#### Kingdom of Cambodia

FY 2015 Ex-Post Evaluation of Japanese Grant Aid Project<sup>1</sup> "Project for Improvement of Equipment for Demining Activities (Phase VI)" External Evaluator: Yukiko Sueyoshi, Value Frontier Co., Ltd

## 0. Summary

The project was implemented for the purpose of strengthening clearance activities of landmines and unexploded ordnance (UXO) through procurement of necessary equipment for Cambodian Mine Action Centre (CMAC) in Cambodia which faced serious problems with buried landmines/UXO. Relevance is high, because the project was consistent with the development policy and needs of Cambodia and with Japan's ODA policy. Efficiency is also high, since both project cost and period were within the plan. It was confirmed that CMAC's clearance activities of landmines/UXO are improved through appropriate utilization of the procured equipment. In addition, positive impacts of the project, such as securing safe living and improving convenience of life by developing infrastructure such as road, public facilities, and farmland, were confirmed. Therefore, effectiveness and impact of the project are high. The status of operation and maintenance of the equipment was considered as appropriate and no major problems were observed in terms of institutional and technical aspects. On the other hand, the prospects of sufficient budget allocation to CMAC looked unclear. Therefore, sustainability of the project is deemed fair.

In light of the above, the project is evaluated to be highly satisfactory.

# 1. Project Description



**Project Location** 



CMAC Staff in front of the Tent Provided by the Project

#### 1.1 Background

The Kingdom of Cambodia (Cambodia) was suffering from the severe contamination of landmines/ UXO as a result of the conflict that lasted for 20 years from the 1970's. In addition,

<sup>&</sup>lt;sup>1</sup> This ex-post evaluation was carried out by referring to opinions regarding the Project and CMAC's activities from a Japanese researcher, a Japanese NGO and a Cambodian researcher. Selection of the experts was done by the external evaluator, and agreed by JICA.

it was estimated that approximately 30% of UXO dropped by the US Army remained in the eastern area of Cambodia, near the border with Viet Nam, due to the Viet Nam War. Consequently, Cambodia faced serious problems with landmines/UXO buried in the ground of Cambodia. A survey conducted between 2000 and 2002 concluded that a total area of 4,544 km<sup>2</sup> in 6,422 villages, or 46% of the entire rural villages of the country, were confirmed or suspected of contamination by landmines/UXO<sup>2</sup>. The annual number of landmines/UXO victims had been decreasing since 1996 when the number of victims was the largest, 4,320 persons. There were, however, still 244 victims in 2009 at the time of the project planning, and thus securing safe living was needed. Also, landmines/UXO clearance was an urgent issue because landmines/UXO that were suspected to be buried mainly in rural areas were preventing the development in the agricultural sector, the major industry of the country. The government of Cambodia ratified "Anti-Personnel Mine Ban Treaty" in 1999, and carried out a landmine contamination survey and clearance activities for 10 years, as required by the Treaty. However, since the total area cleared by 2009 was only 530 km<sup>2</sup>, the Government applied for an extension of another 10 years and the government needed to enhance efficiency of landmines/UXO clearance activities by the end of 2019 that was set as the new deadline of the Treaty.

Under these circumstances, JICA continuously provided CMAC with assistances of Grant Aid Project for "Improvement of Equipment for Demining Activities Phase I-V (1999-2008)", Technical Cooperation Project for "Strengthening of CMAC's Function for Human Security Realization (2008-2010)" and implemented the project.

#### 1.2 Project Outline

The objective of the project was to maintain and improve clearance activities of landmines/UXO through procurement of necessary equipment for CMAC, thereby contributing to securing safe living of residents in rural areas.

 $<sup>^{\</sup>rm 2}\,$  Source: Document provided by JICA

## <Grant Aid Project>

E/N Grant Limit or G/A Limit Amount / Actual Amount	1,298million yen / 1,298million yen			
Exchange of Notes Date/Grant Agreement Date	March, 2011 / March, 2011			
Implementing Agency	CMAC			
Project Completion Date	June, 2012			
Main Contractor(s)	Sirius Corporation Toyota Tsusho Corporation Itochu Corporation Marubeni Corporation			
Main Consultant	Ingérosec Corporation			
Preparatory Survey	March, 2011			
Related Projects	<ul> <li>(Grand Aid Project) Project for Improvement of Equipment for Demining Activities(Phase I-V:1998-2008)</li> <li>(Grand Aid Project) Project for Research and Development of Mine Clearance Related Equipment (2005 – 2007)</li> <li>(Grand Aid Project) The Programme for Integrated Mine Clearance and Landmine Victim Assistance (Phase I : 2009, Phase II : 2013)</li> <li>(Technical Cooperation Project) Project of Strengthening of CMAC's Function for Human Security Realization (2008 - 2010)</li> </ul>			

