among States Parties which will help create better mutual understanding, reconciliation, as well as foster sustainable development in the national and regional contexts. Such cooperation can take the form of technical assistance and financial support.

- Capacity developed: Thailand recognizes that for the years to come, the need for building appropriate national capacities for TMAC, other relevant agencies, and NGOs is truly indispensable to enable them to fully carry out their mandate and to accomplish their mission.

16. Detailed annual cost work plan for the period of the requested extension

With estimated Minefields of about ***528.2 Sq. Km.***, which will be released during the extension period. TMAC proposes a mine clearance plan as follow: Area Reduction Survey to be employed as the primary method for land release. Henceforth, minefields will be cleared using the traditional manual mine clearance method assisted by heavy mechanical equipment, mine detection dogs, and other tools. The appropriate SOP for heavy clearance machine is in the process of development.

Summary of TMAC mine clearance plan can be illustrated as follows:

16.1 Manual De-mining: TMAC will have at least 90 field teams (each comprises of 10 de-miners) working under 4 main units; HMAU 1, HMAU 2, HMAU 3, and HMAU 4 (Humanitarian Mine Action Unit: HMAU). Not only de-miners, about 300 more staffs such as MEDIVAC, database personnel, EOD experts, driver, supportive staffs, will be included to complete the mission.

16.2 Mine Detection Dog:

16.3 Heavy Mechanical Equipment:

16.4 Other Clearance: Rake

To execute the abovementioned works, sufficient budget is needed. Table 10 below shows estimated annual cost over the next 9.5 years that includes the cost for sufficient number of staffs, Sources of fund are also expected in the Table 10

Table 10: Operational Cost and Sources of Funding for the Extension Period (million baht)

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Total Minefield to be cleared annually (sq. km.)	43.07	43.28	41.73	41.95	41.05	62.92	61.95	64.71	64.18	63.51	528.35
Estimated Total Budget million baht (35 baht per sq.m.)	1,507.5	1,514.8	1,460.6	1,468.3	1,436.8	2,202.2	2,168.3	2,264.9	2,246.3	2,222.9	18,492.25
Sources of Fund											
Thai govt.	1,000	1,000	1,000	1,000	1,000	1,500	1,500	1,500	1,500	1,500	12,500
Donor	507.5	514.8	460.6	468.3	436.8	702.2	668.3	764.9	746.3	722.9	5,992.25
Total	**1,507.5**	**1,514.8**	**1,460.6**	**1,468.3**	**1,436.8**	**2,202.2**	**2,168.3**	**2,264.9**	**2,246.3**	**2,222.9**	**18,492.25**

Assumption for the abovementioned: It is strongly assumed that TMAC (4 field area units) and other local NGOs shall release about 40-60 sq km mine field annually, using all available resources such as de-miners, heavy machine, mine detection dog, and other appropriate methods. To best experience, one square meter of mine field in Thailand shall needs about 30 baht for new integration mine clearance method.

Socio-economic return:

It is expected that this 10 year-extension project will give many forms of socio-economic return such as return from the free use of cleared area, return from saving hospital cost, return estimated on saving lives that otherwise will get killed by landmines. These returns, if put in calculation table; will make this extension project reasonably feasible, as shown in the table 11 below:

Table 11: Socio-economic Feasibilities Assessment of Landmine clearance in Thailand

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cost										
Total Minefield to be cleared: sq. km a year	43.07	43.28	41.73	41.95	41.05	62.92	61.95	64.71	64.18	63.51
Estimated Total Budgets :million baht (35 baht per sq.m)	1,507	1,514	1,460	1,468	1,436	2,202	2,168	2,264	2,246	2,222
Returns										
Estimated Soci-econoic Return(Million baht)										
Land use; collect frost product (20 baht /sq.m)	1,076	1,082	1,043	1,048	1,026	1,573	1,548	1,617	1,604	1,587
Trading with neighbor countries	500	525	551.25	578.81	607.75	638.14	670.04	703.55	738.72	775.66
Prevent loose to lives (5 fatal @ 10,000,000)	50	50	50	50	50	50	50	50	50	50
Prevent hospital cost (10 X 60,000 baht)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Income from Tourist at Archeology sites	20	20	20	20	20	20	20	20	20	20
Total Return (million baht)	1,647	1,678	1,666	1,700	1,707	2,284	2,293	2,396	2,419	2,440
Balance (million baht)	139.9	163.4	205.7	231.7	270.3	82.7	125.0	131.6	172.8	217.2
Accumulated balance (million baht)	139.9	303.3	509.0	740.8	1,011.1	1,093.9	1,218.9	1,350.6	1,523.4	1,740.7
Feasible Index										
Return start From Year One	First Year									
Project Cost(million baht)	18,492									

Return on Project(million baht)	20,232									
Profit(million baht)	1,740									

Potential risk factors: Risks against completion of the project within the requested extension period are low. The Thai Government is aware of its obligations under the Mine Ban Treaty and has increased its annual budget allocation to TMAC for both operational and staffing costs. However, a couple of potential risks remain:

- *Force Majeure*, such as heavy rain or other unfavorable weather patterns that could affect field operation.
- Drastic political change (that is not expected over the next 10 years.)

Existing Institutions: TMAC will be working in cooperation with other NGOs in Thailand, namely the Peace Road Organization (PRO), Maekhong Organization for Mankind (MOM), and General Chatichai Choonhawan Foundation (GCCF).

It should be noted that Thailand's planning will include the following additional components:

- Awareness raised at the community level: Mine risk education programs are worthwhile initiatives since they can help prevent mine-related accidents and the loss of lives of those living in communities at risk. TMAC, the competent ministries and other agencies concerned have been doing their utmost to ensure that such programs are systematically incorporated into the local education curriculum.

- Enhanced and strengthened close cooperation at the regional level: Realizing that each individual State Party is legally responsible for implementing the Convention's obligations in areas within its jurisdiction, Thailand supports closer cooperation among States Parties which will help create better mutual understanding, reconciliation, as well as foster sustainable development in the national and regional contexts. Such cooperation can take the form of technical assistance and financial support.

- Capacity developed: Thailand recognizes that for the years to come, the need for building appropriate national capacities for TMAC, other relevant agencies, and NGOs is truly indispensable to enable them to fully carry out their mandate and to accomplish their mission.

17. Institutional, human resource, and material capacity available

TMAC has some organizational disadvantages as a body under the Ministry of Defense. Its military affiliation has precluded funding support from some donors. Besides, bureaucratic procedures has caused a number of delays in the past. TMAC is now working to transform itself into a civilian organization in order to increase flexibility and effectiveness in administration. The reorganization will likely be completed in a year or so. This will allow TMAC to increase the number of de-miners from 100+ to 200 per each field operational unit.

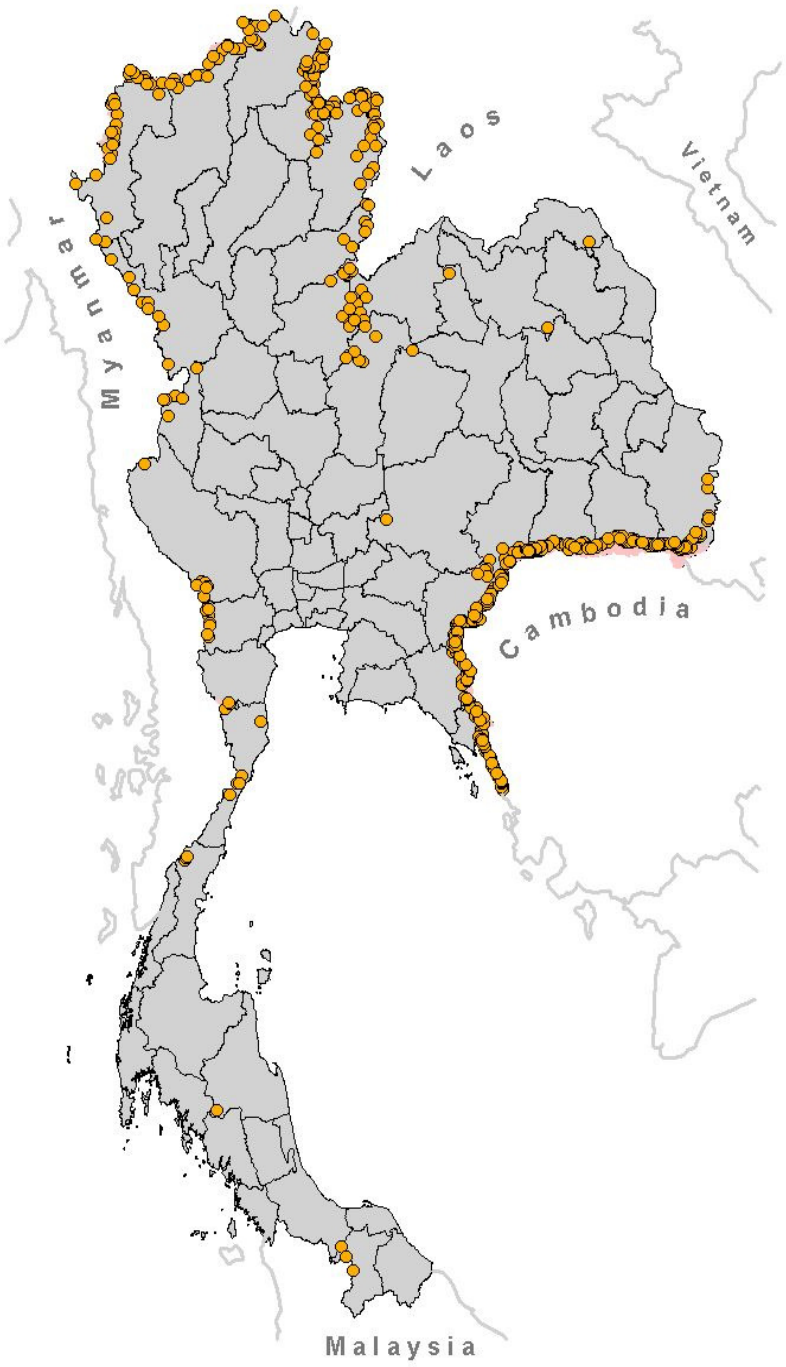
TMAC is now making purchase orders for new equipment, such as 36 pick-up trucks, 4 ambulances, about 200 metal detectors, and plans to acquire more in the coming years.

18. Observations

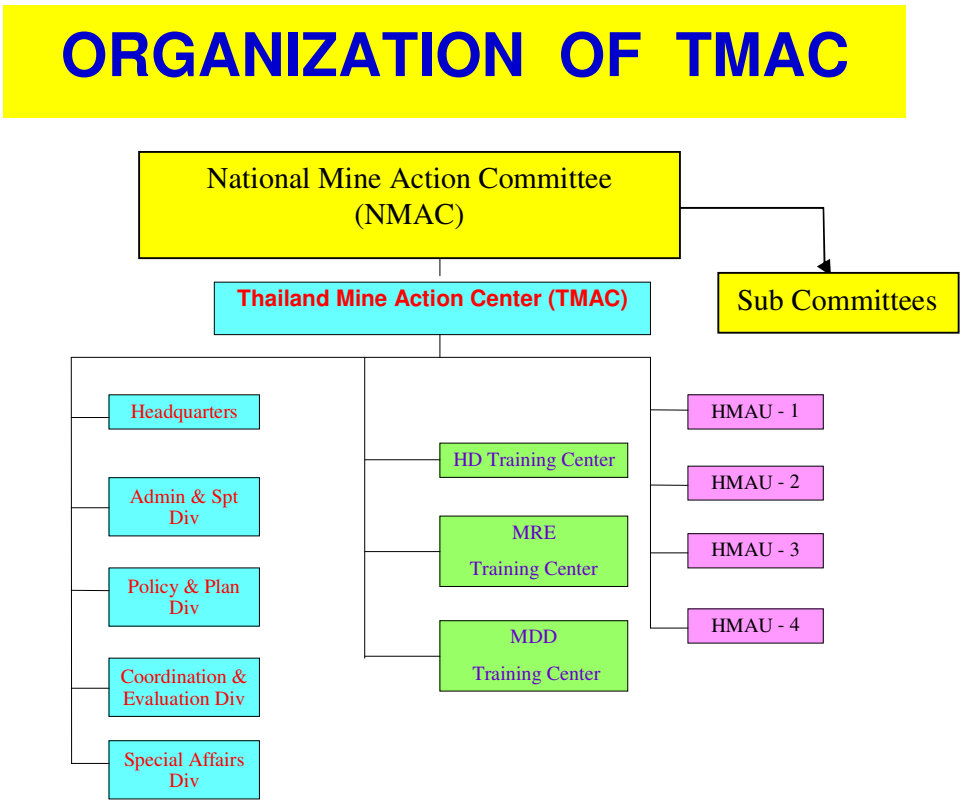
Distribution of funds available: According to the Convention's obligations, each State Party has the right to seek and receive assistance, where feasible, from other States Parties to the extent possible. This is a unique feature of the Convention. Thailand is of the view that this unique method of distributing funds should be reviewed to better correlate funding with the challenges present in the requesting State.

Flexibility in terms of implementation: Individual States Parties are faced with different challenges particular to their areas, which may vary with time and circumstance. As such, State Parties should not be subject to the same standard of application. The decision to grant extension requests thus should be considered in light of the constraints prevalent in each individual country.

Annex I: Map of affected communities identified by the Landmine Impact Survey



Annex II: TMAC Organizational Chart



Annex: III Mine clearance equipments

Demining Equipments

Date of Acquisition	Organization responsible for inventory	Detector type held	Total number of detectors	Percentage serviceable and remaining life	
2000	TMAC	VALLON (V1)	119	119	
2002	TMAC	VALLON (V1)	31	31	
2005	TMAC	VALLON (V3)	10	10	
2002	TMAC	MINELAP	30	30	
2003	TMAC	MIL-D1	55	55	
2008	TMAC	MIL-D1 V3.3	120	120	
			Total: 365	Total: 365	
Date of Acquisition	Organization responsible	Personal protective equipment type held	Personal protective equipment sets	Percentage serviceable	
2000	TMAC	US - PPE	87	87	
2002	TMAC	US - PPE	41	41	
2003	TMAC	US - PPE	20	20	
2005	TMAC	CHAINA	50	50	
2008	TMAC	-	100	100	
2000	TMAC	-	142	142	
2002	TMAC	-	38	38	
2008	TMAC	VISOR	100	100	
			Total: 578	Total: 578	
Date of Acquisition	Organization responsible	Mechanical equipment type held	Numbers of equipment held	Percentage serviceable	Number of operators
Jun-01	US	SDDT	2	2	15
Jul-01	TMAC	BDM 48	1	1	15
Oct-01	US	TEMPEST	1	1	15
Jan-06	US	BEAVER	1	1	13
Mar-06	US	UNI DISK	1	1	15
Apr-08	US	PECO	1	1	10
			Total: 7	Total: 7	Total: 78

Mine Detection Dog

No.	Name	Sex	Breed	Age	Remark
1	BAK	Male	GERMAN SHEPHERD	7 years 3 months	
2	BARRAK	Male	BELGIUM SHEPHERD	6 years 6 months	
3	BENIE	Male	CZECCH SHEPHERD	7 years 9 months	
4	BOONE	Male	BELGIUM SHEPHERD	6 years 9 months	
5	DASTY 1	Male	DUTCH SHEPHERD	8 years 3 months	20-Jan-06
6	DASTY 3	Male	CZECCH SHEPHERD	7 years 9 months	3-Jul-06
7	DIENO	Male	CZECCH SHEPHERD	7 years 9 months	1-Apr-06
8	TARZAN	Male	BELGIUM SHEPHERD	7 years 3 months	
9	FALCO	Male	BELGIUM SHEPHERD	7 years 9 months	
10	VERA	Female	CZECCH SHEPHERD	8 years 6 months	10-May-06
11	REFLEX	Female	LABRADOR RETRIEVER	4 years 9 months	
12	RALNA	Male	LABRADOR RETRIEVER	4 years 9 months	
13	BO	Female	GERMAN SHEPHERD	7 years 7 months	
14	RITA	Female	GERMAN SHEPHERD	8 years 2 months	
15	LAIKA	Female	MALINOI	7 years 8 months	30-Jan-06
16	HERTHA	Female	MALINOI	7 years 8 months	
17	JUDY	Female	MALINOI	6 years 11 months	
18	REX 1	Male	MALINOI	7 years 8 months	
19	RINGO	Male	MALINOI	7 years 2 months	
20	CARO	Male	GERMAN SHEPHERD	8 years 2 months	
21	ALDO	Male	GERMAN SHEPHERD	7 years 8 months	7-Oct-06
22	REX 2	Male	GERMAN SHEPHERD	6 years 6 months	
23	KABEL	Male	LABRADOR RETRIEVER	4 years 10 months	
24	RUSSHA	Female	LABRADOR RETRIEVER	4 years 8 months	
25	ROCKY	Male	GERMAN SHEPHERD	5 years 10 months	
26	BOJAR	Male	GERMAN SHEPHERD	6 years	
27	FANKA	Female	GERMAN SHEPHERD	5 years 3 months	12-Nov-06
28	LIZA	Female	MALINOI	5 years 1 months	10-Sep-05
29	PIPEN	Male	MALINOI	4 years 8 months	8-Nov-06
30	TEFKA	Female	MALINOI	5 years 8 months	
31	RAFFY	Male	LABRADOR RETRIEVER	4 years 9 months	
32	RIDBON	Male	LABRADOR RETRIEVER	4 years 9 months	

Annex IV: Methods used in executing the Landmine Impact Survey

Staff training and pre-test

Field staff training took place in stages. First, 15 supervisors and field editor candidates were trained. The 12 successful candidates that completed this training then conducted a pretest of the survey methodology in the province of Sa Kaeo. With the assistance of a social science consultant and TMAC personnel, this activity helped the field staff to tailor the approach and standard questionnaire to Thai conditions. On completion of the pretest, 60 enumerator candidates were selected and trained. Thirty successful candidates were recruited and organized into four field groups, each composed of a supervisor, two field editors, four teams of two data collectors, and two drivers.

Pilot test and deployment

The four groups were deployed to Sa Kaeo province for a pilot test. A controlled data collection effort was conducted where each group was responsible for one of the four affected border districts. At the end of the pilot test, a two week workshop was held to revise procedures as needed and to retrain staff. Subsequently, each group was allocated a province on the Cambodia border. When these tasks were quality assured, two groups were deployed to the north of the country while the other two groups continued to work progressively along the northern border with Cambodia and then along the Laotian border provinces in the northeast. After the survey of the Laotian border was completed, one group was relocated to the south of the country, working in the southernmost provinces along the border with Myanmar and then along the Malaysian border. The remaining groups consolidated their efforts along the rest of the extent of the border with Myanmar until completion of the project's field collection phase in April 2001.

Expert opinion collection

Information on the expected distribution of mines in affected provinces was based on extensive discussions with TMAC personnel and the review of baseline data from a Thai army assessment in 1997. At that time, contamination was recorded over an area of 796 square kilometers in 19 border provinces. Survey personnel with a village gazetteer for 1998 visited civilian authorities in all provinces and districts identified as contaminated in the 1997 army assessment. They also visited 27 other provinces where possible contamination were reported. Village lists were updated, and communities in all assumed affected districts were identified as either not-affected, possibly affected, or affected. EOC teams also identified district boundaries in conjunction with district authorities and updated boundaries on the 1:50,000 baseline maps for the project. After the completion of EOC listings from civilian authorities, military authorities were visited in all army and marine regions where listings were updated, and maps of contaminated areas in military archives were transferred to the 1:50,000 survey working maps. The collected information, the field requests, and the updated village lists were processed and returned to TMAC.

After the main phase of EOC collection, 17 military liaison officers, identified from all major field and task forces nationwide, joined a combined training and EOC symposium at TMAC, followed by a field test. The nationwide conflict history and consequences to survey operations were discussed and the EOC village lists were further refined. Areas were identified that required further investigation and complementary visits were carried out based on liaison officer's recommendations. The EOC activity combined the requirement for determining a list of target communities for the project with the important task of briefing

provincial governors and military commanders on the project. It also provided an opportunity to request assistance during the field operations. The introduction of the project to senior authorities at this stage considerably facilitated the remainder of the survey.

The EOC identified 1,491 communities assumed affected or possibly affected. The proportion of possibly affected to affected communities indicated the precision in expert opinion. A very high number of communities along the Myanmar and Laotian borders were claimed to be possibly affected communities, compared to provinces on the Cambodian border for which EOC data appeared to be more precise (don't really understand). An operational plan was developed based on the number of communities to visit in a province, the reliability of the information, and the expected difficulty of the survey environment. A nationwide plan was established using as a baseline the time and resources requirements identified during the pilot test. These calculations indicated that the timelines for the field data collection phase of the project had to be extended for an additional two months.

Rapid appraisal technique for locating affected communities

Because landmines and UXO contamination areas were expected to be confined to the border regions, the standard method of verifying the coverage of the survey efforts was modified. Rather than following the normal protocol for the control for false negatives, which is based on a Lot Quality Assurance Sampling (LQAS) technique across a wide area, a full enumeration of communities was done in a limited area. In most border regions, a 15-kilometer deep band bound the area for full enumeration. Where pockets of contamination existed further inland from the borders, full enumeration was conducted in all surrounding communities.

During a visit to possibly affected communities, a rapid appraisal technique was used to confirm or deny the presence of landmines and UXO. If the visit disclosed that the community claimed some contaminated areas, or if it had some recent victims, or if there was reason to believe that one or the other of those responses could potentially be identified in a longer encounter, then a full community interview was arranged. In the event of a false negative, such interviews were also conducted in the five closest communities in analogy with the normal protocol.

Following EOC and rapid appraisal procedures, survey staff visited 2,730 communities. From the spatial distribution of the 68 detected false negatives, it was estimated that the survey covered 96 percent or more of all affected communities in Thailand.

Community Interview

Before visiting a community assumed affected to conduct a full community interview, preparation was necessary. This involved making an appointment to visit the community, a review of the conflict history in the region, and an analysis of any survey results from neighboring villages. Survey staff would also prepare copies of topographic maps that covered the community and its vicinity. This involved the marking of features such as the international border, roads, rivers and canals, other communities, and identified contaminated sites. On a given day, the survey staff was also prepared to visit alternate communities in the event that the initial community (missing some word) proved to be unaffected. A community interview began with a general discussion covering the conflict history, presence of contaminated areas, and victims in the community. After about 20-30 minutes, the community mapping exercise and victim lists were completed using a large sheet of paper so that all participants could see it from their seats. The participatory mapping was followed by a questionnaire interview. This employed a community module plus a separate module for each

of the mined areas that the key informants had placed on the map. On completion of the questionnaire and the attendance list, a photograph of the interview group was taken. A community reference point was fixed with the GPS prior to departure.

Visual verification of contaminated areas was undertaken when it was safe and feasible to do so. Key informants and appropriate guides were identified during the community interview to lead teams to safe viewing points of the contaminated area. At this location, the mined area modules were updated and completed. Particular attention was given to recording the approximate mined area boundaries on the topographic map as explained by the guides.

Provincial operations and survey planning and execution

Responsibility for executing the survey in a particular province was assigned to one survey group. As mentioned above, a group consisted of one field supervisor, two field editors, four pairs of enumerators, and two drivers. There were four such groups. Each of them possessed two 4x4 vehicles, six motorcycles, and one truck for transportation. Supervisors and field editors were required to produce a draft report when each provincial survey was complete. This helped to maintain a result-orientated focus, and communicated a sense of group accountability.

During the initial stages of a provincial survey, field supervisors collaborated with provincial military and civilian authorities. Together they would review working maps, village lists, radio procedures, and security plans. The provincial governor was visited again, and was asked to inform officers at a district, sub-district, and even community level to cooperate with the survey teams. A provincial operations headquarters was established in a room big enough to hang a large operational map of the area. All district authorities were visited at an early stage accompanied by liaison officers from the military. Local guides and armed escorts were arranged where necessary. The supervisor also met additional local experts, such as representatives from hospitals, the forestry department, and national parks. An operational plan for a rapid appraisal survey was then designed and implemented to test and update the EOC information. Then, community appointments and the operational plan were finalized and the community interviews were initiated.

Most groups would hold daily debriefing sessions during which each team would transfer the major results from the day's work to the operational map. All visited communities were clearly marked and color-coded with respect to impact score and depth of investigation. Contaminated area locations were copied onto the group's map. Weekly co-ordination meetings were held with all data collection teams to review results, resolve overlap between suspected areas reported by two or more communities, and revise operational plans and procedures as needed. At the end of the provincial survey, the field survey group held a final internal evaluation and coordination meeting to ensure that all the work was properly completed and documented. Briefings were provided for local stakeholders, particularly the military, prior to the team's departure from a province. A press release was prepared for the local media. Survey groups were also expected to produce a province report showing the preliminary results, findings, and recommendations from their work.

Recording the locations of suspected contaminated areas

Enumerators had access to 1:50,000 scale topographic maps. With training in map reading and with extensive visual inspections undertaken, many of the suspected areas were recorded with their outlines detailed to a level that surpassed normal impact survey requirements. For most areas, it was possible to take GPS readings of several edge points. During their daily

debriefs, enumerators and field editors reviewed community interview outputs to eliminate duplications in reported areas.

The use of polygons in recording mined areas required a minor adaptation of the manner in which the impact survey data was stored in the IMSMA database. The core physical data (terrain and viewing point, size, vegetation, land ownership, clearance duration, marking potential, and sketch map) were recorded once for each suspected area. This information is held in the IMSMA dangerous area module. On the other hand, data on impacts (recent victims, socio-economic blockages, and munitions types) were attached to the community module for the affected community. To establish a relationship between these two tables, the primary key for minefield records was copied into the appropriate mined area records. Minefield polygons were digitized in ArcView GIS using scanned and geocoded 1:50,000-scale topographic maps. These were subsequently stored in IMSMA.

Community case studies and field staff statements

In light of the heavily analytical nature of the survey process, it was decided that it would be useful if the survey field teams recorded and shared some of their more personal impressions. Field staff were encouraged to write short stories describing some of their impressions and most poignant experiences. In addition, in-depth case studies were undertaken for a number of communities in Thailand, reflecting various border environments and impact categories. All of this work was written initially in Thai and translated into English.

Camps for displaced persons

Along the Myanmar border, ten camps for people displaced from Myanmar have been established over the last decade. The camps contain an official population of about 130,000. They were targeted by the impact survey due to the high number of victims in the camps and the assumption that camp inhabitants might suffer new mine incidents. Standard community interviews were modified to account for the camp environment and an earlier victim survey conducted previously by Handicap International. Camp community interviews involved two sub-lines of investigation, one with a group of knowledgeable stakeholders and the other with victims. The interview with the stakeholders identified individuals, authorities, or organizations that were affected by mines, were concerned with mine victims or incidents, or were affected in any way by the survey results. The victim interviews targeted all recent victims individually using the recent victim questionnaire for camps.

Hospital victim records

Provincial health offices retain lists of mine casualties for up to five years as a legal obligation. In addition, the provincial, district, and military hospitals file records of admission and treatment for landmine/UXO victims. Unfortunately not all of these records are complete or clearly identify victims of mines as opposed to other types of injuries. Nonetheless, survey teams worked closely with medical staff to scrutinize records and to complete the incident/accident module of IMSMA. Special efforts made to differentiate between incidents occurring on Thai soil as opposed to Myanmar territory were clearly defined.

Field editing and quality assurance

As indicated, the field teams reconvened regularly to review the outputs from the community interviews (completed questionnaires, maps, and photographs) with the field editors. First, the field editors assured the quality of the questionnaires and maps, and issues such as data incompleteness or inconsistency were corrected. Matters arising because different

communities claimed the same contaminated areas were also resolved and the questionnaires were then translated into English. The field editors checked each other's work and the supervisors inspected the material. The field operations received extensive support from the national and international staff based in Bangkok. A senior head office representative participated in all final coordination meetings in the province to ensure that the questionnaires, maps, gazetteer lists, and the provincial report were completed to the expected standard. All data from the province was transferred to the database team in Bangkok. The data were entered under the supervision of the Information Management Officer. Extensive internal quality control measures ensured that the data entered accurately reflected the data collected. These measures included: checking field staff certifications, controlling attachments for completeness, checking reference points in the GIS against those marked on hardcopy maps, review of the data by another person, and, review of the community summary information by a person from outside the database team. With the verified information, the master tables were created. These tables in turn supported all subsequent analysis and presentations.

Annex V: List of Danger Areas identified by Landmine Impact Survey, Safe Areas, and Minefields

Notes**:** 1.) Name and size of Danger Areas as identified by LIS.
2.) Safe areas from the resulted of Mine Clearance (MC), Area Reduction (AR), or Locating Minefield Procedure (LMP).
3.) Name and size of Minefields from the resulted of LMP.
4.) Remark: "E" means these danger Areas are still under the LMP and the size of Minefields are estimated numbers. The actual size of these Minefields should be obtained by September 2008.

Name of Danger Area (DA)	Size of DA (sq. m.)	Safe Area (sq. m.)		Name Of Minefield (MF)	Size Of Minefield (sq. m.)	Remark
		MC/AR	LMP			
3	1,738,132	0	1,613,132	3-01	125,000	
4	326,223	4,637	321,586	4-01	321,586	
5	244,503	244,503	0	5-01	0	
6	3,377,182	1,523,200	1,853,982	6-01	1,853,982	
7	98,242	98,242	0	7-01	0	
8	22,345	22,345	0	8-01	0	
9	186,765	0	107,715	9-01	79,050	
10	613,105	0	473,310	10-01	86,895	
				10-02	52,900	
11	1,524,215	0	1,237,215	11-01	105,000	
				11-02	182,000	
12	22,632	22,632	0	12-01	0	
13	22,665	22,665	0	13-01	0	
14	21,349		21,349	14-01	0	
15	420	420	0	15-01	0	
16	6,944	6,944	0	16-01	0	
17	11,328	11,328	0	17-01	0	
18	232,573		232,573	18-01	0	
19	14,654	14,654	0	19-01	0	
20	389,137	0	381,537	20-01	7,600	
21	673,682	0	398,682	21-01	275,000	
22	41,741	0	34,741	22-01	7,000	
23	28,752	28,752	0	23-01	0	
24	725,565	0	688,993	24-01	36,572	
25	44,599	44,599	0	25-01	0	
26	125,407	0	70,907	26-01	37,500	
				26-02	17,000	
27	680,227	0	530,227	27-01	150,000	
28	103,612	103,612	0	28-01	0	
29	444	444	0	29-01	0	
30	2,655		2,655	30-01	0	
31	633	633	0	31-01	0	
32	5,055		5,055	32-01	0	
33	68,151	68,151	0	33-01	0	
34	2,802	2,802	0	34-01	0	

35	13,520	13,520	0	35-01	0	
36	50	50	0	36-01	0	
37	16,113	0	6,513	37-01	9,600	
38	35,901	35,901	0	38-01	0	
39	167,442	167,442	0	39-01	0	
40	2,868	2,868	0	40-01	0	
41	433,866	433,866	0	41-01	0	
42	8,854	8,854	0	42-01	0	
43	369,357	0	297,357	43-01	60,000	
				43-02	12,000	
44	1,214,982	0	409,982	44-01	105,000	
				44-02	75,000	
				44-03	625,000	
45	269,469	0	266,469	45-01	3,000	
46	282,193	0	247,193	46-01	35,000	
47	653,104	0	536,104	47-01	90,000	
				47-02	27,000	
48	108,042	108,042	0	48-01	0	
49	485,264	0	461,920	49-01	17,944	
				49-02	5,400	
51	49,696	49,696	0	51-01	0	
52	903,346	0	852,346	52-01	51,000	
53	2,083,998	0	1,957,998	53-01	70,000	
				53-02	56,000	
54	959,058	0	849,058	54-01	110,000	
55	3,672,999	0	2,680,699	55-01	992,300	
56	7,753	7,753	0	56-01	0	
57	23,218	23,218	0	57-01	0	
58	118,490	118,490	0	58-01	0	
59	6,366	6,366	0	59-01	0	
60	7,058	7,058	0	60-01	0	
61	57,833	57,833	0	61-01	0	
62	1,405,382	0	0	62-01	281,076	E
63	132,775	0	54,775	63-01	78,000	
69	200,623	0	168,123	69-01	32,500	
70	113,515	0	105,715	70-01	7,800	
71	13,920	13,920	0	71-01	0	
72	28,090	28,090	0	72-01	0	
73	20,715	20,715	0	73-01	0	
74	4,528	4,528	0	74-01	0	
75	83,032	0	77,432	75-01	5,600	
76	5,681	5,681	0	76-01	0	
77	270	270	0	77-01	0	
78	1	1	0	78-01	0	
79	5	5	0	79-01	0	
80	217	217	0	80-01	0	
81	1	1	0	81-01	0	
82	2,376,557	0	0	82-01	475,300	E
83	173	173	0	83-01	0	
84	2,943,911	0	2,039,911	84-01	904,000	
85	97	97	0	85-01	0	

86	86,296	0	54,096	86-01	32,200	
87	2,859,888	0	2,646,588	87-01	55,800	
				87-02	157,500	
88	38,300	0	30,500	88-01	7,800	
89	29,329	0	9,329	89-01	20,000	
90	24,327	24,327	0	90-01	0	
91	174,761	0	140,861	91-01	33,900	
92	389	389	0	92-01	0	
93	2,949	2,949	0	93-01	0	
94	7,969	7,969	0	94-01	0	
95	1,373,374	0	1,238,374	95-01	135,000	
96	253,745	253,745	0	96-01	0	
97	324	324	0	97-01	0	
98	608	608	0	98-01	0	
99	718	718	0	99-01	0	
100	1,163	1,163	0	100-01	0	
101	515	515	0	101-01	0	
103	870	870	0	103-01	0	
105	349,693	0	345,693	105-01	4,000	
106	1,956	1,956	0	106-01	0	
107	1,474	1,474	0	107-01	0	
108	1,792	1,792	0	108-01	0	
109	1,568	1,568	0	109-01	0	
110	74,817	74,817	0	110-01	0	
111	150,574	0	143,074	111-01	7,500	
112	1,686	1,686	0	112-01	0	
113	2,890,174	0	0	113-01	578,030	E
115	45,409	45,409	0	115-01	0	
116	38,354	38,354	0	116-01	0	
117	31,873	31,873	0	117-01	0	
118	13,247	13,247	0	118-01	0	
119	3,954,417	0	2,943,717	119-01	1,010,700	
120	235	235	0	120-01	0	
121	269	269	0	121-01	0	
122	26,184	26,184	0	122-01	0	
123	606	606	0	123-01	0	
124	77	77	0	124-01	0	
125	94,471		94,471	125-01	0	
128	484,667	484,667	0	128-01	0	
129	397,340	397,340	0	129-01	0	
130	8,305	8,305	0	130-01	0	
131	2,554	2,554	0	131-01	0	
133	2,475	2,475	0	133-01	0	
134	45,438	45,438	0	134-01	0	
135	28,534	28,534	0	135-01	0	
136	4,220	0	3,220	136-01	1,000	
137	7,347	7,347	0	137-01	0	
138	8,344	8,344	0	138-01	0	
139	1,821,535	0	1,215,135	139-01	606,400	
140	5,237	5,237	0	140-01	0	
141	13,659	13,659	0	141-01	0	