## 2. Outline of the Evaluation Study

2.1 External Evaluator

Yukiko Sueyoshi, Value Frontier Co., Ltd

## 2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule:

Duration of the Study: September, 2015 - October, 2016

Duration of the Field Study: January 10, 2016 - January 25, 2016

April 23, 2016 - April 28, 2016

## 2.3 Constraints during the Evaluation Study

Considering that the project was a project to procure equipment, the external evaluator should normally check the operational status of all equipment. The equipment provided by the project was, however, installed in six different locations throughout the country and only three branches could be visited due to time constraints for field surveys. Therefore, evaluation of the equipment's operational status was made by examining malfunctioning equipment and the date of breakdown based on the CMAC's equipment data base at the time of the ex-post evaluation.

## 3. Results of the Evaluation (Overall Rating: A<sup>3</sup>)

## 3.1 Relevance (Rating: $3^4$ )

3.1.1 Relevance to the Development Plan of Cambodia

"National Development Strategy 2009-2013", a Cambodian development policy at the time of the project planning, clearly stated that landmines/UXO clearance was an agenda to be tackled to promote people's settlement, agricultural activities, and development programs. It was one of the programs to develop the agricultural sector. Also, "National Mine Action Strategy 2010-2019" was promoting clearance of anti-personnel landmines by the end of 2019 as its goal.

At the time of the ex-post evaluation, activities for landmines/UXO clearance were continuously stated as one of the programs for developing the agricultural sector in "National Development Strategy 2014-2018". Since the Cambodian government needed to implement UXO clearance together with landmine clearance, the Cambodian Mine Action and Victim Assistance Authority (CMAA) implemented a survey for identifying landmines/UXO buried areas, and "National Mine Action Strategy 2017-2025" is being formulated based on the results of the survey.

In conclusion, the project, whose objective was to maintain and improve clearance activities, was consistent with the development policy of the country in both the planning and the ex-post evaluation stages.

#### 3.1.2 Relevance to the Development Needs of Cambodia

The areas cleared of landmines/UXO between 1992 and 2009 were 530km<sup>2</sup> in Cambodia. CMAC cleared 263km<sup>2</sup> of it, which was approximately half the size.<sup>5</sup> However, according to the study implemented from 2000 to 2002, areas that landmines/UXO were buried in Cambodia totalled 4,544km<sup>2</sup>. Thus, more efficient clearance activities were required. Also, most of the equipment owned by CMAC was deteriorating due to usage under severe conditions, and a decline of working efficiency was a concern.

The latest results of the study (as of April 2016) implemented by the Cambodian government available at the time of the ex-post evaluation showed that landmines/UXO were buried or suspected to be buried in areas of 1,799km<sup>2</sup> <sup>6</sup>, and indicated that continuous activities for landmines/UXO clearance would be needed until 2025. However, the majority of the CMAC budget was spent for administration of operations on landmines/UXO clearance activities, and thus it was difficult to purchase or renew equipment required for the activities. Concerning this

<sup>&</sup>lt;sup>3</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>&</sup>lt;sup>4</sup> ③: High, ② Fair, ① Low

<sup>&</sup>lt;sup>5</sup> Landmines and UXO in other areas were cleared of by the Royal Cambodian Armed Forces and NGOs conducting landmine/UXO clearance activities.

<sup>&</sup>lt;sup>6</sup> Data provided by CMAA

issue, Mr. Ratha Seng<sup>7</sup> of the University of Batambang pointed out as follows. "Reinforcement of equipment requires a large-scale investment, but it is difficult to say that the Cambodian government holds sufficient funds for landmines/UXO clearance. Thus, the project, which provided equipment, responded to needs on promoting activities for landmines/UXO clearance in Cambodia. CMAC is an organization which cleared the largest area of landmines/UXO. Especially, providing equipment to CMAC would help accelerate landmines/UXO clearance activities in the whole of Cambodia."

Therefore, from the planning to the ex-post evaluation stage of the project, the necessity of the project providing demining equipment for CMAC was high to maintain and promote activities for landmine/UXO clearance in the country.

#### 3.1.3 Relevance to Japan's ODA Policy

Japan's "Country Assistance Policy for Cambodia" (formulated in 2002) stated "comprehensive assistance to anti-personnel mine clearance" as a part of "realization of sustainable growth and stable society", which was one of the prioritized assistance areas. Also, in the policy, improvement of clearance activities through provision of equipment was clearly stated.

Therefore, the project was consistent with the Japanese assistance policy when it was planned.

The project was highly relevant to the country's development plan and needs, as well as Japan's ODA policy. Therefore its relevance is high.

### 3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

In the project, the following equipment was provided for CMAC because it was considered necessary to renew/reinforce deteriorated equipment and then to maintain CMAC's clearance activities. All equipment were procured and delivered to CMAC as planned. Then, CMAC transported each equipment to the branches in need.

<sup>&</sup>lt;sup>7</sup> He is a researcher of Research and Development Center, University of Battambang, specialized in community development/poverty issue. He has research achievement of landmines/UXO issues in Cambodia and community development.

Mine and UXO Clearance & Survey Equipment	Plan	Actual
Brush Cutter	8	8
Vehicles-Pick up 4x4	50	50
Vehicles-Station Wagon 4x4	58	58
Mine detector	221	221
Mine/UXO detector	184	184
Deep search detector	87	87
Portable GPS receiver	117	117
VHF handheld transceiver	205	205
Generator	27	27
Spare parts for Brush cutter	1 set	1set
Tent	86	86
Spare parts for vehicles	1 set	1set
Spare parts for mine detectors	1 set	1 set
Van12 Seats	7	7

Table 1 List of Equipment Procured

Source: Document provided by JICA, Questionnaire Survey to CMAC



Removing Weeds by Brush Cutter



Landmine Detection by CMAC Staff

#### 3.2.2 Project Inputs

## 3.2.2.1 Project Cost

The project cost on the Japanese side was 1,298 million yen at the planning stage, but the actual cost was 1,239 million yen, which was within the plan (95% of the plan). This was mainly because bid prices for equipment including vehicles, portable GPS receivers, and handheld VHF transceivers were lower than the bid ceilings. A million yen in bank handling charge was included in the project cost on the Cambodian side, but the actual amount could not be confirmed at the ex-post evaluation. However, it was confirmed that the bank handling charge was paid without problems, according to the Japanese consultant and CMAC.

## 3.2.2.2 Project Period

The project period was planned as 16 months from March 2011 to June 2012. The actual period was 12 months from March 2011 to February 2012, which was within the planned period (75% of the plan). This was because both Japanese and Cambodian sides closely communicated with each other and completed the mission earlier than the plan to avoid anticipated confusions that might be caused by the local election in Cambodia in the month of project completion, June 2012.

Both the project cost and period were within the plan. Therefore, efficiency of the project is high.

## 3.3 Effectiveness<sup>8</sup> (Rating: ③)

## 3.3.1 Quantitative Effects

To examine effects of the project, 1) Areas cleared of landmines/UXO (cumulative) and 2) Areas released by technical survey<sup>9</sup> (cumulative) were set when the project was planned. In the ex-post evaluation, another indicator, 3) Areas cleared of landmines/UXO (annual), was added to the above indicators to examine if clearance activities were stably curried out. Also, in 3.3.2 Qualitative Effect, additional indicator, 4) Operating status of major equipment, was added to examine if the procured equipment was properly used. But as described in 2.3 Constraints during the Evaluation Study, the examination was made by using the CMAC's equipment data base. The achievement status of each indicator was explained below.

#### 1) Areas cleared of landmines/UXO (Cumulative)

As shown in Table 2, actual areas cleared of landmines/UXO since 1992 (cumulative, km<sup>2</sup>) were 518.4km<sup>2</sup> in 2014, while the target areas for 2014 were 452.1km<sup>2</sup>, and thus exceeded the planned target (115% of the plan).

<sup>&</sup>lt;sup>8</sup> Sub-rating for Effectiveness is determined with consideration of Impact.

<sup>&</sup>lt;sup>9</sup> Technical survey is conducted in area suspected for contamination of landmines. The survey doesn't cover whole area. The area was categorized in accordance with probability of contamination. For the area with low probability of contamination, the survey covers narrower area. For the area with high probability, the survey covers wider area. (Source: document provided by JICA)

							Unit : km²
Target 2014	Baseline 2009	Actual 2010	Actual 2011	Actual 2012	Actual 2013	Actual 2014	Actual 2015
452.1	262.9	308.0	352.7	408.8	457.2	518.4	565.4

Table 2 Areas cleared of landmines/UXO (Cumulative)

Source :CMAC OPERATIONAL SUMMARY PROGRESS REPORT 1992-2015 Note : According to CMAC, 'Areas cleared of from Landmines/UXO' includes 1)areas fully cleared in the mapped areas and 2)areas confirmed safety in the surrounding mapped areas. As for the base-line data in 2009, it was 262.9 in the data base of CMAC, while ex-ante evaluation document indicated as 263.0. In this evaluation report, 262.9 was used.