142	20,427	20,427	0	142-01	0	
143	6,153	6,153	0	143-01	0	
144	602,036	602,036	0	144-01	0	
145	8,107,215	8,107,215	0	145-01	0	
146	377,893	377,893	0	146-01	0	
147	75,822	75,822	0	147-01	0	
148	173	173	0	148-01	0	
149	7,564	7,564	0	149-01	0	
150	37,160	37,160	0	150-01	0	
151	6,022	6,022	0	151-01	0	
152	760	760	0	152-01	0	
153	387	387	0	153-01	0	
154	1,495	1,495	0	154-01	0	
155	455	455	0	155-01	0	
156	679	679	0	156-01	0	
157	1,383	1,383	0	157-01	0	
158	1,004	1,004	0	158-01	0	
159	461		461	159-01	0	
160	2,625		2,625	160-01	0	
161	22,286		22,286	161-01	0	
162	830		830	162-01	0	
163	2,653		2,653	163-01	0	
164	108,985	108,985	0	164-01	0	
165	54,113	54,113	0	165-01	0	
166	51,841	0	39,641	166-01	12,200	
167	22,683	0	18,683	167-01	4,000	
168	29,651	29,651	0	168-01	0	
169	9,458	9,458	0	169-01	0	
171	1,058	1,058	0	171-01	0	
172	2,941	0	1,141	172-01	1,800	
173	2,168	2,168	0	173-01	0	
174	3,437	3,437	0	174-01	0	
175	37,155	37,155	0	175-01	0	
176	9,603	9,603	0	176-01	0	
178	214,302	214,302	0	178-01	0	
179	41,137	41,137	0	179-01	0	
180	50,542	50,542	0	180-01	0	
181	42,280	42,280	0	181-01	0	
182	467	467	0	182-01	0	
183	1,932	1,932	0	183-01	0	
184	181,385	181,385	0	184-01	0	
185	78,043	78,043	0	185-01	0	
186	12,343	12,343	0	186-01	0	
187	2,164,567	2,164,567	0	187-01	0	
188	1,388,387	0	1,156,387	188-01	60,400	
				188-02	70,000	
				188-03	101,600	
189	39,987	39,987	0	189-01	0	
190	19,152	19,152	0	190-01	0	
191	31,795	31,795	0	191-01	0	
192	37,709	37,709	0	192-01	0	

193	19	19	0	193-01	0	
194	874	874	0	194-01	0	
195	1,219,689	1,219,689	0	195-01	0	
196	186	186	0	196-01	0	
197	92,243	92,243	0	197-01	0	
198	2,637,287	0	2,552,787	198-01	65,000	
				198-02	19,500	
199	275,409	0	0	199-01	55,000	E
200	1,785,341	0	0	200-01	350,000	E
201	1,188	1,188	0	201-01	0	
202	132,422	0	0	202-01	26,000	E
203	2,141,491	0	0	203-01	420,000	E
204	2,947	2,947	0	204-01	0	
205	4,518	0	0	205-01	4,518	E
206	13,472	0	0	206-01	13,472	E
207	11,727	0	0	207-01	11,727	E
208	721,896	0	0	208-01	140,000	E
209	1,178,438	0	0	209-01	230,000	E
210	262,665	0	0	210-01	52,000	E
211	1,316,612	0	0	211-01	260,000	E
212	190,811	0	0	212-01	38,000	E
213	107,813	0	0	213-01	107,813	
214	6,299,193	0	0	214-01	6,299,193	
215	810	810	0	215-01	0	
216	4,872,897	0	0	216-01	970,000	E
217	2,466	0	0	217-01	2,466	E
218	2,695,033	0	2,550,100	218-01	144,933	
219	1,215,277	0	0	219-01	240,000	E
220	5,273,283	0	4,389,508	220-01	883,775	
221	1,252	1,252	0	221-01	0	
222	33,720	0	0	222-01	1,000	E
223	4,121	4,121	0	223-01	0	
224	74,904	0	0	224-01	14,000	E
225	346,697	0	0	225-01	70,000	E
226	829,203	0	0	226-01	160,000	
227	169,105	21,438	0	227-01	147,667	
				227-02	50,839	
228	1,421,560	0	0	228-01	280,000	E
229	357,452	0	0	229-01	357,452	
230	1,121,091	0	0	230-01	220,000	E
231	463,274	0	0	231-01	92,000	E
232	251,721	0	0	232-01	50,000	E
233	1,553,084	0	0	233-01	310,000	E
234	634,523	0	0	234-01	120,000	E
235	2,098,964	0	0	235-01	410,000	E
236	378,475	0	0	236-01	75,000	E
237	2,504,380	0	0	237-01	500,000	E
238	875,701	0	0	238-01	170,000	E
239	4,800,831	0	0	239-01	960,000	E
240	1,196	1,196	0	240-01	0	
241	683	683	0	241-01	0	

242	1,197	1,197	0	242-01	0	
243	56,236,040	143,103	52,785,683	243-01	1,708,609	
				243-02	1,598,645	
244	2,748,323	0	0	244-01	540,000	E
245	61,991	0	0	245-01	12,000	E
246	545	545	0	246-01	0	
247	40,457	28,103	0	247-01	16,382	E
248	736,385	0	0	248-01	736,385	
				248-02		
250	1,223	1,223	0	250-01	0	
252	3,209,854	0	0	252-01	640,000	E
253	223,426	0	0	253-01	44,000	E
254	445,696	0	0	254-01	89,000	E
255	38,602	0	0	255-01	10,000	E
256	2,742,094	0	0	256-01	540,000	E
257	1,255,752	0	0	257-01	250,000	E
258	782	782	0	258-01	0	
259	578	578	0	259-01	0	
260	694	694	0	260-01	0	
261	158,177	0	0	261-01	31,000	E
263	80,671	0	0	263-01	16,000	E
264	2,521,315	0	0	264-01	500,000	E
265	1,139	1,139	0	265-01	0	
266	1,307	0	0	266-01	1,307	E
268	24,741,090	213,450	15,531,944	268-01	4,167,531	
				268-02	5,005,915	
269	401,592	0	0	269-01	80,000	E
270	579,940	0	0	270-01	116,000	E
271	37,900	0	0	271-01	10,000	E
272	130	130	0	272-01	0	
273	117,117	0	0	273-01	23,000	E
274	236,881	0	0	274-01	47,000	E
275	26,297,830	146,878	21,178,579	275-01	980,343	
				275-02	3,992,030	
276	16,934,960	0	0	276-01	3,280,000	E
277	860	860	0	277-01	0	
278	735	735	0	278-01	0	
279	2,222,375	0	0	279-01	440,000	E
280	19,690,960	0	18,979,495			
281	39,601	0	39,601	280-01	711,465	
282	87,154	0	87,154			
283	744,002		492,190	283-01	251,812	
284	1,598,946	84,743	1,218,934	284-01	30,000	
				284-02	115,561	
				284-03	99,813	
				284-04	49,895	
285	525	525	0	285-01	0	
286	85,393	0	66,646	286-01	18,747	
287	29,242,790	0	28,549,074	287-01	389,074	
				287-02	304,642	
288	1,553	1,553	0	288-01	0	

289	660,488	0	660,488	289-01	0	
290	741	741	0	290-01	0	
291	501,381	0	501,381	291-01	0	
292	64,164	0	64,164	292-01	0	
293	18,344	0	18,344	293-01	0	
294	2,921,624	0	2,583,579	294-01	338,045	
295	8,251,964	0	8,028,221	295-01	223,743	
297	14,774,150	0	3,670,944	297-01	11,103,206	
298	18,005,720	0	14,012,372	298-01	318,243	
				298-02	406,816	
				298-03	3,268,289	
299	3,001,179	0	2,626,605	299-01	374,574	
300	817	817	0	300-01	0	
301	1,678	1,678	0	301-01	0	
302	969	969	0	302-01	0	
303	65,927	0	57,854	303-01	8,073	
304	12,919	0	0	304-01	12,919	E
305	993,098	0	993,098	305-01	0	
306	2,395,436	0	2,157,149	306-01	238,287	
307	136,194	0	136,194	307-01	0	
308	159	159	0	308-01	0	
309	1,376,728	0	1,212,130	309-01	164,598	
311	21,951,360	0	13,423,341	311-01	1,054,211	
				311-02	4,575,362	
				311-03	2,898,446	
312	130	130	0	312-01	0	
313	82	82	0	313-01	0	
314	7,621,843		7,621,843	314-01	0	
316	23,729	0	23,729	316-01	0	
317	7,045,938	0	6,992,203	317-01	22,860	
				317-02	30,875	
318	2,280	0	0	318-01	2,280	
319	1,324	0	0	319-01	1,324	
320	1,974		1,974	320-01	0	
321	2,807		2,807	321-01	0	
322	14,288,970	17,680	14,107,858	322-01	23,652	
				322-02	16,197	
				322-03	28,362	
				322-04	95,221	
323	21,296		21,296	323-01	0	
324	1,080	1,080	0	324-01	0	
325	1,072	1,072	0	325-01	0	
326	408	408	0	326-01	0	
328	146,249	0	0	328-01	117,249	E
329	47,643	0	0	329-01	10,000	E
330	1,104	0	0	330-01	1,104	
331	151,735		151,735	331-01	0	
332	183	183	0	332-01	0	
333	280		280	333-01	0	
334	77,897		77,897	334-01	0	
335	49,863		49,863	335-01	0	

336	2,881	2,881	0	336-01	0	
337	6,623,048	327,190	6,268,472	337-01	10,525	
				337-02	16,861	
338	1,104	1,104	0	338-01	0	
339	1,715		1,715	339-01	0	
340	152,801	0	85,847	340-01	46,018	
				340-02	20,936	
341	102,968	0	91,089	341-01	0	
				341-02	11,879	
342	1,500	0	0	342-01	1,500	E
343	49,123	0	0	343-01	10,000	E
344	975	975	0	344-01	0	
345	9,277		0	345-01	9,277	
346	151	151	0	346-01	0	
347	266	266	0	347-01	0	
348	1,412,828	20,244	1,356,968	348-01	35,616	
349	2,260	2,260	0	349-01	0	
350	3,188,569	0	3,157,371	350-01	31,198	
351	118	118	0	351-01	0	
352	10,422	0	10,422	352-01	0	
353	134,026	0	0	353-01	26,000	E
354	208,893	0	0	354-01	40,000	E
355	714	714	0	355-01	0	
356	20,328	0	0	356-01	20,328	E
357	363	363	0	357-01	0	
358	52,651,429	0	49,890,393	358-01	1,522,044	
				358-02	1,238,992	
359	2,071,959	0	0	359-01	200,000	E
				359-02	600,000	E
360	2,925,525	0	0	360-01	150,000	E
				360-02	150,000	E
361	1,860,359	0	0	361-01	500,000	E
362	222,292	0	0	362-01	222,292	E
363	498,285	0	0	363-01	498,285	E
364	3,484,375	0	0	364-01	450,000	E
				364-02	630,000	E
				364-03	300,000	E
				364-04	460,000	E
365	3,109,535	0	0	365-01	680,000	E
				365-02	300,000	E
				365-03	260,000	E
366	317,856	0	0	366-01	317,856	E
367	10,639,850	0	0	367-01	540,000	E
				367-02	350,000	E
				367-03	465,000	E
				367-04	700,000	E
				367-05	600,000	E
368	609,709	0	0	368-01	250,000	E
369	243	243	0	369-01	0	
370	109	109	0	370-01	0	
371	2,952	0	0	371-01	0	E

372	10,339	0	0	372-01	0	E
373	21,126	0	0	373-01	0	E
374	2,080	2,080	0	374-01	0	
375	1,600	1,600	0	375-01	0	
376	377	377	0	376-01	0	
377	179	179	0	377-01	0	
378	604,700		604,700	378-01	0	
379	3,705,670		3,705,670	379-01	0	
380	316	316	0	380-01	0	
381	47,813	47,813	0	381-01	0	
383	1,182,361	0	0	383-01	450,000	E
				383-02	500,000	E
384	893,609	0	0	384-01	400,000	E
				384-02	200,000	E
385	2,026,703	0	0	385-01	350,000	E
				385-02	600,000	E
386	3,294,749	0	0	386-01	730,000	E
				386-02	670,000	E
387	45,698,460	0	0	387-01	1,500,000	E
				387-02	1,750,000	E
				387-03	2,000,000	E
				387-04	2,500,000	E
				387-05	2,100,000	E
				387-06	1,950,000	E
388	117	117	0	388-01	0	
390	992	992	0	390-01	0	
391	335	335	0	391-01	0	
392	735	735	0	392-01	0	
393	8,435,584	1,800,594	6,634,990	393-01	0	
394	6,856,195	0	0	394-01	750,000	E
				394-02	900,000	E
395	8,917,696	0	0	395-01	800,000	E
				395-02	780,000	E
				395-03	450,000	E
				395-04	550,000	E
396	11,360,030	0	0	396-01	1,000,000	E
				396-02	1,600,000	E
				396-03	1,100,000	E
				396-04	800,000	E
				396-05	800,000	E
397	47,001,150	0	35,991,150	397-01	2,530,000	
				397-02	3,770,000	
				397-03	4,710,000	
398	197	197	0	398-01	0	
399	1,750,369	0	0	399-01	440,000	E
				399-02	540,000	E
400	340	340	0	400-01	0	
401	5,091,562	0	0	401-01	1,200,000	E
				401-02	1,300,000	E
402	3,170,406	0	0	402-01	800,000	E
				402-02	650,000	E

403	631	631	0	403-01	0	
404	335	335	0	404-01	0	
405	735	735	0	405-01	0	
406	17,280,310	0	14,757,310	406-01	733,000	
				406-02	1,790,000	
407	11,640,880	0	8,312,828	407-01	553,420	
				407-02	1,225,450	
				407-03	974,352	
				407-04	574,830	
408	2,371,880	0	0	408-01	1,200,000	E
				408-02	1,000,000	E
409	1,643,768		1,643,768	409-01	0	
410	2,905,026		2,905,026	410-01	0	
411	36,734,240	0	33,660,850	411-01	39,313	
				411-02	1,181,144	
				411-03	46,469	
				411-04	413,600	
				411-05	312,254	
				411-06	1,080,610	
412	217	217	0	412-01	0	
413	3,259,303	22,809	920,289	413-01	291,514	
				413-02	975,500	
				413-03	1,072,000	
414	7,475,341	0	0	414-01	1,250,000	E
				414-02	1,850,000	E
415	827	827	0	415-01	0	
416	33,749,700	0	0	416-01	1,050,000	E
				416-02	1,750,000	E
				416-03	1,050,000	E
				416-04	1,100,000	E
				416-05	1,050,000	E
				416-06	1,150,000	E
417	558	558	0	417-01	0	
418	305	305	0	418-01	0	
419	243	243	0	419-01	0	
420	443,761	0	0	420-01	443,761	E
421	4,511,070	131,204	0	421-01	1,000,000	E
422	112,223	0	0	422-01	112,223	E
423	73,365,520	0	60,625,520	423-01	1,840,000	
				423-02	2,370,000	
				423-03	3,090,000	
				423-04	3,650,000	
				423-05	1,790,000	
424	4,340,417	0	1,897,442	424-01	165,437	
				424-02	1,391,135	
				424-03	807,822	
				424-04	78,581	
425	317	317	0	425-01	0	
426	4,329,934	917,844	2,314,667	426-01	22,152	
				426-02	68,072	
				426-03	234,400	

				426-04	125,116	
				426-05	45,350	
				426-06	95,020	
				426-07	507,313	
427	861,973		861,973	427-01	0	
428	18,723,190	0	14,252,980	428-01	495,531	
				428-02	1,056,743	
				428-03	649,545	
				428-04	427,273	
				428-05	599,480	
				428-06	1,241,638	
430	23,725,930	64,365	0	430-01	7,550,000	E
431	51,684,140	0	0	431-01	2,800,000	E
				431-02	2,100,000	E
				431-03	3,100,000	E
				431-04	2,000,000	E
				431-05	2,000,000	E
432	229	229	0	432-01	0	
433	32,274,120	0	24,820,028	433-01	430,480	
				433-02	1,931,100	
				433-03	1,940,400	
				433-04	3,152,112	
434	53,216,920	0	44,086,920	434-01	7,540,000	
				434-02		
				434-03		
				434-04	1,590,000	
435	2,174	0	0	435-01	0	E
436	10,274,540	39,580	6,766,435	436-01	1,084,066	
				436-02	525,894	
				436-03	978,007	
				436-04	709,787	
437	78,663,970	0	65,673,970	437-01	2,310,000	
				437-02	2,120,000	
				437-03	2,800,000	
				437-04	2,820,000	
				437-05	2,940,000	
438	32,918,680	0	23,578,708	438-01	2,850,174	
				438-02	1,632,462	
				438-03	2,924,682	
				438-04	1,932,654	
439	63,431,370	0	54,923,786	439-01	1,953,915	
				439-02	2,805,215	
				439-03	3,748,454	
440	92,400,260	0	0	440-01	1,150,000	E
				440-02	1,300,000	E
				440-03	1,200,000	E
				440-04	2,100,000	E
				440-05	1,500,000	E
				440-06	750,000	E
				440-07	1,600,000	E
441	194	194	0	441-01	0	

442	2,571	2,571	0	442-01	0	
443	1,487,604	0	0	443-01	750,000	E
445	72,749	0	0	445-01	0	E
446	322	322	0	446-01	0	
447	41,024,160	0	0	447-01	1,125,000	E
				447-02	2,000,000	E
				447-03	2,000,000	E
				447-04	1,350,000	E
				447-05	2,100,000	E
448	201	201	0	448-01	0	
449	7,148,439	0	0	449-01	7,148,439	E
450	352,639	0	0	450-01	352,639	E
451	230,778	0	0	451-01	230,778	E
452	1	1	0	452-01	0	
453	1	1	0	453-01	0	
454	73,503,700	0	0	454-01	1,500,000	E
				454-02	2,040,000	E
				454-03	2,000,000	E
				454-04	2,250,000	E
				454-05	2,300,000	E
				454-06	1,800,000	E
				454-07	3,200,000	E
				454-08	3,500,000	E
				454-09	2,000,000	E
				454-10	2,000,000	E
455	6,018,567	0	4,514,364	455-01	620,168	
				455-02	884,035	
456	128,987,700	0	0	456-01	2,300,000	E
				456-02	1,100,000	E
				456-03	2,200,000	E
				456-04	2,000,000	E
				456-05	1,050,000	E
				456-06	1,950,000	E
				456-07	2,350,000	E
				456-08	2,000,000	E
				456-09	2,000,000	E
457	36,232,440	0	29,435,024	457-01	3,141,026	
				457-02	622,439	
				457-03	989,767	
				457-04	2,044,184	
458	28,038,560	0	0	458-01	1,600,000	E
				458-02	2,150,000	E
				458-03	2,070,000	E
				458-04	1,400,000	E
				458-05	1,350,000	E
				458-06	1,450,000	E
459	57,414	0	0	459-01	57,414	
460	334	334	0	460-01	0	
461	17,113	0	0	461-01	0	E
462	2,472	2,472	0	462-01	0	E
463	9,612	0	0	463-01	0	E

464	305	305	0	464-01	0	
465	22,366,940	0	0	465-01	1,850,000	E
				465-02	1,550,000	E
466	21,862,180	0	0	466-01	2,400,000	E
				466-02	2,500,000	E
				466-03	2,600,000	E
				466-04	1,700,000	E
467	8,128,574	0	2,968,574	467-01	2,220,000	
				467-02	2,940,000	
468	276,355	0	0	468-01	276,355	
469	1,803,728	0	1,803,728	469-01	0	
470	22,953,020	0	19,874,176	470-01	1,174,280	
				470-02	801,142	
				470-03	1,103,422	
471	60,000	0	0	471-01	25,811	
472	39,085	0	0	472-01	39,085	
473	13,228,010	0	8,186,010	473-01	722,000	
				473-02	1,240,000	
				473-03	3,080,000	
474	1,660	1,660	0	474-01	0	
475	858	858	0	475-01	0	
476	23,912,230	0	21,928,282	476-01	1,174,948	
				476-02	809,000	
477	32,124	0	0	477-01	32,124	E
478	21,593,060	0	9,477,660	478-01	827,000	
				478-02	4,798,400	
				478-03	2,520,000	
				478-04	3,970,000	
479	8,745,256	0	0	479-01	2,000,000	E
				479-02	500,000	E
480	10,050	0	0	480-01	10,050	E
481	11,281,130	0	0	481-01	1,600,000	E
				481-02	500,000	E
				481-03	2,750,000	E
482	10,599,340	0	0	482-01	1,250,000	E
				482-02	1,400,000	E
				482-03	2,150,000	E
483	22,368,840	0	0	483-01	2,000,000	E
				483-02	1,700,000	E
				483-03	2,050,000	E
484	40,334	0	0	484-01	0	E
485	210	210	0	485-01	0	
486	324	324	0	486-01	0	
487	647	647	0	487-01	0	
488	88	88	0	488-01	0	
489	13,964	0	13,964	489-01	0	
490	578	0	578	490-01	0	
491	558,317	0	558,317	491-01	0	
492	1,470	0	1,470	492-01	0	
494	687	0	687	494-01	0	
495	1,477	0	1,477	495-01	0	

496	404,837	0	404,837	496-01	0	
497	118,161	0	118,161	497-01	0	
498	754	0	754	498-01	0	
499	237,118	0	237,118	499-01	0	
500	457	0	457	500-01	0	
501	2,596	0	2,596	501-01	0	
502	4,933,177	0	4,933,177	502-01	0	
503	18,953,560	0	18,953,560	503-01	0	
504	17,073,140	0	17,073,140	504-01	0	
505	3,612,733	0	3,612,733	505-01	0	
506	934	0	934	506-01	0	
507	747	0	747	507-01	0	
508	754	0	754	508-01	0	
509	3,781	0	3,781	509-01	0	
510	951,190	0	951,190	510-01	0	
511	1,331	0	1,331	511-01	0	
512	3,541	0	3,541	512-01	0	
513	689	0	689	513-01	0	
514	3,546,738	0	3,546,738	514-01	0	
515	705	0	705	515-01	0	
516	868,382	0	0	516-01	868,382	
517	1,796	0	1,796	517-01	0	
518	116,113	0	116,113	518-01	0	
519	98,826	0	98,826	519-01	0	
520	58,621	0	58,621	520-01	0	
521	12,395	0	12,395	521-01	0	
522	410,820	0	410,820	522-01	0	
523	34,431	0	34,431	523-01	0	
524	81,557	0	81,557	524-01	0	
525	6,318,028		0	525-01	6,318,028	
526	388	0	388	526-01	0	
527	13,278,120	0	13,278,120	527-01	0	
528	2,579,945	0	2,579,945	528-01	0	
529	1,117	0	1,117	529-01	0	
530	1,326,830	0	1,326,830	530-01	0	
531	900,000		900,000	531-01	0	
532	209,189		0	532-01	209,189	
533	583,031		583,031	533-01	0	
534	3,345,061		0	534-01	3,345,061	
535	648,896		0	535-01	648,896	
536	1,825,000		1,825,000	536-01	0	
537	17,523		17,523	537-01	0	
538	8,851		8,851	538-01	0	
539	220,060		220,060	539-01	0	
540	240,260		240,260	540-01	0	
541	17,095		17,095	541-01	0	
542	272,174		272,174	542-01	0	
543	295		295	543-01	0	
544	29,806		29,806	544-01	0	
545	595		595	545-01	0	
546	2,789		2,789	546-01	0	

547	1,533		1,533	547-01	0	
548	193,701		193,701	548-01	0	
549	10,951		10,951	549-01	0	
550	32,778		32,778	550-01	0	
551	7,067		7,067	551-01	0	
552	2,085		2,085	552-01	0	
553	537		537	553-01	0	
554	6,241,371		0	554-01	6,241,371	
555	167,666		167,666	555-01	0	
556	59,293		0	556-01	59,293	
557	2,268,154		2,268,154	557-01	0	
558	2,467,051		2,467,051	558-01	0	
559	50,887		50,887	559-01	0	
560	2,801		2,801	560-01	0	
561	23,225		23,225	561-01	0	
562	11,357		11,357	562-01	0	
563	712,287	0	712,287	563-01	0	
564	94,273		94,273	564-01	0	
565	108,039		108,039	565-01	0	
566	212,045		212,045	566-01	0	
567	77,887		77,887	567-01	0	
568	15,090		15,090	568-01	0	
569	195		195	569-01	0	
570	17,777		17,777	570-01	0	
571	154		154	571-01	0	
572	22,536		22,536	572-01	0	
573	36,977		36,977	573-01	0	
574	9,700		9,700	574-01	0	
575	10,953		10,953	575-01	0	
576	811,988	0	811,988	576-01	0	
577	177,752		177,752	577-01	0	
578	78,788		78,788	578-01	0	
579	106	0	106	579-01	0	
580	90	0	90	580-01	0	
581	64	0	64	581-01	0	
582	48	0	48	582-01	0	
583	42	0	42	583-01	0	
584	47	0	47	584-01	0	
585	53	0	53	585-01	0	
586	17	0	17	586-01	0	
587	250		250	587-01	0	
588	24,429		24,429	588-01	0	
589	701		701	589-01	0	
590	321,538	0	321,538	590-01	0	
591	4,048,250	0	4,048,250	591-01	0	
592	768,762	0	768,762	592-01	0	
593	2,240		2,240	593-01	0	
594	20,206		20,206	594-01	0	
595	24,877		24,877	595-01	0	
596	7,449		7,449	596-01	0	
597	23,839	0	23,839	597-01	0	

598	3,098	0	3,098	598-01	0	
599	3,922	0	3,922	599-01	0	
600	14,064	0	14,064	600-01	0	
601	234	0	234	601-01	0	
602	51,494	0	51,494	602-01	0	
603	421,937	0	421,937	603-01	0	
604	508	0	508	604-01	0	
605	533	0	533	605-01	0	
606	95,597		0	606-01	95,597	
607	20,468	0	20,468	607-01	0	
608	2,942	0	2,942	608-01	0	
610	778		778	610-01	0	
611	16,596		16,596	611-01	0	
612	295,287		295,287	612-01	0	
613	517,077		517,077	613-01	0	
614	483,441		483,441	614-01	0	
615	46,198		46,198	615-01	0	
616	937		937	616-01	0	
617	52,275		52,275	617-01	0	
618	6,131		6,131	618-01	0	
619	81,600		81,600	619-01	0	
620	39,219		39,219	620-01	0	
621	72,561	0	72,561	621-01	0	
622	823	0	823	622-01	0	
623	1,290	0	1,290	623-01	0	
624	51,494	0	51,494	624-01	0	
625	1,119	0	1,119	625-01	0	
626	1,148	0	1,148	626-01	0	
627	87,698		87,698	627-01	0	
628	28,284	0	28,284	628-01	0	
629	82,553	0	82,553	629-01	0	
630	2,394		2,394	630-01	0	
631	504,054		504,054	631-01	0	
632	503,109		0	632-01	503,109	
633	176,384		176,384	633-01	0	
634	654,308		654,308	634-01	0	
635	659		659	635-01	0	
636	37,252,450		0	636-01	37,252,450	
637	829		829	637-01	0	
638	376		376	638-01	0	
639	276		276	639-01	0	
640	1		1	640-01	0	
641	1		1	641-01	0	
642	15,000		15,000	642-01	0	
643	6		6	643-01	0	
644	28		28	644-01	0	
645	26,883		26,883	645-01	0	
646	150		150	646-01	0	
647	293		293	647-01	0	
648	8,757		8,757	648-01	0	
649	21		21	649-01	0	

650	30		30	650-01	0	
651	330,861		330,861	651-01	0	
652	266,425		266,425	652-01	0	
653	161,755		161,755	653-01	0	
654	5,329,852		5,329,852	654-01	0	
655	11		11	655-01	0	
656	147,089		147,089	656-01	0	
657	172,428		172,428	657-01	0	
658	56,955		56,955	658-01	0	
659	73	0	0	659-01	0	E
660	19	0	0	660-01	0	E
661	143	0	0	661-01	0	E
662	9,933,524		9,933,524	662-01	0	
663	1,620		1,620	663-01	0	
664	265		265	664-01	0	
665	244		244	665-01	0	
666	540,041		540,041	666-01	0	
667	4,945,315		4,945,315	667-01	0	
668	832		832	668-01	0	
669	1,046		1,046	669-01	0	
670	3,175		3,175	670-01	0	
671	4,718		4,718	671-01	0	
672	1,918		1,918	672-01	0	
673	1,679		1,679	673-01	0	
674	2,530		2,530	674-01	0	
675	2,009,600	24,265	1,985,335	675-01	0	
676	28,260,000		28,260,000	676-01	0	
677	4,050,000		4,050,000	677-01	0	
678	473		473	678-01	0	
679	143,785	0	42,060	679-01	55,700	
				679-02	46,025	
680	140,000		140,000	680-01	0	
681	150,000		150,000	681-01	0	
682	150,000		150,000	682-01	0	
683	60,094		60,094	683-01	0	
684	73,694		73,694	684-01	0	
685	10,000		10,000	685-01	0	
686	1,250,000		1,250,000	686-01	0	
687	7,885,286	324,630	7,560,656	687-01	0	
688	1		1	688-01	0	
689	4,687,500		4,687,500	689-01	0	
690	249		249	690-01	0	
691	3,208		3,208	691-01	0	
692	1,807		1,807	692-01	0	
693	3,419		3,419	693-01	0	
694	3,260		3,260	694-01	0	
695	839		839	695-01	0	
696	3,208		3,208	696-01	0	
697	3,208		3,208	697-01	0	
698	3,311		3,311	698-01	0	
699	3,208		3,208	699-01	0	

700	1		1	700-01	0	
701	1		1	701-01	0	
702	2		2	702-01	0	
703	2		2	703-01	0	
704	600,081	0	600,081	704-01	0	
705	11,165	0	0	705-01	8,932	E
706	28,003	0	0	706-01	22,403	E
707	18	18	0	707-01	0	
708	30	30	0	708-01	0	
709	24	24	0	709-01	0	
710	25	25	0	710-01	0	
711	24	24	0	711-01	0	
712	22	0	0	712-01	0	E
713	4,826,153	0	0	713-01	3,860,923	E
714	1,590,599	0	0	714-01	1,272,480	E
715	43	0	0	715-01	0	E
716	151,796	0	151,796	716-01	0	
717	39,135	0	39,135	717-01	0	
718	8,179	0	8,179	718-01	0	
719	14,337	0	14,337	719-01	0	
720	7,369,401	0	0	720-01	5,895,521	E
721	58,054	0	0	721-01	46,444	E
722	31,827	0	31,827	722-01	0	
723	20,513	0	20,513	723-01	0	
724	5,649,134	0	0	724-01	4,519,308	E
725	15,918	0	0	725-01	0	E
726	14,777	0	0	726-01	11,822	E
727	77	0	0	727-01	0	E
728	682,842	0	0	728-01	136,560	E
729	87,845	0	0	729-01	17,560	E
730	17,110,350	0	0	730-01	1,612,200	E
731	42	0	0	731-01	0	E
732	36	0	0	732-01	0	E
733	42	0	0	733-01	0	E
734	36	0	0	734-01	0	E
735	24	0	0	735-01	0	E
736	44	0	0	736-01	0	E
737	6,642,950	0	0	737-01	1,200,000	E
738	281,697		0	738-01	0	E
739	11,506,910		9,296,410	739-01	2,210,500	
740	4,815,979	4,815,979	0	740-01	0	
741	27,904,370	27,904,370	0	741-01	0	
742	73,553,110	0	68,433,582	742-01	3,182,328	
				742-02	497,200	
				742-03	862,500	
				742-04	577,500	
743	43	43	0	743-01	0	
744	38	38	0	744-01	0	
745	62	62	0	745-01	0	
746	122	0	0	746-01	0	E
747	6,453,154	0	0	747-01	1,290,630	E

748	24,897,840	0	0	748-01	4,979,568	E
749	17,676,520	0	0	749-01	3,535,304	E
750	381,853	0	0	750-01	76,370	E
751	60	0	0	751-01	0	E
752	153,258	0	0	752-01	30,650	E
753	243,868	0	0	753-01	48,770	E
754	2,709,606	0	0	754-01	541,920	E
755	8,061,006	0	0	755-01	1,612,200	E
756	13,713,230	0	0	756-01	2,742,646	E
757	315,734	0	0	757-01	63,145	E
758	465,897	0	0	758-01	93,170	E
759	498,541	0	0	759-01	99,700	E
760	2,176,744	0	0	760-01	435,340	E
761	3,899,457	0	0	761-01	779,890	E
762	566,226	0	0	762-01	0	E
763	79	0	0	763-01	0	E
764	495,353	0	0	764-01	0	E
765	63,011	0	0	765-01	0	E
766	15,271	0	0	766-01	15,271	E
767	5,199	0	0	767-01	5,199	E
768	313,981	0	313,981	768-01	0	
769	53	0	53	769-01	0	
770	7,959,336	0	7,959,336	770-01	0	
771	3,341,767	0	3,341,767	771-01	0	
772	20,810	0	20,810	772-01	0	
773	4,089,590	0	4,089,590	773-01	0	
774	9,867,756	0	0	774-01	9,867,756	
775	2,099,082	0	2,099,082	775-01	0	
776	3,866,862	0	3,866,862	776-01	0	
777	340,231	0	340,231	777-01	0	
778	17,505,580	0	17,505,580	778-01	0	
779	11,449,340	0	0	779-01	11,449,340	
780	484,250	0	0	780-01	484,250	
781	2,794,696	0	0	781-01	2,794,696	
782	26,773,200	0	26,773,200	782-01	0	
783	956,138	0	956,138	783-01	0	
784	834,947	0	834,947	784-01	0	
785	685,329	0	0	785-01	685,329	
786	15,203,590	0	0	786-01	15,203,590	
787	612,547	0	612,547	787-01	0	
788	11,006	0	11,006	788-01	0	
789	3,416	0	3,416	789-01	0	
790	2,587	0	2,587	790-01	0	
791	117	0	117	791-01	0	
792	16,046,510	0	16,046,510	792-01	0	
793	5,043,062	0	5,043,062	793-01	0	
794	170,410	0	170,410	794-01	0	
795	874,107	0	874,107	795-01	0	
796	49	0	49	796-01	0	
797	632,279	0	632,279	797-01	0	
798	23,293,250	0	23,293,250	798-01	0	