One of the factors for having achieved the target was the contribution of equipment provided by the project. Concerning this issue, Mr. Ratha Seng commented as follows. "The lands where landmines/UXO were buried and abandoned were covered with trees and plants. Thus, CMAC staff had to clear them first by using mowing machines before starting detection work. Their removal work requires many hours, and it was a heavy burden on staff due to long-hours of labour in the sun. However, the introduction of brush cutters improved safety and efficiency of the clearance activities and also contributed to improvement of the labour environment."

In addition to the provision of equipment, improving work efficiency of CMAC staff was also an important factor for the achievement. According to CMAC, work efficiency was improved especially by a new land release method which was fully introduced around 2011. In this method, survey to the residents is carried out at the beginning. Based on the result of the survey, areas are largely divided into three categories, which are 1) areas requiring no clearance because there is no risk of buried landmines/UXO, 2) areas requiring an investigation because there are risks of buried landmines/UXO (subject to technical survey), and 3) areas requiring clearance because there are high risks of buried landmines/UXO (subject to full clearance). Then an appropriate type of clearance activities (using brush cutters or mine detection dogs, and conducting an interview survey, etc) is selected for the area depending on the risk level to improve the efficiency of the land release process. Also, although clearance activities were carried out by multiple technical teams previously, CMAC currently introduced a new method of having each staff learn multiple skills so that clearance activities can be swiftly conducted with a smaller team.

In order to assist this method, a Japanese NGO, the Japan Mine Action Service<sup>10</sup> (JMAS) provided technical guidance for CMAC for improving their clearance abilities. There is a possibility that not only equipment enhancement by the project but also technical assistance from JMAS might have contributed to achieving the target. (Refer to BOX1)

<sup>&</sup>lt;sup>10</sup> Approved specified nonprofit corporation established with retired officials of Self Defense Force in 2002 for the purpose of contributing to reconstruction of countries suffering from aftereffect of war or civil war by making use of their experience and specialty.

## BOX1

# Activities for improving CMAC's ability in landmines/UXO clearance: Nagatoshi Sako, Resident Representative, JMAS Cambodia Office

#### (Summary)

In CMAC, the mechanical team using demining machines and brush cutters and the manpower team are operating separately in mine fields. Each team has strong and weak points depending on land characteristics such as landform, vegetation, and ground surface. The teams were not always able to sufficiently make up for each other's weak points due to a lack of understanding of the mine fields' characteristics and each other's specialties. Based on this, JMAS provides technical assistance for CMAC staff so that they can understand each team's specialties and also perform safer and more prompt clearance work. Therefore, JMAS project transfers knowledge and skills for deploying demining platoons.

\*This box was summarized by the external evaluator. The full text is attached at the end of the report.

2) Areas released by technical survey (Cumulative)

As shown in Table 3, the areas released by technical survey show that the actual areas released were 125.6km<sup>2</sup>, while the planned target areas were 719.4km<sup>2</sup>, and thus they were lower than the planned target (17% of the plan). CMAC stated that this was because there were cases where landmines/UXO clearance activities were sometimes switched to full clearance work.<sup>11</sup> Field staff considered that full clearance work was more reliable than technical survey that covered only a part of target areas. Therefore, while full clearance areas increased, the planned areas released by technical survey were lower than the planned target. Because a decision on which clearance method to be used was made on site, it can be said that setting goals of "full clearance areas" and "areas released by technical survey" separately was not appropriate to measure the effects of the project. Therefore, although the target was not achieved, it did not affect this evaluation because the indicator setting was considered as inappropriate.

<sup>&</sup>lt;sup>11</sup> When the result shows that landmines/UXO are highly likely to exist after the technical survey, the area is fully cleared.

			-	-		-	Unit : km²
Target	Baseline	Actual	Actual	Actual	Actual	Actual	Actual
2014	2009	2010	2011	2012	2013	2014	2015

Table 3Areas released by technical survey(Cumulative Figure Until 2014)

60.5

76.1

125.6

193.5

Source : CMAC OPERATIONAL SUMMARY PROGRESS REPORT 1992-2015 Note : According to CMAC's definition of "Areas released by technical survey", total released areas include the followings; 1) areas released by technical survey: 2) areas confirmed its safety by hearing survey: 3) areas confirmed its safety to secure working space or roads to carry out clearance activity.