799	871,897	0	871,897	799-01	0	
800	31,316	0	31,316	800-01	0	
801	4,353,058	0	3,505,595	801-01	847,463	
802	5,779,110	0	5,779,110	802-01	0	
803	30	0	30	803-01	0	
804	10,561,570	0	10,561,570	804-01	0	
805	450,350	0	450,350	805-01	0	
806	1,211,152	0	1,211,152	806-01	0	
807	48,952	0	48,952	807-01	0	
808	294,803	0	294,803	808-01	0	
809	4,224,543	0	4,224,543	809-01	0	
810	2,744,290	0	2,744,290	810-01	0	
811	4,017,388	0	4,017,388	811-01	0	
812	50	0	0	812-01	0	E
813	4,753,821	0	0	813-01	4,753,821	
814	373,993	0	373,993	814-01	0	
815	264,043	0	264,043	815-01	0	
816	287,966	0	287,966	816-01	0	
817	28,468,340	0	28,468,340	817-01	0	
818	1,402,089	0	1,402,089	818-01	0	
819	1,188,273	0	1,188,273	819-01	0	
820	81	0	81	820-01	0	
821	39,137	0	0	821-01	39,137	
822	73,766	0	73,766	822-01	0	
823	385,963	0	385,963	823-01	0	
824	280,582	0	280,582	824-01	0	
825	49	0	49	825-01	0	
826	171,713	0	171,713	826-01	0	
827	45,616	0	45,616	827-01	0	
828	145,715	0	0	828-01	145,715	
829	885,039	0	885,039	829-01	0	
830	1,755,792	0	1,755,792	830-01	0	
831	196	0	196	831-01	0	
832	19	0	19	832-01	0	
833	3,020	0	3,020	833-01	0	
834	2,071	0	2,071	834-01	0	
835	84	0	84	835-01	0	
836	3,188	0	3,188	836-01	0	
837	981	0	981	837-01	0	
838	83,080	0	83,080	838-01	0	
839	16,113	0	16,113	839-01	0	
840	302,563	0	302,563	840-01	0	
841	933	0	933	841-01	0	
842	375,733	0	375,733	842-01	0	
843	47	0	0	843-01	0	E
844	82	0	0	844-01	0	E
845	42	0	42	845-01	0	
846	1,190,535	0	1,190,535	846-01	0	
847	6,552,793	0	6,552,793	847-01	0	
848	650,732	0	650,732	848-01	0	
849	61	0	61	849-01	0	

850	53	0	53	850-01	0	
851	41	0	41	851-01	0	
852	31,192	0	31,192	852-01	0	
853	6,352	0	6,352	853-01	0	
854	57	0	57	854-01	0	
855	1,938	0	1,938	855-01	0	
856	51,510	0	51,510	856-01	0	
857	2,893,869	0	2,893,869	857-01	0	
858	73	0	73	858-01	0	
859	77	0	77	859-01	0	
860	133,442	0	133,442	860-01	0	
861	704,471	0	704,471	861-01	0	
862	18,180,990	0	18,180,990	862-01	0	
863	1,167,253	0	1,167,253	863-01	0	
864	6,918	0	6,918	864-01	0	
865	7,832	0	7,832	865-01	0	
866	87	0	87	866-01	0	
867	264,860	0	264,860	867-01	0	
868	1,378,193	0	1,378,193	868-01	0	
869	49	0	49	869-01	0	
870	920,297	0	0	870-01	920,297	
871	7,886	0	7,886	871-01	0	
872	185,295	0	185,295	872-01	0	
873	969,001	0	969,001	873-01	0	
874	135,037	0	135,037	874-01	0	
875	33,870	0	33,870	875-01	0	
876	36,361	0	36,361	876-01	0	
877	39,572	0	39,572	877-01	0	
878	7,201	0	7,201	878-01	0	
879	5,295	0	5,295	879-01	0	
880	17	0	17	880-01	0	
881	55,107	0	55,107	881-01	0	
882	105,421	0	105,421	882-01	0	
883	51,348	0	51,348	883-01	0	
884	16,628	0	16,628	884-01	0	
885	35,341	0	35,341	885-01	0	
886	9,215	0	9,215	886-01	0	
887	60,208	0	60,208	887-01	0	
888	10,197	0	10,197	888-01	0	
889	16,731	0	16,731	889-01	0	
890	24,056	0	24,056	890-01	0	
891	5,847	0	5,847	891-01	0	
892	8,605	0	8,605	892-01	0	
893	3,302	0	3,302	893-01	0	
894	3,684	0	3,684	894-01	0	
895	3,505	0	3,505	895-01	0	
896	2,604	0	2,604	896-01	0	
897	35	0	35	897-01	0	
898	14,186	0	14,186	898-01	0	
899	675,643	0	675,643	899-01	0	
900	1,503,862	0	1,503,862	900-01	0	

901	1,994	0	1,994	901-01	0	
902	109	0	109	902-01	0	
903	121	0	121	903-01	0	
904	105	0	105	904-01	0	
905	105	0	105	905-01	0	
906	110	0	110	906-01	0	
907	216,500	0	216,500	907-01	0	
908	210,959	0	210,959	908-01	0	
909	35	0	35	909-01	0	
910	42	0	42	910-01	0	
911	45	0	45	911-01	0	
912	42	0	42	912-01	0	
913	489	0	489	913-01	0	
914	431	0	431	914-01	0	
915	19,308	0	19,308	915-01	0	
916	199	0	199	916-01	0	
917	271	0	271	917-01	0	
918	109,423	0	109,423	918-01	0	
919	321,593	0	321,593	919-01	0	
920	236,562	0	236,562	920-01	0	
921	66,320	0	66,320	921-01	0	
922	92,055	0	92,055	922-01	0	
923	107,414	0	107,414	923-01	0	
924	93,042	0	93,042	924-01	0	
925	21,244	0	21,244	925-01	0	
926	61,969	0	61,969	926-01	0	
927	20,568	0	20,568	927-01	0	
928	19,431	0	19,431	928-01	0	
929	9,267	0	9,267	929-01	0	
930	6,569	0	6,569	930-01	0	
931	1,042	0	1,042	931-01	0	
932	68	0	68	932-01	0	
933	2,600	0	2,600	933-01	0	
934	392	0	392	934-01	0	
935	213	0	213	935-01	0	
936	115	0	115	936-01	0	
937	47	0	47	937-01	0	
938	58	0	58	938-01	0	
939	41	0	41	939-01	0	
940	29	0	29	940-01	0	
941	26	0	26	941-01	0	
942	47	0	47	942-01	0	
943	3,314,572	0	3,314,572	943-01	0	
944	28,804	0	28,804	944-01	0	
945	1,523	0	1,523	945-01	0	
946	1,333	0	1,333	946-01	0	
947	7,754	0	7,754	947-01	0	
948	5,334	0	5,334	948-01	0	
949	2,979	0	2,979	949-01	0	
950	268,430	0	268,430	950-01	0	
951	18,127	0	18,127	951-01	0	

952	2,436	0	2,436	952-01	0	
953	4,205	0	4,205	953-01	0	
954	2,520	0	2,520	954-01	0	
955	7,381	0	7,381	955-01	0	
956	1,696	0	1,696	956-01	0	
957	29	0	29	957-01	0	
958	7	0	7	958-01	0	
959	1,095,083	0	1,095,083	959-01	0	
960	115	0	115	960-01	0	
961	343,686	0	343,686	961-01	0	
962	309,081	0	309,081	962-01	0	
963	14,225	0	14,225	963-01	0	
964	179,321	0	179,321	964-01	0	
980	1	0	1	980-01	0	
981	100	0	100	981-01	0	
982	1,000,000	0	1,000,000	982-01	0	
983	450,000	0	450,000	983-01	0	
984	1	0	1	984-01	0	
985	1	0	1	985-01	0	
986	1	0	1	986-01	0	
987	1	0	1	987-01	0	
988	1	0	1	988-01	0	
1003	1	0	1	1003-01	0	
1004	1	0	0	1004-01	0	

Annex VI: List of abbreviations and acronyms

ERW	explosive remnants of war
HMAU	humanitarian mine action unit
LIS	landmine impact survey
LMP	locating minefield procedure
MRE	mine risk education
TMAC	Thailand Mine Action Centre
UXO	unexploded ordinance

Annex VII: Glossary of Terms used

1. Locating Minefield Procedure (LMP)

A process that collect, gather all relevant data and information of contaminated area from Level 1 Impact Survey from TMAC data base room, concerned units, satellite image, history of fighting, past accident, intervene, etc then analyze those data, information, etc to identify possible mine fields by drawing draft maps in each contaminated area then follow by final field confirmation using random checks and local guide or key informants, by using this process will move huge of safe area from contaminated area than traditional mine clearance that will be release for public use. Realistic and accurate mine fields for final mine clearance plan which will be move effective and practicable.

2. Field confirmation

Method used in order to separate mine field out of contaminated areas from Level 1 Impact Survey, there are 3 models for field confirmation

(1). Canceling Survey for farm lands, recreation lands etc. that have been used over confident period of time which can be identify as save area.

(2). Releasing Survey for low contaminated area where random check is made and area with negative result will thus be erased and identify as safe area.

(3). Boundary Survey for high contaminated area where it is unlikely the majority of area can be deducted , will be identify as mine field.

3. Contaminated Area

Areas identified as containing source of threat, requiring confirmation either via in-depth information collection or the use of one or more clearance tools. The overestimation of the size of contaminated is a common problem, which mine and UXOs affected countries need to address via technical and non-technical methods. The land being classified as “Suspect” does not mean it is not used by the population.

4. Cleared area, cleared land

An area that has been physically and systematically processed by a demining organization to ensure the removal and/or destruction of all mine and UXOs hazards to a specified depth.

5. Landmine Impact Survey (LIS), impact survey

An assessment of the socio-economic impact caused by the actual or perceived presence of mines and UXOs, in order to assist the planning and prioritization of mine action program and project.

6. marking

Emplacement of a measure or combination of measures to identify the position of a hazard or the boundary of a hazardous area. This may include the use of signs, paint marks etc., or the erection of physical barriers.

7. Quality Assurance (QA)

Part of QM Focused on providing confidence that quality requirements will be fulfilled.(ISO 9000:2000)

8. Quality Control (QC)

Part of QM focused on fulfilling quality requirements. (ISP 9000:2000)

9. Reduced Area

The area of hazardous land remaining after the process of area reduction. It is still referred to as a hazardous area.

10. Mine Field

Contaminated area as identified by level I Impact Survey which undergone the Mine Field Locating procedure and confirm that within this area are still concentrated of land Mines and UXOs . Mine Field need proper mine clearance and Quality Assurance before declare it as safe area.

Annex VIII : Annual Work Plan (2009-2018)

Notes 1.) "*" after the name of Minefield means Mine Clearance for these Minefields will be done more than one year.
2.) "E" after the name of Minefield means the size of these Minefields are still estimated number the actual size will be obtained at the end of LMP by September 2008.

Year 2009

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
4-01	Sa Kaeo / Ban Thup Siem - new	321,586	11,255,510
6-01	Sa Kaeo / Ban Nhong Ya Kaew	1,853,982	64,889,370
9-01	Sa Kaeo / Ban Thup Siem - new	79,050	2,766,750
10-01	Sa Kaeo / Ban Thup Siem - new	86,895	3,041,325
10-02	Sa Kaeo / Ban Thup Siem - new	52,900	1,851,500
11-01	Sa Kaeo / Ban Thup Siem - new	105,000	3,675,000
11-02	Sa Kaeo / Ban Thup Siem - new	182,000	6,370,000
52-01	Sa Kaeo / Ban Thap Thai	51,000	1,785,000
53-01	Sa Kaeo / Ban Thap Thai	70,000	2,450,000
53-02	Sa Kaeo / Ban Thap Thai	56,000	1,960,000
69-01	Sa Kaeo / Ban Sa Ngae	32,500	1,137,500
275-01	Trad / Ban Ma Muang	980,343	34,312,005
275-02	Trad / Ban Ma Muang	3,992,030	139,721,050
298-01	Trad / Ban Thap Makok	318,243	11,138,505
298-02	Trad / Ban Thap Makok	406,816	14,238,560
303-01	Trad / Ban Thap Makok	8,073	282,555
424-01	Si Saket / Ban Nhong Wa	165,437	5,790,295
424-02	Si Saket / Ban Nhong Wa	1,391,135	48,689,725
424-03	Si Saket / Ban Nhong Wa	807,822	28,273,770
424-04	Si Saket / Ban Nhong Wa	78,581	2,750,335
426/3003	Si Saket / Ban Nhong Wa	234,400	8,204,000
426/3004	Si Saket / Ban Nhong Mek	125,116	4,379,060
426/3005	Si Saket / Ban Nhong Mek	45,350	1,587,250
426/3006	Si Saket / Ban Nhong Mek	95,020	3,325,700
426/3007	Si Saket / Ban Nhong Mek	507,313	17,755,955
3004/1	Si Saket / Ban Nhong Mek	22,152	775,320
3004/2	Si Saket / Ban Nhong Mek	68,072	2,382,520
3004/3	Si Saket / Ban Nhong Mek	910,476	31,866,660
428-01	Si Saket / Ban Nhong Mek	495,531	17,343,585
428-02	Si Saket / Ban Dan Klang	1,056,743	36,986,005
428-03	Si Saket / Ban Dan Klang	649,545	22,734,075
428-04	Si Saket / Ban Dan Klang	427,273	14,954,555
428-05	Si Saket / Ban Dan Klang	599,480	20,981,800
428-06	Si Saket / Ban Dan Klang	1,241,638	43,457,330
433-01	Si Saket / Ban Dan Klang	3,152,112	110,323,920
434-01	Si Saket / Ban Sum Rong Kao	7,540,000	263,900,000
434-02	Si Saket / Ban Sum Rong Kao		

434-03	Si Saket / Ban Sum Rong Kao		
434-04	Si Saket / Ban Sum Rong Kao	1,590,000	55,650,000
436-01	Si Saket / Ban Sum Rong Kao	1,084,066	37,942,310
436-02	Si Saket / Ban Phoomsarol	525,894	18,406,290
436-03	Si Saket / Ban Phoomsarol	978,007	34,230,245
436-04	Si Saket / Ban Phoomsarol	709,787	24,842,545
679-01	Phetchabun / Ban Khao Khor	55,700	1,949,500
679-02	Phetchabun / Ban Khao Khor	46,025	1,610,875
774-01	Chiang Mai / Ban Na Mon	9,867,756	345,371,460
Total		**43,066,849**	**1,507,339,715**

Year 2010

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
55-01	Sa Kaeo / Ban Khao Lookchang	992,300	34,730,500
84-01	Sa Kaeo / Ban Rom Sai	904,000	31,640,000
139-01	Sa Kaeo / Ban Thup Seri	606,400	21,224,000
188-01	Sa Kaeo / Ban Thup Tim Siam 03	60,400	2,114,000
188-02	Sa Kaeo / Ban Thup Tim Siam 03	70,000	2,450,000
213-01	Trad / Ban Nhong Yang	107,813	3,773,455
248-01	Trad / Ban Khod Sai	418,465	14,646,275
248-02	Trad / Ban Khod Sai	317,920	11,127,200
280-01	Trad / Ban Ma Uek Raed	711,465	24,901,275
281-01	Trad / Ban Ma Uek Raed		
282-01	Trad / Ban Ma Uek Raed		
287-01	Trad / Ban Dan Chumpon	389,074	13,617,590
287-02	Trad / Ban Dan Chumpon	304,642	10,662,470
298-03	Trad / Ban Thap Makok	3,268,289	114,390,115
423-01	Si Saket / Ban Koo Si Jae	1,840,000	64,400,000
423-02	Si Saket / Ban Koo Si Jae	2,370,000	82,950,000
423-03	Si Saket / Ban Koo Si Jae	3,090,000	108,150,000
423-04	Si Saket / Ban Koo Si Jae	3,650,000	127,750,000
423-05	Si Saket / Ban Koo Si Jae	1,790,000	62,650,000
437-01	Si Saket / Ban Non Chum Pa	2,310,000	80,850,000
437-02	Si Saket / Ban Non Chum Pa	2,120,000	74,200,000
437-03	Si Saket / Ban Non Chum Pa	2,800,000	98,000,000
437-04	Si Saket / Ban Non Chum Pa	2,820,000	98,700,000
437-05	Si Saket / Ban Non Chum Pa	2,940,000	102,900,000
779-01*	Chiang Mai / Ban San Ton Du	9,400,000	329,000,000
Total		**43,280,768**	**1,514,826,880**

Year 2011

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
24-01	Sa Kaeo / Ban Khao Din	36,572	1,280,020
26-01	Sa Kaeo / Ban Khao Din	37,500	1,312,500

26-02	Sa Kaeo / Ban Khao Din	17,000	595,000
27-01	Sa Kaeo / Ban Nhong Chan	150,000	5,250,000
37-01	Sa Kaeo / Ban Non Pattana	9,600	336,000
43-01	Sa Kaeo / Ban Sa Ngae	60,000	2,100,000
43-02	Sa Kaeo / Ban Sa Ngae	12,000	420,000
44-01	Sa Kaeo / Ban Thup Tim Siam 05	105,000	3,675,000
44-02	Sa Kaeo / Ban Thup Tim Siam 05	75,000	2,625,000
44-03	Sa Kaeo / Ban Thup Tim Siam 05	625,000	21,875,000
45-01	Sa Kaeo / Ban Thup Tim Siam 05	3,000	105,000
46-01	Sa Kaeo / Ban Thup Tim Siam 05	35,000	1,225,000
47-01	Sa Kaeo / Ban Thup Tim Siam 05	90,000	3,150,000
47-02	Sa Kaeo / Ban Thup Tim Siam 05	27,000	945,000
49-01	Sa Kaeo / Ban Thup Tim Siam 05	17,944	628,040
49-02	Sa Kaeo / Ban Thup Tim Siam 05	5,400	189,000
54-01	Sa Kaeo / Ban Khao Lookchang	110,000	3,850,000
63-01	Sa Kaeo / Ban Kud Hin Moo4	78,000	2,730,000
70-01	Sa Kaeo / Ban Non Sao-e	7,800	273,000
75-01	Sa Kaeo / Ban Non Sao-e	5,600	196,000
105-01	Sa Kaeo / Ban Salong Khok	4,000	140,000
111-01	Sa Kaeo / Ban Sa-Nho Noi	7,500	262,500
119-01	Sa Kaeo / Ban Nern Somboon	1,010,700	35,374,500
188-03	Sa Kaeo / Ban Thup Tim Siam 03	101,600	3,556,000
218-01	Trad / Ban Khlong Khad	107,813	3,773,455
220-01	Trad / Ban Tha Kum	883,775	30,932,125
227-01	Trad / Ban Had Lek	96,828	3,388,980
227-02	Trad / Ban Had Lek	50,839	1,779,365
229-01	Trad / Ban Khlong Hin	357,452	12,510,820
243-01	Trad / Ban Khlong Kwang	1,708,609	59,801,315
243-02	Trad / Ban Khlong Kwang	1,598,645	55,952,575
286-01	Trad / Ban Nhong Bon	18,747	656,145
294-01	Trad / Ban Trakul Pattana	338,045	11,831,575
299-01	Trad / Ban Thap Makok	374,574	13,110,090
438-01	Si Saket / Ban Don Aow	2,850,174	99,756,090
438-02	Si Saket / Ban Don Aow	1,632,462	57,136,170
438-03	Si Saket / Ban Don Aow	2,924,682	102,363,870
438-04	Si Saket / Ban Don Aow	1,932,654	67,642,890
439-01	Si Saket / Ban Kor	1,953,915	68,387,025
439-02	Si Saket / Ban Kor	2,805,215	98,182,525
439-03	Si Saket / Ban Kor	3,748,454	131,195,890
455-01	Ubon Ratchathani / Ban Yod Dom Wildlife	620,168	21,705,880
455-02	Ubon Ratchathani / Ban Yod Dom Wildlife	884,035	30,941,225
457-01	Ubon Ratchathani / Ban Nam Yeun	3,141,026	109,935,910
457-02	Ubon Ratchathani / Ban Nam Yeun	622,439	21,785,365
457-03	Ubon Ratchathani / Ban Nam Yeun	989,767	34,641,845
459-01	Ubon Ratchathani / Ban Non Yang	54,652	1,912,820
779-01*	Chiang Mai / Ban San Ton Du	2,049,340	71,726,900
785-01	Chiang Mai / Ban Pang Ton Dea	685,329	23,986,515
786-01*	Chiang Mai / Ban Pang Ton Dea	6,665,331	233,286,585
Total		**41,726,186**	**1,460,416,510**

Year 2012

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
3-01	Sa Kaeo / Khlong Phang	125,000	4,375,000
20-01	Sa Kaeo / Ban Khao Ta Ngok	7,600	266,000
21-01	Sa Kaeo / Ban Khao Ta Ngok	275,000	9,625,000
136-01	Sa Kaeo / Ban Thup Phrik Moo 2	1,000	35,000
166-01	Sa Kaeo / Ban Sirarat Pattana	12,200	427,000
167-01	Sa Kaeo / Ban Sirarat Pattana	4,000	140,000
172-01	Sa Kaeo / Ban Khlong Wha	1,800	63,000
198-01	Sa Kaeo / Ban Thup Tim Siam 05	65,000	2,275,000
198-02	Sa Kaeo / Ban Thup Tim Siam 05	19,500	682,500
739-01	Sa Kaeo / Ta Praya National Park	2,210,500	77,367,500
214-01*	Trad / Ban Nhong Yang	5,500,000	192,500,000
457-04	Ubon Ratchathani / Ban Nam Yeun	2,044,184	71,546,440
467-01	Ubon Ratchathani / Ban Srang Hom	2,220,000	77,700,000
467-02	Ubon Ratchathani / Ban Srang Hom	2,940,000	102,900,000
473-01	Ubon Ratchathani / Ban Sri Boonreung	722,000	25,270,000
473-02	Ubon Ratchathani / Ban Sri Boonreung	1,240,000	43,400,000
476-01	Ubon Ratchathani / Ban Kae Don	1,174,948	41,123,180
476-02	Ubon Ratchathani / Ban Kae Don	809,000	28,315,000
468-01	Ubon Ratchathani / Ban Thoong Nhong Bua	276,355	9,672,425
470-03	Ubon Ratchathani / Ban Ta Yoy	1,103,422	38,619,770
471-01	Ubon Ratchathani / Ban Kum Keun Kaew	25,811	903,385
472-01	Ubon Ratchathani / Ban Kum Keun Kaew	39,085	1,367,975
478-01	Ubon Ratchathani / Ban Kae Don	827,000	28,945,000
478-02	Ubon Ratchathani / Ban Kae Don	4,798,400	167,944,000
478-03	Ubon Ratchathani / Ban Kae Don	2,520,000	88,200,000
478-04	Ubon Ratchathani / Ban Kae Don	3,970,000	138,950,000
780-01	Chiang Mai / Ban San Ton Du	484,250	16,948,750
786-01*	Chiang Mai / Ban Pang Ton Dea	8,538,259	298,839,065
Total		**41,954,314**	**1,468,400,990**

Year 2013

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
22-01	Sa Kaeo / Ban Khao Ta Ngok	7,000	245,000
86-01	Sa Kaeo / Ban Khao Chongkab	32,200	1,127,000
87-01	Sa Kaeo / Ban Khao Chongkab	55,800	1,953,000
87-02	Sa Kaeo / Ban Khao Chongkab	157,500	5,512,500
88-01	Sa Kaeo / Ban Khao Chongkab	7,800	273,000
89-01	Sa Kaeo / Ban Khao Chongkab	20,000	700,000
91-01	Sa Kaeo / Ban Khao Chongkab	33,900	1,186,500
95-01	Sa Kaeo / Ban Khao Chongkab	135,000	4,725,000
742-02	Sa Kaeo / Ta Praya National Park	497,200	17,402,000
742-03	Sa Kaeo / Ta Praya National Park	862,500	30,187,500

742-04	Sa Kaeo / Ta Praya National Park	577,500	20,212,500
214*-01	Trad / Ban Nhong Yang	799,193	27,971,755
268-02	Trad / Ban Sapan Hin	5,005,915	175,207,025
393-01	Surin / Ban Sakon Pattana	41,921	1,467,235
393-02	Surin / Ban Sakon Pattana	949	33,215
393-03	Surin / Ban Sakon Pattana	11,076	387,660
393-04	Surin / Ban Sakon Pattana	21,820	763,700
397-01	Surin / Ban Tra Weng	2,530,000	88,550,000
397-02	Surin / Ban Tra Weng	377,000	13,195,000
397-03	Surin / Ban Tra Weng	4,710,000	164,850,000
406-01	Surin / Ban Kalengwek	733,000	25,655,000
406-02	Surin / Ban Kalengwek	1,790,000	62,650,000
407-01	Surin / Ban Kalengwek	553,420	19,369,700
407-02	Surin / Ban Kalengwek	1,225,450	42,890,750
407-03	Surin / Ban Kalengwek	974,352	34,102,320
407-04	Surin / Ban Kalengwek	574,830	20,119,050
411-01	Surin / Ban Khayong	39,313	1,375,955
411-02	Surin / Ban Khayong	1,181,144	41,340,040
411-03	Surin / Ban Khayong	46,469	1,626,415
411-04	Surin / Ban Khayong	413,600	14,476,000
411-05	Surin / Ban Khayong	312,254	10,928,890
411-06	Surin / Ban Khayong	1,080,610	37,821,350
413-02	Surin / Ban Chong Chom - Chong	975,500	34,142,500
413-03	Surin / Ban Chong Chom - Chong	1,072,000	37,520,000
413-04	Surin / Ban Chong Chom - Chong	2,232	78,120
413-05	Surin / Ban Chong Chom - Chong	7,956	278,460
413-06	Surin / Ban Chong Chom - Chong	20,660	723,100
473-03	Ubon Ratchathani / Ban Sri Boonreung	3,080,000	107,800,000
516-01	Phayao / Ban Saa	868,382	30,393,370
525-01	Phayao / Ban Ton Peung	6,318,028	221,130,980
781-01	Chiang Mai / Ban Romsai	2,794,696	97,814,360
821-01	Chiang Rai / Ban Thai Chareon	39,137	1,369,795
828-01	Chiang Rai / Ban Huai Leuk	145,715	5,100,025
870-01	Chiang Rai / Ban Paya Prai Litu	920,297	32,210,395
Total		**41,053,319**	**1,436,866,165**

Year 2014

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
62-01E	Sa Kaeo / Ban Phu Num Kleang	281,076	9,837,660
113-01E	Sa Kaeo / Ban Pa Rai	578,030	20,231,050
742-01	Sa Kaeo / Ta Praya National Park	3,182,328	111,381,480
268-01	Trad / Ban Sapan Hin	4,167,531	145,863,585
295-01	Trad / Ban Thup Tim Siam 01	223,743	7,831,005
297-01*	Trad / Ban Muen Dan	3,505,841	122,704,435
306-01	Trad / Ban Manao	238,287	8,340,045
309-01	Trad / Ban Nhong Mai Hom	164,598	5,760,930
430-01E	Si Saket / Ban Wa Na Sawan	7,550,000	264,250,000

431-01E	Si Saket / Ban Huai Chan	2,800,000	98,000,000
431-02E	Si Saket / Ban Huai Chan	2,100,000	73,500,000
431-03E	Si Saket / Ban Huai Chan	3,100,000	108,500,000
431-04E	Si Saket / Ban Huai Chan	2,000,000	70,000,000
431-05E	Si Saket / Ban Huai Chan	2,000,000	70,000,000
440-01E	Si Saket / Ban Kun Trom Noi	1,150,000	40,250,000
440-02E	Si Saket / Ban Kun Trom Noi	1,300,000	45,500,000
440-03E	Si Saket / Ban Kun Trom Noi	1,200,000	42,000,000
440-04E	Si Saket / Ban Kun Trom Noi	2,100,000	73,500,000
440-05E	Si Saket / Ban Kun Trom Noi	1,500,000	52,500,000
440-06E	Si Saket / Ban Kun Trom Noi	750,000	26,250,000
440-07E	Si Saket / Ban Kun Trom Noi	1,600,000	56,000,000
443-01E	Si Saket / Ban Sae Pai Tai	750,000	26,250,000
447-01E	Ubon Ratchathani / Ban Kor	1,125,000	39,375,000
447-02E	Ubon Ratchathani / Ban Kor	2,000,000	70,000,000
447-03E	Ubon Ratchathani / Ban Kor	2,000,000	70,000,000
447-04E	Ubon Ratchathani / Ban Kor	1,350,000	47,250,000
636-01*	Phitsanulok / Ban Rom Klao	14,200,000	497,000,000
Total		**62,916,434**	**2,202,075,190**

Year 2015

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
82-01E	Sa Kaeo / Ban Dong Ngoo	475,300	16,635,500
749-01E	Prachuap Khirikhan /The 3 rd protection unit	3,535,304	123,735,640
199-01E	Trad / Ban Dan Nern Soong	55,000	1,925,000
200-01E	Trad / Ban Dan Nern Soong	350,000	12,250,000
202-01E	Trad / Ban Dan Nern Soong	26,000	910,000
203-01E	Trad / Ban Hua Nhong	420,000	14,700,000
205-01E	Trad / Ban Hua Nhong	4,518	158,130
297-01*	Trad / Ban Muen Dan	7,597,364	265,907,740
447-05E	Ubon Ratchathani / Ban Kor	2,100,000	73,500,000
454-01E	Ubon Ratchathani / Ban Yod Dom Wildlife	1,500,000	52,500,000
454-02E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,040,000	71,400,000
454-03E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,000,000	70,000,000
454-04E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,250,000	78,750,000
454-05E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,300,000	80,500,000
454-06E	Ubon Ratchathani / Ban Yod Dom Wildlife	1,800,000	63,000,000
454-07E	Ubon Ratchathani / Ban Yod Dom Wildlife	3,200,000	112,000,000
454-08E	Ubon Ratchathani / Ban Yod Dom Wildlife	3,500,000	122,500,000
454-09E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,000,000	70,000,000
454-10E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,000,000	70,000,000
456-01E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,300,000	80,500,000
456-02E	Ubon Ratchathani / Ban Yod Dom Wildlife	1,100,000	38,500,000
456-03E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,200,000	77,000,000
456-04E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,000,000	70,000,000
456-05E	Ubon Ratchathani / Ban Yod Dom Wildlife	1,050,000	36,750,000
456-06E	Ubon Ratchathani / Ban Yod Dom Wildlife	1,950,000	68,250,000
636-01*	Phitsanulok / Ban Rom Klao	14,200,000	497,000,000

Total	61,953,486	2,168,372,010

Year 2016

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
728-01E	Kanchanaburi / Ban Takhian Ngam	136,560	4,779,600
729-01E	Kanchanaburi / Ban Phu Nam Rom	17,560	614,600
730-01E	Kanchanaburi / Ban Nong Chaeng	1,612,200	56,427,000
750-01E	Prachuap Khirikhan / Ban Pong Gate	76,370	2,672,950
752-01E	Prachuap Khirikhan / Ban Dan Singkorn	30,650	1,072,750
753-01E	Prachuap Khirikhan / Ban Dan Singkorn	48,770	1,706,950
754-01E	Ratchaburi / Ban Poang Haeng	541,920	18,967,200
757-01E	Ratchaburi / Ban Hua Nam Nuk	63,145	2,210,075
758-01E	Ratchaburi / Ban Bor Whee	93,170	3,260,950
759-01E	Ratchaburi / Ban Bor Whee	99,700	3,489,500
760-01E	Ratchaburi / Ban Ta Go Larng	435,340	15,236,900
761-01E	Ratchaburi / Ban Ta Go Larng	779,890	27,296,150
311-01	Trad / Ban Pa ar	1,054,211	36,897,385
311-02	Trad / Ban Pa ar	4,575,362	160,137,670
311-03	Trad / Ban Pa ar	2,898,446	101,445,610
449-01E	Ubon Ratchathani / Ban Nhong Sang	7,148,439	250,195,365
450-01E	Ubon Ratchathani / Ban Nhong Sang	352,639	12,342,365
451-01E	Ubon Ratchathani / Ban Pa Tea	230,778	8,077,230
456-07E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,350,000	82,250,000
456-08E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,000,000	70,000,000
456-09E	Ubon Ratchathani / Ban Yod Dom Wildlife	2,000,000	70,000,000
458-01E	Ubon Ratchathani / Ban Kang Reung	1,600,000	56,000,000
458-02E	Ubon Ratchathani / Ban Kang Reung	2,150,000	75,250,000
458-03E	Ubon Ratchathani / Ban Kang Reung	2,070,000	72,450,000
458-04E	Ubon Ratchathani / Ban Kang Reung	1,400,000	49,000,000
458-05E	Ubon Ratchathani / Ban Kang Reung	1,350,000	47,250,000
465-01E	Ubon Ratchathani / Ban Srang Hom	1,850,000	64,750,000
465-02E	Ubon Ratchathani / Ban Srang Hom	1,550,000	54,250,000
466-01E	Ubon Ratchathani / Ban Srang Hom	2,400,000	84,000,000
466-02E	Ubon Ratchathani / Ban Srang Hom	2,500,000	87,500,000
466-03E	Ubon Ratchathani / Ban Srang Hom	2,600,000	91,000,000
466-04E	Ubon Ratchathani / Ban Srang Hom	1,700,000	59,500,000
477-01E	Ubon Ratchathani / Ban Kae Don	32,124	1,124,340
479-01E	Ubon Ratchathani / Ban Kae Don	2,000,000	70,000,000
479-02E	Ubon Ratchathani / Ban Kae Don	500,000	17,500,000
480-01E	Ubon Ratchathani / Ban Kae Don	10,050	351,750
636-01*	Phitsanulok / Ban Rom Klao	8,852,450	309,835,750
801-01	Mae Hong Son / Ban Mai Lan	847,463	29,661,205
813-01	Mae Hong Son / Ban Huai Fan	4,753,821	166,383,735
845-01	Mae Hong Son / Ban Doi Sang	42	1,470
Total		**64,711,100**	**2,264,888,500**

Year 2017

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
747-01E	Phetchaburi / Border Patrol Police Unit 1443	1,290,630	45,172,050
748-01E	Phetchaburi / Pah Daeng Nation Park	4,979,568	174,284,880
199-01E	Trad / Ban Dan Nern Soong	55,000	1,925,000
200-01E	Trad / Ban Dan Nern Soong	350,000	12,250,000
202-01E	Trad / Ban Dan Nern Soong	26,000	910,000
203-01E	Trad / Ban Hua Nhong	420,000	14,700,000
205-01E	Trad / Ban Hua Nhong	4,518	158,130
206-01E	Trad / Ban Khlong Makham	13,472	471,520
207-01E	Trad / Ban Khlong Makham	11,727	410,445
208-01E	Trad / Ban Khlong Makham	140,000	4,900,000
209-01E	Trad / Ban Ruem Sook	230,000	8,050,000
210-01E	Trad / Ban Ruem Sook	52,000	1,820,000
211-01E	Trad / Ban Cheak Lak	260,000	9,100,000
212-01E	Trad / Ban Nhong Yang	38,000	1,330,000
216-01E	Trad / Ban Na Kleau	970,000	33,950,000
217-01E	Trad / Ban Khlong Khad	2,466	86,310
219-01E	Trad / Ban Ta Kang	240,000	8,400,000
222-01E	Trad / Ban Tha Kum	1,000	35,000
224-01E	Trad / Ban Khlong Yai	14,000	490,000
225-01E	Trad / Ban Khlong Yai	70,000	2,450,000
226-01E	Trad / Ban Huang Soum	160,000	5,600,000
228-01E	Trad / Ban Khlong Hin	280,000	9,800,000
230-01E	Trad / Ban Ta Nuek	220,000	7,700,000
231-01E	Trad / Ban Ta Nuek	92,000	3,220,000
232-01E	Trad / Ban Khlong Son	50,000	1,750,000
233-01E	Trad / Ban Nhong Mueng	310,000	10,850,000
234-01E	Trad / Ban Bang In	120,000	4,200,000
235-01E	Trad / Ban Mai Roud	410,000	14,350,000
236-01E	Trad / Ban Mai Roud	75,000	2,625,000
237-01E	Trad / Ban Khlong Manao	500,000	17,500,000
238-01E	Trad / Ban Khlong Manao	170,000	5,950,000
239-01E	Trad / Ban Nhong Ree	960,000	33,600,000
244-01E	Trad / Ban Khlong Kwang	540,000	18,900,000
245-01E	Trad / Ban Khlong Kwang	12,000	420,000
247-01E	Trad / Ban Khod Sai	16,382	573,370
252-01E	Trad / Ban Cham Rak	640,000	22,400,000
253-01E	Trad / Ban Khlong chak	44,000	1,540,000
254-01E	Trad / Ban Khlong chak	89,000	3,115,000
255-01E	Trad / Ban Khlong Plu	10,000	350,000
256-01E	Trad / Ban Khlong Plu	540,000	18,900,000
257-01E	Trad / Ban Cham Rak	250,000	8,750,000
261-01E	Trad / Ban Khlong Son	31,000	1,085,000
263-01E	Trad / Ban Khlong Chak	16,000	560,000
481-01E	Ubon Ratchathani / Ban Non Soong	1,600,000	56,000,000