40.0

#### 3) Areas cleared of landmines/UXO (Annual)

0.0

32.7

719.4

The annual areas cleared in 2009 at the time of the project planning were 37.5km<sup>2</sup>, and the areas were dramatically increased after technical survey was introduced in 2010. The annual area remained high since 2012 when the project was completed, ranging from 60 to 110 km<sup>2</sup>. There were increases and decreases every year, but it can be considered that clearance activities were by and large conducted in a stable manner.



Source : Data provided by CMAC

Figure 1 Area Cleared from Landmine/UXO (Annual Value)

#### 3.3.2 Qualitative Effects

### 1) Operating status of major equipment

Operating status of all equipment is recorded and managed in the CMAC's equipment database. According to the database, equipment which was not in operation at the ex-post evaluation is shown in Table 4. All equipment for landmines/UXO clearance are produced in such countries as Austria and Germany, and spare parts are needed to be imported. Since there is a budget limitation for purchasing the spare parts and time is required to procure them from aboard, it was observed that some equipment were not repaired even one year after being broken. However, as soon as the budget was allocated, spare parts were purchased and equipment were repaired. Therefore, there was no problem that was hindering clearance activities from making progress when the ex-post evaluation was conducted. In addition, "the Project for Improvement of Equipment for Demining Activities Phase VII," as the next phase of the project, is planning to procure spare parts for clearance.

Name of Equipment	Status	Number of equipment.	Remarks
Mine detector	Under Repair	13	Equivalent to 6% of the total number of equipment provided. According to the CMAC database, 11 detectors were broken between April and May 2015, and the rest were broken in 2016. It was planned to be repaired after procurement of spare parts.
Deep search detector	Under Repair	13	Equivalent to 15% of the total number of equipment provided. According to the CMAC database, 4 detectors were broken between April and May 2015, and the rest were broken in 2016. It was planned to be repaired after procurement of spare parts.
Portable GPS receiver	Under Repair	5	Equivalent to 4% of the total number of equipment provided. According to the CMAC database, 2 receiver s were broken between April and June 2015, and the rest were broken in 2016. It was planned to be repaired after procurement of spare parts.
VHF handheld transceiver	Under Repair	3	Equivalent to 1% of the total number of equipment provided. According to the CMAC database, 2 transceiver s were broken between April and December 2015, and the rest were broken in 2016. It was planned to be repaired after procurement of spare parts.
	Broken	5	Equivalent to 2% of the total number of equipment provided. They were not in use because they were unrepairable.
Tent	Under Repair	6	Equivalent to 7% of the total number of equipment provided. Almost all equipment were broken in April 2015. It was planned to be repaired after procurement of spare parts.

Table 4 Status of Inactive Equipment as of Ex-post Evaluation

Source : Questionnaire Survey to CMAC

#### 3.4 Impacts

## 3.4.1 Intended Impacts

The project was expected to have impacts on securing safe living for residents in rural areas. To measure the impacts, the following points were examined: 1) changes in the number of landmines/UXO victims, 2) condition of land use after landmines/UXO clearance, and 3) changes in the living environment of residents in rural areas.

#### 1) Changes in the number of landmines/UXO victims

As shown in Figure 2, the number of landmines/UXO victims is in a decreasing trend every year from 286 people in 2010 (when the project was planned) to 111 people in 2015. This is the

result of the efforts made by demining operators conducting clearance activities in Cambodia. Especially, CMAC cleared landmines/UXO for approximately 50% of the entire area and is the largest operator in the country, and can be said that it has made great contributions to the decrease of victims.

In addition, this is also the result of Mine Risk Education (MRE) for residents which CMAC and other demining operators provide in conjunction with landmines/UXO clearance activities. Concerning this point, Mr. Sako commented "JMAS implements MRE at schools, administrative offices, and village halls together with landmines/UXO clearance activities by CMAC. Consequently, positive effects such as a better understanding of the risk on landmines/UXO and an increase in the number of information on landmines/UXO locations are seen."



Source: Data Provided by CMAA Note: 'Child' is defined as a person below the age of 18.