481-02E	Ubon Ratchathani / Ban Non Soong	500,000	17,500,000
481-03E	Ubon Ratchathani / Ban Non Soong	2,750,000	96,250,000
482-01E	Ubon Ratchathani / Ban Non Soong	3,250,000	113,750,000
482-02E	Ubon Ratchathani / Ban Non Soong	3,440,000	120,400,000
482-03E	Ubon Ratchathani / Ban Non Soong	2,150,000	75,250,000
483-01E	Ubon Ratchathani / Ban Non Soong	2,000,000	70,000,000
483-02E	Ubon Ratchathani / Ban Non Soong	1,700,000	59,500,000
483-03E	Ubon Ratchathani / Ban Non Soong	2,050,000	71,750,000
399-01E	Surin / Ban Nong Kanna	440,000	15,400,000
399-02E	Surin / Ban Nong Kanna	540,000	18,900,000
401-01E	Surin / Ban Nong Kanna Samakee	1,200,000	42,000,000
401-02E	Surin / Ban Nong Kanna Samakee	1,300,000	45,500,000
402-01E	Surin / Ban Khok Salaeng	800,000	28,000,000
402-02E	Surin / Ban Khok Salaeng	650,000	22,750,000
408-01E	Surin / Ban Ta Kao Mai	1,200,000	42,000,000
408-02E	Surin / Ban Ta Kao Mai	1,000,000	35,000,000
414-01E	Surin /Ban Chong Chock-Chong Tik Kae	1,250,000	43,750,000
414-02E	Surin /Ban Chong Chock-Chong Tik Kae	1,850,000	64,750,000
416-01E	Surin / Ban Naeng Mud	1,050,000	36,750,000
416-02E	Surin / Ban Naeng Mud	1,750,000	61,250,000
416-03E	Surin / Ban Naeng Mud	1,050,000	36,750,000
416-04E	Surin / Ban Naeng Mud	1,100,000	38,500,000
416-05E	Surin / Ban Naeng Mud	1,050,000	36,750,000
416-06E	Surin / Ban Naeng Mud	1,150,000	40,250,000
420-01E	Surin / Ban Sanuan	443,761	15,531,635
421-01E	Surin / Ban Sanuan	1,000,000	35,000,000
422-01E	Surin / Ban Kuen Kaeo	112,223	3,927,805
532-01	Uttaradit / Ban Muang Jed Ton	209,189	7,321,615
534-01	Uttaradit / Ban Bor Bea	3,345,061	117,077,135
535-01	Uttaradit / Ban Wang Sum Pan	648,896	22,711,360
554-01	Nan / Ban Rhom Klao	6,241,371	218,447,985
556-01	Nan / Ban Huai Sa Tang	59,293	2,075,255
606-01	Nan / Ban Huai Lao	95,597	3,345,895
632-01	Nan / Ban Huay Tone	503,109	17,608,815
Total		**64,182,263**	**2,246,379,205**

Year 2018

Minefield No.	Province/ Name of village	Size of Minefield (sq. m.)	Estimated Cost for Clearance (35 Baht per sq. m.)
755-01E	Ratchaburi / Ban Pha Pok	1,612,200	56,427,000
756-01E	Ratchaburi / Ban Pha Pok	2,742,646	95,992,610
264-01E	Trad / Ban Huang Bon	500,000	17,500,000
266-01E	Trad / Ban Nhong Yang	1,307	45,745
269-01E	Trad / Ban Sapan Hin	80,000	2,800,000
270-01E	Trad / Ban Sapan Hin	116,000	4,060,000
271-01E	Trad / Ban Sapan Hin	10,000	350,000
273-01E	Trad / Ban Khlong Saba	23,000	805,000
274-01E	Trad / Ban Khlong Saba	47,000	1,645,000

276-01E	Trad / Ban Ma Muang	3,280,000	114,800,000
279-01E	Trad / Ban Tha Sen	440,000	15,400,000
304-01E	Trad / Ban Thap Makok	12,919	452,165
322-01	Chanthaburi / Ban Nhong Bon Nua	23,652	827,820
322-02	Chanthaburi / Ban Nhong Bon Nua	16,197	566,895
322-03	Chanthaburi / Ban Nhong Bon Nua	28,362	992,670
322-04	Chanthaburi / Ban Nhong Bon Nua	95,221	3,332,735
330-01	Chanthaburi / Ban Bueng Chanung Lang	1,104	38,640
340-01	Chanthaburi / Ban Ma Rum	46,018	1,610,630
340-02	Chanthaburi / Ban Ma Rum	20,936	732,760
341-02	Chanthaburi / Ban Ma Rum	11,879	415,765
345-01	Chanthaburi / Ban Nhong Kok	9,277	324,695
348-01	Chanthaburi / Ban Suan Som	35,616	1,246,560
350-01	Chanthaburi / Ban Suan Som	31,198	1,091,930
358-01	Chanthaburi / Ban Santi Pattana	1,522,044	53,271,540
358-02	Chanthaburi / Ban Santi Pattana	1,238,992	43,364,720
317-01	Chanthaburi / Ban Sub Ta Mao	22,860	800,100
317-02	Chanthaburi / Ban Sub Ta Mao	30,875	1,080,625
318-01	Chanthaburi / Ban Pa Wi Lai	2,280	79,800
319-01	Chanthaburi / Ban Pa Wi Lai	1,324	46,340
328-01E	Chanthaburi / Ban Bo Yang	117,249	4,103,715
329-01E	Chanthaburi / Ban Bo Yang	10,000	350,000
337-01	Chanthaburi / Ban Nhong Bon Nua	10,525	368,375
337-02	Chanthaburi / Ban Nhong Bon Nua	16,861	590,135
342-01E	Chanthaburi / Ban Sub Taree	1,500	52,500
343-01E	Chanthaburi / Ban Sub Taree	10,000	350,000
353-01E	Chanthaburi / Ban Suan Som	26,000	910,000
354-01E	Chanthaburi / Ban Khlong Men	40,000	1,400,000
356-01E	Chanthaburi / Ban Khlong Men	20,328	711,480
283-01	Chanthaburi / Ban Khlong Yai	251,812	8,813,420
284-01	Chanthaburi / Ban Khlong Yai	30,000	1,050,000
284-02	Chanthaburi / Ban Khlong Yai	115,561	4,044,635
284-03	Chanthaburi / Ban Khlong Yai	99,813	3,493,455
284-04	Chanthaburi / Ban Khlong Yai	49,895	1,746,325
359-01E	Buriram / Ban Sai Tri 3	200,000	7,000,000
359-02E	Buriram / Ban Sai Tri 3	600,000	21,000,000
360-01E	Buriram / Ban Chong Ta Keaw	150,000	5,250,000
360-02E	Buriram / Ban Chong Ta Keaw	150,000	5,250,000
361-01E	Buriram / Ban Sai To 12 Tai	500,000	17,500,000
362-01E	Buriram / Ban Noi Lum Chee	222,292	7,780,220
363-01E	Buriram / Ban Sai To 10 Tai	498,285	17,439,975
364-01E	Buriram / Ban Sri Ta Yart	450,000	15,750,000
364-02E	Buriram / Ban Sri Ta Yart	630,000	22,050,000
364-03E	Buriram / Ban Sri Ta Yart	300,000	10,500,000
364-04E	Buriram / Ban Sri Ta Yart	460,000	16,100,000
365-01E	Buriram / Ban Sai Tri Pattana 2	680,000	23,800,000
365-02E	Buriram / Ban Sai Tri Pattana 2	300,000	10,500,000
365-03E	Buriram / Ban Sai Tri Pattana 2	260,000	9,100,000
366-01E	Buriram / Ban Sai To5 Tai	317,856	11,124,960
367-01E	Buriram / Ban Pha Thai Roum Pol	540,000	18,900,000
367-02E	Buriram / Ban Pha Thai Roum Pol	350,000	12,250,000

367-03E	Buriram / Ban Pha Thai Roum Pol	465,000	16,275,000
367-04E	Buriram / Ban Pha Thai Roum Pol	700,000	24,500,000
367-05E	Buriram / Ban Pha Thai Roum Pol	600,000	21,000,000
368-01E	Buriram / Ban Sai Tho 2 Tai	250,000	8,750,000
383-01E	Buriram / Ban Sai Tho4 Tai Moo10	450,000	15,750,000
383-02E	Buriram / Ban Sai Tho4 Tai Moo10	500,000	17,500,000
384-01E	Buriram / Ban Sai Tho 1 Tai	400,000	14,000,000
384-02E	Buriram / Ban Sai Tho 1 Tai	200,000	7,000,000
385-01E	Buriram / Ban Sai Tri Pattana 4	350,000	12,250,000
385-02E	Buriram / Ban Sai Tri Pattana 4	600,000	21,000,000
386-01E	Buriram / Ban Sai Tri Pattana 4	730,000	25,550,000
386-02E	Buriram / Ban Sai Tri Pattana 4	670,000	23,450,000
387-01E	Surin / Ban Charas Pattana	1,500,000	52,500,000
387-02E	Surin / Ban Charas Pattana	1,750,000	61,250,000
387-03E	Surin / Ban Charas Pattana	2,000,000	70,000,000
387-04E	Surin / Ban Charas Pattana	2,500,000	87,500,000
387-05E	Surin / Ban Charas Pattana	2,100,000	73,500,000
387-06E	Surin / Ban Charas Pattana	1,950,000	68,250,000
394-01E	Surin / Ban Thai Niyom	750,000	26,250,000
394-02E	Surin / Ban Thai Niyom	900,000	31,500,000
395-01E	Surin / Ban Thai Suntisuk	800,000	28,000,000
395-02E	Surin / Ban Thai Suntisuk	780,000	27,300,000
395-03E	Surin / Ban Thai Suntisuk	450,000	15,750,000
395-04E	Surin / Ban Thai Suntisuk	550,000	19,250,000
396-01E	Surin / Ban Sakon	1,000,000	35,000,000
396-02E	Surin / Ban Sakon	1,600,000	56,000,000
396-03E	Surin / Ban Sakon	1,100,000	38,500,000
396-04E	Surin / Ban Sakon	800,000	28,000,000
396-05E	Surin / Ban Sakon	800,000	28,000,000
705-01E	Tak / Ban Huay Pla Kong	8,932	312,620
706-01E	Tak / Ban Huay Pla Kong	22,403	784,105
713-01E	Tak / Ban Nhong Luang	3,860,923	135,132,305
714-01E	Tak / Ban Huay Mai	1,272,480	44,536,800
720-01E	Tak / Ban Huay Num Nak	5,895,521	206,343,235
721-01E	Tak / Ban Mae La Thai	46,444	1,625,540
724-01E	Tak / Ban Klor Tor	4,519,308	158,175,780
726-01E	Tak / Ban Lhai Tha	11,822	413,770
	South of Thailand		
766-01E	Yala / Ban Khlong Ching	15,271	534,485
767-01E	Yala / Ban Khlong Ching	5,199	181,965
737-01E	Chumphon / Bang Tha Bon group	1,200,000	42,000,000
Total		**63,514,187**	**1,774,910,760**

Annex IX: The Standard Operating Procedure (SOP) for TMAC's Locating Minefield Procedure (LMP)

Implementation of the locating minefield procedure, de-miners, and related persons must go to work in landmine suspected area or its vicinity that always presents a very high risk to them for they might get accident from landmines or other dangerous objects. If that is the case, they would lose their lives or important organs. For this reason, TMAC has set the rules for safety working for the de-miners or related people to follow. TMAC is highly aware that its humanitarian operation is for the safety of local people. In the mean time, TMAC never neglects the safety of its own staffs and related persons. Therefore, Standard Operation Procedure (SOP) for LMP is carefully developed for field operation, with these following objectives:

1. To set the safety working standard for the integrated area reduction survey
2. To prevent accident, and to encourage field staffs to work in the most safety manner. This SOP is also to guide field staffs in case of accident happened. It gives an idea for life insurance, compensation and beneficiary to de-miner and his family in case unexpected accident happened in order to built confident to them and their family. The SOP of TMAC's LMP is as follows:

1. Preparation before conducting field operation

1. 1 Study available data and information from the Level One Landmine Impact Survey:

(1) Level of the impact or problem (from dangerous area: DA) to community

(2) Details of each dangerous area; location, size, impact, accessibility from the map

(3) Name list of interviewees from Level One Landmine Impact Survey (LIS)

(4) Name list of villagers who led LIS data collectors to do visual inspection of dangerous site during LIS survey

(5) Copy the community drawing map from the LIS

1.2 Study satellite image in order to compare with the result obtained in previous topic 1.1, checking real condition that would be in dangerous area

1. 3 Prepare the satellite image (small size) of the community and location of dangerous area

1. 4 Prepare the satellite image (big size) of each of the dangerous area (1 square meter on A3 paper)

1. 5 Consult, study the information about the landmine problem from the primary source (ask informants if possible)

1. 6 Team Leader makes appointment to interview with local villagers, try to include those who used to join previous interview during LIS

2. Preparation for the medical aid necessary for field operation

Field staffs must follow SOP of Field Medical (see more detail in Attachment No.1)

3. Standard Operation Procedure for Community Interview and Appraisal

3.1 Staffs must Introduce themselves and the project to interviewees (who are them, where are they come from, what they want to survey, how their project work will give benefit to community and what is their expectation from the community)

3.2 Show maps from LIS to interviewees for reference and compare with the current situation

3.3 Show a small size picture of satellite images for reference, and to compare the location of suspected area (DA) with the location of community and the current situation

3.4 Interview villagers, using same methodology as employed in LIS. At least one staff must take record. They may interview using different questionnaires:

(1) Interview by questionnaire (Community evaluation) to evaluate change of landmine affect

(2) Interview by questionnaire (Community evaluation) to evaluate the change of the size o dangerous area

(3) Interview by questionnaire (Community evaluation) to evaluate economic and social environment

(4) Interview by Community Rapid Appraisal method (CRP) using interviewing frame, and record qualitative data.

(5) Ask and write the name of news source including with appointment, chose for joining work

4. SOP for field research; primary survey to divide dangerous area into different parts according risk category.

4.1 Field staffs must strictly follow the SOP of Field Medical, and prepare all necessity before working in dangerous area

4.2 All members of survey team including Project Executive from Bangkok, Local key informants, military expert must go to make a primary survey or field research, taking with them a big picture of satellite image for easy appraisal of the current condition of DA

4.3 Survey Team approach closely to DA or around DA, they will see condition of DA from clearest point (open space or high land) and will use pencil to draw on the picture of field satellite image, the different parts of DA according to risk category

4.4 Local key informants will then carefully take survey team into DA, they will move carefully following the safe walking path. Inside DA, survey team will then be able to correct the drawing map made in no. 5. To be more correct.

4.5 Survey Team conducts more details of field research in DA, they will move in open areas of DA such as open forest that they and Local key informants are sure is safe enough. Then they will further correct the drawing of different risk category parts in DA by using pencil.

4.6 Finally, they will be able to divide different parts in DA according to risk category; that should be:

(1) Safety Area **(represent by Green color)** such as agriculture land, planting land, rocky safety land, archeology site, tourism site, mountain or cliff that is confirmed safe by local key informants

(2) **Minefield Area** **(represent by Red color)** such as land confirmed by landmine laying map obtained from military, the land confirmed landmine by local key informant and ex-military persons, or the land that has enough evidence of being contaminated by dangerous objects. Land has some incidents that could be proven minefield

(3) **Tentative Safety Area** (that area should be otherwise safe, but presents distinctively and clearly dangerous object inside; object may lay on ground). **Yellow color represent this type of land**

(4) **Unsure land**; land that is not confirmed dangerous but there has been some little evidences of possibly being contaminated **(represent by Orange color)** such as

maneuver forest area, ambush forest area, water resources that were used by military. These land type of risk category can be divided by geography as follows;

(4.1) Plain land such as loose forest area, dense forest area, rocky area, paddy field,

plain area adjacent to border line

(4.2) Water source; river, creek, canal

(4.3) Hill side or mountain foot, land near cliff

(4.4) Pedestal path up to a hill or mountain

(4.5) Pedestal path down from a hill or mountain

(4.6) Cliff

(4.7) Top of hill or top of mountain

(4.8) Around the hill or the mountain

(4.9) Area that is still suspected by local key informant, military experts, ex-military

(5) Make field survey report, drawing on picture of satellite image by using Field Research Form

(6) Make a report of the information sources; the reliability of local key informants, military expert, ex-military person (using field survey form)

(7) This field research survey might take one day to complete or more, depending on situation.

5. SOP for working in each type of risk categories land obtained from no. 5

Remarks: Staffs must follow strictly the SOP of Field Medical (Attachment 1) before working in the suspected or the dangerous area

5.1 Safety area **(Green color)**; staffs mark boundary of safe area, using wooden stake. They might randomly check, using metal detector or heavy machine (if applicable). Then, staffs will make report, using Survey Level 3-Completion Report. Staffs will re-affirm the correctness of boundary on map series L-7018 and on the satellite image. Then they will finally correct their drawn location in map using permanent marker.