Figure 2 Number of Landmines/UXO Victims (Annual)

The breakdown of victims shows that the majority were male adults. This was because there were accidents in recent years in which they touched landmines/UXO hidden deep underground at farmlands where they used large-scale agricultural machinery and at construction sites where they used heavy machinery. On the other hand, the number of child victims for the last three years remained almost unchanged. When looking into details of child victims, one can notice that there were many cases where children touched landmines/UXO by themselves or they were involved by being near a person who touched landmines/UXO. Therefore, continuing MRE for children and male adults is necessary.

#### 2) Conditions of land use after landmines/UXO clearance

The major purposes of land use after clearance activities by CMAC after the project completion (2012 to 2015) were "farmland" (approximately 71%) followed by "combined use

of house and a farmland" (approximately 8%). According to CMAC, the number of people who received direct benefits from landmines/UXO clearance is calculated as 55,003 people. Purposes of land use are decided by residents themselves, as beneficiaries. After clearing landmines/UXO, the Mine Action Planning Unit (MAPU) located in each state conducts a monitoring survey to make sure that the land is used for the planned purpose. The monitoring system aims to prevent the land cleared of landmines/UXO from being used against residents' will.

### 3) Changes in living environment of residents in rural areas

As the result of the beneficiary survey<sup>12</sup> in two villages in which CMAC implemented landmines/UXO clearance, all residents responded as "very satisfied" <sup>13</sup> with the selection process of demining sites and activities conducted by CMAC. According to CMAC, when clearance activities for landmines/UXO just started in the 1990's, there were many residents who were dissatisfied with the clearance activities because each demining operator conducted clearance activities upon request from local authorities. Currently, however, the level of satisfactions of residents is higher because transparent selection process of clearance sites is taken under the participations by administrative personnel at each level, demining operators and residents in accordance with the guideline made by CMAA. Concerning this, Professor Takesada<sup>14</sup> of Hosei University re-verified appropriateness of the selection process for selecting demining sites. And it was confirmed that a clear method for selecting demining sites with local government and demining operators was prescribed and a democratic process was being taken. (Refer to BOX2)

Also, the beneficiary survey shows expansion of farmland and income increase after the project. Farmland per household increased from 2.4 ha to 3.8 ha on average. Activities for landmines/UXO clearance seem to have made an enormous contribution to this result. Moreover, annual average income increased from US\$317 to US\$920. However, various factors including expansion of farmland can be considered as reasons for the income increase, so a further survey will be necessary to determine the causality with the project.

As regards to positive effects brought about by landmines/UXO clearance activities, the

<sup>&</sup>lt;sup>12</sup> The beneficiary survey was done in two villages, namely, O Donpov village and Russie Ro village in Battambang Province. These villages were selected because they had been intervened only by CMAC and also had relatively large areas cleared. In order to examine changes in the living environment after clearance activities by CMAC, 100 residents living near the land with landmine/UXO buried were intentionally extracted, and a face-to-face questionnaire survey was conducted. (Response rate: 100%) (Gender: 60 males, 40 females, Age Group: 10 people in 20's, 20 people in 30's, 24 people in 40's, 31 people in 50's, 15 people in 60's). No major discrepancies were confirmed by villages, gender and by ages.

<sup>&</sup>lt;sup>13</sup> Five-scale answers, very satisfied, satisfied, neither, dissatisfied, and very dissatisfied

<sup>&</sup>lt;sup>14</sup> Professor of Faculty of Sustainability Studies, Hosei University; worked at Overseas Economic Cooperation Fund(OECF) and Japan Bank for International Cooperation (JBIC); was a member of JICA Environmental and Social

Considerations Committee; his specialty is resettlement issues of ODA projects, and social considerations.

answers that the respondents gave most were "improved safety" (99%), "expansion of farmland" (95%), "infrastructure development (mainly roads)" (92%), and "improved access to public facilities" (91%) (multiple answers). Meanwhile, the residents requested "development of irrigation facility" (42%), "road construction" (31%), and "agricultural training" (19%). Concerning this, Mr. Ratha Seng pointed out "Viewing the landmines/UXO issue in Cambodia from a long-term perspective, CMAC should not only focus on clearance activities but provide multi-faceted assistance in which communities suffering from landmines/UXO can receive benefits. In other words, land with landmines/UXO buried was not in use for many years. Even if landmines/UXO were cleared of, the land was often not used for farming because residents did not have sufficient agricultural tools or skills and also lack irrigation water and roads. Therefore, in addition to clearance activities, medium-to-long term assistance including agricultural assistance and infrastructure development is necessary for the community". Mr. Sako also considers that implementing landmines/UXO clearance together with infrastructure development<sup>15</sup> is important for residents to live independently.

<sup>&</sup>lt;sup>15</sup> JMAS conducts road, well, and elementary school building projects jointly with CMAC.

## BOX2

Appropriateness of Land Application after Demining and UXO Clearance Naruhiko Takesada, Professor of Faculty of Sustainability Studies, Hosei University (Summary)

CMAC understands from their experiences that clearance activities generate usable land, in other word "resources", in the past emergency phase. The selection process of sites for demining activities was developed and operated by reflecting the will of the residents. CMAC secured transparency of the process by establishing MAPU and PMAC<sup>16</sup> and also by having participations of demining operators and development partners in the process.

Also, a monitoring system after landmines/UXO clearance was established. The monitoring report requires to identify the land use status after clearance (13 categories including farmland and schools) and the number of beneficiaries. It is expected to provide useful lessons for the future selection of clearance sites by utilizing the data.

Meanwhile, the prioritization of selecting clearance sites still seems to have issues. Specifically, the following points were pointed out during the interview survey of the ex-post evaluation: i) priority setting between large-scale land-owner and poor families; ii) prioritization of national projects that was not in the original plan; iii) land is not used as expected after the demining activities. As for CMAC's issues related to their priority (and effective use of limited resources), it is expected that CMAC's confusion regarding priority setting will be solved by sharing criteria of priority with international aid agencies.

\*This box was summarized by the external evaluator. The full text is attached at the end of the report.

## 3.4.2 Other Impacts

A series of cooperation including the project that JICA provided for CMAC has contributed not only to securing safe living of residents, but to maintaining and improving CMAC's ability in landmines/UXO clearance as described below.

<sup>&</sup>lt;sup>16</sup> Abbreviation of Provincial Mine Action Committee; MAPU conducts demining planning, monitoring, evaluation, a series of social and economical surveys; PMAC conducts supervision, approval, and decision.

### 1) Expansion of CMAC's South-South Cooperation

Under the JICA's South-South Cooperation scheme<sup>17</sup>, CMAC has been a recipient organization of the Third Country Training Program<sup>18</sup> since 2012 for Laos, Angola, and Iraq which have similar landmine/UXO issues with Cambodia. CMAC has been providing technical guidance related to landmine/UXO clearance activities for those countries by utilizing equipment provided by the project.

#### 2) CMAC's contribution to Japanese ODA projects/Japanese companies' branching out in Cambodia

CMCA's proper landmines/UXO clearance activities contributed to smooth implementations of constructions of the Neak Leoung Bridge which opened in April 2015 and National Highway I and V in Cambodia. Also, there were two cases where CMAC cleared landmines/UXO before Japanese companies constructed their factories in 2015. CMAC contributed to securing the safety of Japanese companies when they branched out in Cambodia.

This project has largely achieved its objectives. Therefore, effectiveness and impact of the project are high.

## 3.5 Sustainability (Rating: 2)

3.5.1 Institutional Aspects of Operation and Maintenance

Operation system of CMAC has not greatly changed from the time of the planning to the ex-post evaluation. The number of staff was approximately 2,100 at the time of the planning, but it was approximately 1,600 at the time of the ex-post evaluation. According to CMAC, the major reason for the reduction of staff was retirement and job switching. It was also because of downsizing that CMAC implemented as a part of its organizational reform. Regardless of the reduction of staff, CMAC has been able to maintain and increase annual areas cleared of landmines/UXO in recent years because it has concentrated on capacity building of its staff. Specifically, CMAC promotes work efficiency through 1) providing training for its staff to acquire multiple skills in a way that they can work as a small team, instead of working with several specialized teams as previously practiced, and 2) increasing welfare benefit per person to raise motivations of its staff.

CMAC is currently drafting a strategic plan for the coming 10 years (2015-2025)<sup>19</sup>. The draft estimates areas that need to be cleared by each demining operator by 2025. Based on the assumption that CMAC can secure budget and human resource needed, it plans to accelerate

<sup>&</sup>lt;sup>17</sup> Scheme that a developing country which has advancement in a specific area assists other developing countries by sharing their experiences.

<sup>&</sup>lt;sup>18</sup> Program for a qualified developing country to provide technical assistance to officers gathered from other developing countries.

<sup>&</sup>lt;sup>19</sup> Source: "CMAC TEN-YEAR STRATEGIC PLAN CONCEPT" DRAFT2016-2025

activities for landmines/UXO clearance in the first five years and then to reduce the activity scale in the latter five years (after 2020). It also states that CMAC will continue activities as a governmental agency to work on agendas that are necessary for poverty reduction and economic growth in the country. Also, CMAC has a conceptual plan to transform to as an agency which promotes activities related to landmines/UXO not only in the ASEAN region but also in other regions in cooperation with the ASEAN Regional Mine Action Center (ARMAC)<sup>20</sup> established in 2012 in Cambodia.