5.2 Minefield area (Actual minefield) **(Red color)**

(1) Land with over 1,000 square meter-size

Staffs make safety lane and put metal stakes around boundary of the actual minefield. They must also put Reference point (RP), Benchmark (BM), Starting point (ST), Turning point (TP) and Intermediate point (IP) around perimeter of minefield, using metal stakes. After that, they will re-affirm the correctness of boundary on map series 7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. Finally, they will make a report using Survey Level 2-Technical Report.

(2) Land with lower than 1,000 square meter-size

Staffs will clear that minefield, strictly following written SOP. After that, they will re-affirm the correctness of cleared boundary from map series L-7018 and the satellite image, using GPS to take coordinates of those cleared boundary together with those maps, and will correct their drawn location in map, using permanent marker. Finally, they will make a report using Survey Level 3-Completion Report.

5.3 Tentative Safety Area (that area should be otherwise safe, but presents distinctively and clearly dangerous object inside; object may lie on ground). **Yellow color represents this type of land.**

Staffs would take off that dangerous object s for disposal or make an in-situ disposal. They will further make a randomly check inside the land. After that, they will re-affirm the correctness of cleared boundary on map series L-7018 and on the satellite image, using GPS to take coordinates together with those maps, and will correct their drawn location in map, using permanent marker. Finally, they will make a report using Survey Level 3-Completion Report.

5.4 Unsure land; land that is not confirmed dangerous but there are some little evidences of possibly being contaminated **(represent by Orange color)**; such as maneuver area, ambush forest area, water resources that were used by military. These land type of risk category can be divided by geography, as already described in no. 4.1 to 4.9

Remarks: When working in suspected or dangerous area. Staffs must:

1. Strictly follow the SOP of Field Medical
2. Divide working area in 1 square meter or appropriate size

5.4.1 The survey operation in plain land such as loose forest area, dense forest area, rocky area, paddy field, plain area adjacent to border line

Working in the loose forest plain land

1. Consult with the local key informants, ex-military person, military experts.
2. Try to envisage real contaminated areas inside, and roughly make the envisaged minefields' boundary (if possible).
3. Evaluation the possibility of the each envisaged contaminated areas, evaluation the risk if accessibility is made by them (if possible)
4. Set the standard for random check, consulting with every concerned persons. Normally, random check will be made every 50 meters.
5. While moving through DA area, de-miner would make a random checks, using metal detector as practiced in traditional clearance (see more detail in SOP of clearance attached),
6. De-miners or other concerned persons must not go outside safety lane, though they might think those outside areas are safe.
7. Survey staffs might make a random check with heavy clearance machine if availably and applicably (see more SOP of clearance machine).
8. When random check is approaching the edge of the envisaged boundary of minefield, discussion must be made among all concerned parties to make more thorough check. Recommendation is normally made at 5 x 5 meter random check. They must work so careful under supervision of local key informants, hard and industrious that they would finally be able to mark minefield boundary. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. Finally, they will make a report using Survey Level 2-Technical Report.
9. If they had not envisaged minefield, they must make a standard random checks. Standard random check is 50 x 50 meters. If dangerous object is not found, then the risk is deemed as low as applicably acceptable. Then that land is applicably announced not dangerous.
10. If any single dangerous object is found, survey staffs must make 5 x 5 meter random checking block for detail checking. They must thoroughly check inside the checking block, and clear that dangerous object. If no other dangerous object, rather than that

found object, is found, de-miner would continue to make random check, following the standard 50 x 50 meter random check. But if any other dangerous object is found in 5 x 5 meter checking block, survey team must locate that area as minefield with 50 meter-radius size or any other suitable size that all concerned parties deem reasonably appropriate. After that, survey staffs will make safe lane around that minefield perimeter. They would put metal stakes around new perimeter, as well as putting warning signs and others according to SOP.

11. .After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

Working in the rocky surface area with grass or small trees in the suspected area

Consult with the local key informants, ex-military person, and military experts.

2. De-miners make a random check at most suspected portions of rocky surface such as rocky surface that small grasses grow, or that siltation of soil covers. (see more detail in SOP of clearance attached)

3. De-miners or other concerned persons must not go outside safety lane, though they might
think those outside areas are safe.

4. If the dangerous object is found, de-miners must take that dangerous object (that should not be many in number as it rocky area) for disposal (according to SOP of EOD).

5. After completion the survey on rocky surface, de-miners must confirm boundary, taking GPA together with map and compass.

6. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those

maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 3-Completion Report.

Working in the dense forest area

1. Consult with the local key informants, ex-military person, and military experts.

2. De-miners make a random check at the most suspected portions; such as ambush forest area.

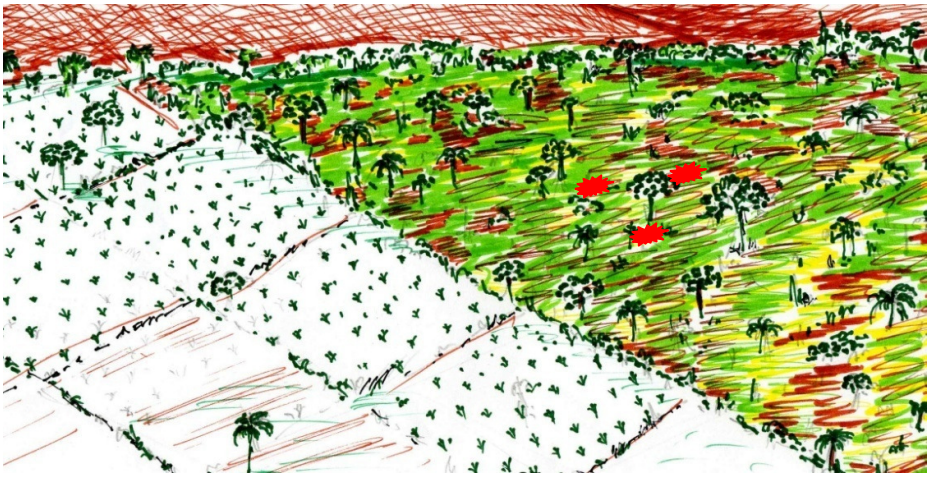
3. De-miners or other concerned persons must not go outside safety lane, though they might think those outside areas are safe.

4. If the random check can be made to an ambush area and dangerous object is found, survey staffs must locate that area as minefield with 50 meter-radius size or any other suitable size that all concerned parties deem reasonably appropriate. They will make safe lane around that minefield perimeter and put metal stakes around new perimeter, as well as putting warning signs and others according to SOP.

5. If no any ambush inside dense forest, or that forest is too much dense and so more than 30 years, and no fighting history are reported inside that dense forest, thus that dense forest will be deemed as low risk as applicably acceptance, and be announced safe..

6. .After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 3-Completion Report.

Working in Paddy field or a Plain land and plain area adjacent to Border Line



1. Consult with the local key informants, ex-military person, and military experts for plain border fighting Ask them for anti-tank laying map, if possible.

2. Try to envisage contaminated areas inside and roughly make the envisaged minefields' boundary (if possible).

3. Evaluation the possibility of the each envisaged contaminated areas, evaluation the risk if accessibility is made by them (if possible)

4. Set the standard for random check, consulting with every concerned person. Normally, random check will be made every 50 meters.

5. De-miner would make random check lanes toward envisaged contaminated area, using metal detector as practiced in traditional clearance (see more detail in SOP of clearance attached),

6. De-miners or other concerned persons must not go outside safety lanes, though they might think those outside areas are safe.

7. Survey staffs might make a random check with heavy clearance machine if availably and applicably (see more SOP of clearance machine).

8 . When random check is approaching the edge of the envisaged boundary of minefield, discussion must be made among all concerned parties to make more thorough check. Recommendation is normally made at 5 x 5 meter random check. They must work so careful under supervision of local key informants, hard and industrious that they would finally be able to mark minefield boundary. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. Finally, they will make a report using Survey Level 2-Technical Report.

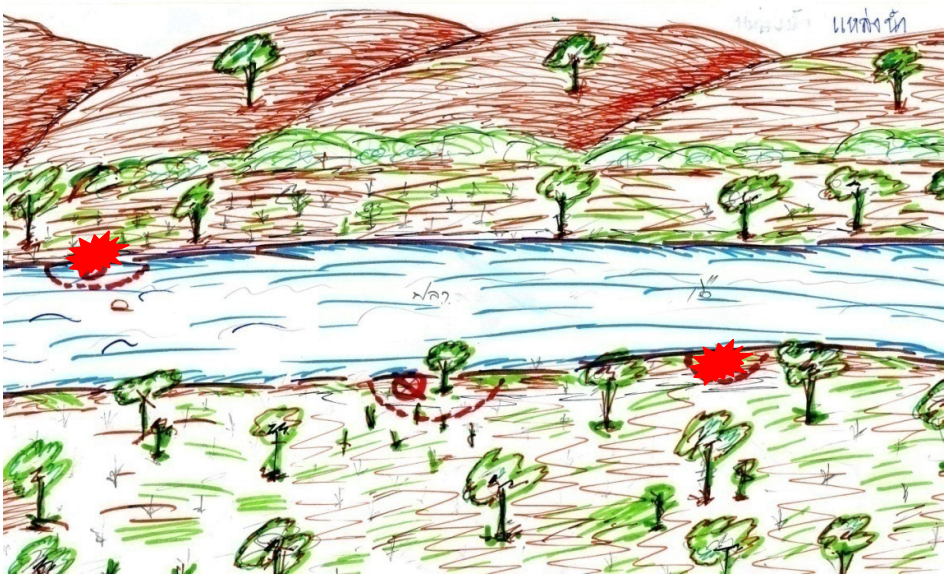
Field staffs will make safe lane around perimeter of minefield, putting metal stakes for RP, BM, ST, TP and IP, and also put warning signs.

9. If they had not envisaged minefield, they must make a standard random checks. Standard random check is 50 x 50 meters. If dangerous object is not found, then the risk is deemed as low as applicably acceptable. Then that land is applicably announced not dangerous.

10. If any single dangerous object is found, survey staffs must make 5 x 5 meter random checking block for detail checking. They must thoroughly check inside the checking block, and clear that dangerous object. If no other dangerous object, rather than that found object, is found, de-miner would continue to make random check, following the standard 50 x 50 meter random check. But if any other dangerous object is found in 5 x 5 meter checking block, survey team must locate that area as minefield with 50 meter-radius size or any other suitable size that all concerned parties deem reasonably appropriate. After that, survey staffs will make safe lane around that minefield perimeter. They would put metal stakes around new perimeter, as well as putting warning signs and others according to SOP.

11. .After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.2 The survey operation in water source; river, creek, canal



1. Consult with the local key informants, ex-military person, military experts and the people live by the water source

2. Try to envisage contaminated areas inside and roughly make the envisaged minefields' boundary (if possible).

3. Evaluation the possibility of the each envisaged contaminated areas, evaluation the risk if accessibility is made by them (if possible)

4. Set the standard for random check at no. 2 (except in water), consulting with every concerned person. Normally, random check for this type of contamination will be made straight at every 5 meters.

5. De-miner would make random check lanes toward envisaged contaminated area, using metal detector as practiced in traditional clearance (see more detail in SOP of clearance attached).

6. De-miners or other concerned persons must not go outside safety lane, though they might think those outside areas are safe.

7. Survey staffs might make a random check with heavy clearance machine if availably and applicably (see more SOP of clearance machine).

8. They must work so careful under supervision of local key informants, hard and industrious that they would finally be able to mark minefield boundary. After that, they will make safe lane around perimeter of minefield, putting metal stakes for RP, BM, ST, TP and IP, and also put warning signs.

9. As for contamination in river, survey staff put the warning signs along the water source where they have confirmed minefield.

10. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.3 The survey operation in Hill side or mountain foot, land near cliff

1. Consult with the local key informants, ex-military person; military experts (if they have a landmine laying map it will be beneficially).

2. Try to envisage contaminated areas at hill side or mount foot, and roughly make the envisaged minefields' boundary (if possible).

3. Evaluation the possibility of the each envisaged contaminated areas, evaluation the risk if accessibility is made by them (if possible)

4. Set the standard for random check, consulting with every concerned person. Normally, random check for this type of contamination will be made straight at every 5 meters.

5. De-miner would make random check lanes toward envisaged contaminated area, using metal detector as practiced in traditional clearance (see more detail in SOP of clearance attached).

6. De-miners or other concerned persons must not go outside safety lane, though they might think those outside areas are safe.

7. Survey staffs might make a random check with heavy clearance machine if availably and applicably (see more SOP of clearance machine).

8 . They must work so careful under supervision of local key informants, hard and industrious that they would finally be able to mark minefield boundary (size of this type of minefield is normally not big). After that, they will make safe lane around perimeter of minefield, putting metal stakes for RP, BM, ST, TP and IP, and also put warning signs.

9. As for minefield blocking access path to the hill or mount, survey staff put the warning signs next to minefield along that hillside, as long as that minefield length.

10. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.4 The survey operation in Pedestal path up to a hill or mountain

1. Consult with the local key informants, ex-military person, military experts (if they have a map it will be beneficially).

2. Check access path up to hill or mount on satellite image, or make visual inspection fro distance.

3. Try to envisage contaminated areas inside and roughly make the envisaged minefields' boundary (if possible).

4. Evaluation the possibility of the each envisaged contaminated areas, evaluation the risk if accessibility is made by them (if possible)

5. Set the standard for random check, consulting with every concerned person. Normally, random check for this type of contamination will be made straight at every 5 meters.

6. De-miner would make random check lanes toward envisaged contaminated area, using metal detector as practiced in traditional clearance (see more detail in SOP of clearance attached).

7. De-miners or other concerned persons must not go outside safety lane, though they might think those outside areas are safe.

8 . When random check is approaching the edge of the envisaged boundary of minefield, discussion must be made among all concerned parties to make more thorough check. Recommendation is normally made at 5 x 5 meter random check. So careful, hard and industrious survey that they would finally be able to mark minefield boundary. After that, survey staffs will make safe lane around that minefield perimeter. They would put metal stakes around new perimeter, as well as putting warning signs and others according to SOP.

9. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.5 The survey operation in Pedestal path down from a hill or mountain

1. Consult with the local key informants, ex-military person, military experts (if they have a map it will be beneficially).

2. Survey staffs might survey the pedestal path down from a hill or mountain from the satellite image and eyesight.

3. Try to envisage contaminated areas in Pedestal path down from a hill or mountain and roughly make the envisaged minefields' boundary (if possible).

4. Evaluation the possibility of the each envisaged contaminated areas, evaluation the risk if accessibility is made by them (if possible)

5. Set the standard for random check, consulting with every concerned person. Normally, random check will be made every 50 meters.

6. Survey staffs might make a random check with heavy clearance machine if availably and applicably (see more SOP of clearance machine).

7. De-miners or other concerned persons must not go outside safety lane, though they might think those outside areas are safe.

8 . They must work so careful under supervision of local key informants, hard and industrious that they would finally be able to mark minefield boundary (size of this type of minefield is normally not big). After that, they will make safe lane around perimeter of minefield, putting metal stakes for RP, BM, ST, TP and IP, and also put warning signs.

9. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.6 The survey operation around the Cliff area

1. Assume that are no minefield around the cliff area.there

2. Consult with the local key informants, ex-military person, and military experts.

3. Survey staffs might study more details of the area around the cliff from satellite image and make visual inspection from distance, for checking that our assumption is correct. (Negative Test)

4. If our assumption is correct (true for Negative Test), then that land is applicably announced not dangerous.

5. If our assumption is false for Negative Test, it implies that there is a minefield to the hill side. Then they must follow SOP of **The survey operation in Pedestal path** up to a hill or mountain no. 5.4.4

6. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.7 The survey operation on the top of hill or top of mountain

1. Assume that there are no minefield on the top of hill or top of mountain.

2. Consult with the local key informants, ex-military person, and military experts.

3. Survey staffs might study the area on the top of hill or top of mountain from satellite image and make visual inspection for checking that our assumption is correct. (Negative Test)

4. If our assumption is true for Negative Test, then that land is applicably announced not dangerous.

5. If our assumption is false for Negative Test, It implies that there is a minefield to the hill side. Then they must follow the SOP of **The survey operation in plain land 5.4.1**.

6. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

5.4.8 The survey operation around the hill or the mountain

1. Assume that there is no minefield around the hill or the mountain area.

2. Consult with the local key informants, ex-military person, and military experts.

3. Survey staffs might study the area around the hill or mountain from satellite image and visual inspection from distance for checking that our assumption is correct. (Negative Test)

4. If our assumption is true for Negative Test, then that land is applicably announced not dangerous.

5. If our assumption is false for Negative Test, It implies that there is a minefield around the hill or mountain. Then they must follow SOP of **The survey operation in Pedestal path** up to a hill or mountain no. 5.4.4

6. After that, they will re-affirm the correctness of new boundary on map series L-7018 and on the satellite image, using GPS to take coordinate together with those maps, and will correct their drawn location in map, using permanent marker. And finally, they will make a report using Survey Level 2-Technical Report.

Operation in particular area suspected by local key informant, military experts, ex-military

1. Some areas, the local key informants, ex-military person, and military experts still suspect if it is really safe.

2. Then the survey teams must carry on survey operation to that area, using appropriate SOP that is already described.

3. If the survey team assumes the area is safe, then they will have to prove their Positive Test. If true for positive test, the survey team will make Completion Report (Level 3 Survey). But if it is false for Positive Test, then the survey team must carry on area reduction survey, using appropriate SOP as already described.

6. SOP for making a report

6.1 Staffs will make reports for internal communication inside their units

6.2 Staff will make standard reports as required by TMAC Headquarters or as commonly used in IMSMA, and will finally submitted to TMAC Headquarters in Bangkok