### 3.5.2 Technical Aspects of Operation and Maintenance

Technical Institute for Mine Action (TIMA), CMAC's training centre, has more than 30 training programs annually including refresh training that is to retrain staff who are engaged in landmines/UXO clearance activities, and provides the training system to maintain and improve skills for CMAC staff. Each staff member who conducts landmines/UXO clearance has his/her own equipment and keeps an instruction manual. When staff cannot handle the situation by referring to the manual, they contact the Central Workshop in Battambang Province. In case where the Central Workshop cannot handle the situation, it contacts the manufacturer to repair equipment. Most equipment provided by the project were being utilized by CMAC even before the project started, so there are no technical problems in the aspects of operation and maintenance.

When an equipment malfunction occurs on the landmines/UXO clearance site and if there is a need for urgency, a special vehicle for repair goes to the site for repair. A monitoring team deployed at each branch visits clearance sites and monitors equipment and their activity.

#### 3.5.3 Financial Aspects of Operation and Maintenance

The breakdown of CMAC's operating budget mainly consists of: 1) financial assistance from international aid agencies, 2) subcontracting fees from companies and NGOs, and 3) budget from the Cambodian government. CMAC depends more than 80% of its budget on international aid agencies<sup>21</sup> at the time of the ex-post evaluation. CMAC was making efforts to increase its budget by: 1) requesting the Cambodian government to increase its budget and 2) expanding affiliated projects with companies and private organizations.

 <sup>&</sup>lt;sup>20</sup> Training centre mainly provides technical training related to clearance for trainees from the ASEAN countries
 <sup>21</sup> Major international aid agencies are UNDP, American, Germany, and Japanese government.

						Unite	: 1,000USD
Item		2010	2011	2012	2013	2014	2015
International Donors	Actual	11,405	10,402	10,898	9,472	11,725	10,182
	%	92.4%	94.2%	82.3%	80.7%	95.9%	82.5%
Subcontracting Fees	Actual	349	210	496	1,028	117	1,761
	%	2.8%	1.9%	3.7%	8.8%	1.0%	14.3%
Cambodian	Actual	594	434	1,848	1,242	378	400
Government	%	4.8%	3.9%	14.0%	10.6%	3.1%	3.2%
Total		12,349	11,046	13,242	11,743	12,221	12,343

Table 5 Operational Budget of CMAC (Annual)

Source: Questionnaire survey to CMAC

Note 1 : Total cost is different from the sum of each item because each amount in this table was rounded down to the 1,000USD.

Note 2 : The reason of an increase of the government budget between 2012 and 2013 was that CMAC was commissioned in clearance activities in the areas with political priority.

					Unit	e 1,000USD
	2010	2011	2012	2013	2014	2015
Consumables procurement costs (A)	400	358	404	453	405	400
Equipment Maintenance Cost (B)	1,048	1,580	1,308	1,196	960	1,048
Miscellaneous (C)	43	39	48	85	87	43
Total O&M Cost (A+B+C)	1,492	1,979	1,761	1,734	1,452	1,492
Total Expenditure(D)	11,429	9,585	13,899	13,776	15,510	14,452
Total O&M Cost / Total Expenditure (%)	13.1%	20.6%	12.7%	12.6%	9.4%	10.3%

 Table 6
 Operation/Maintenance Cost and Total Expenditure of CMAC (Annual)

 Unite 1 00011
 Unite 1 00011

Source: Questionnaire survey to CMAC

Note: Total cost is different from the sum of each item because each amount in this table was rounded down to the 1,000USD.

Maintenance cost for the last four years from 2012 when the project completed to 2015 accounted for 9 to 12% of the total expenditure, and the percentage increased compared to the five years before the project planning between 2005 and 2009, which was 6 to 11%<sup>22</sup>. The background of this increase is assumed that maintenance cost increased due to deterioration of the equipment.

Concerning the recent financial situations of CMAC, expenses exceed revenues. CMAC requests for budget increases whenever a deficit occurs, but the budget is not always promptly allocated from the government. Therefore, it is assumed that upgrading landmines/UXO clearance equipment on a large scale will be difficult for CMAC. It is undeniable that CMAC's heavy dependence on the international aid agencies is a risk to their activities. In this regard, Mr. Sako, commented "Due to decrease or termination of financial sources by international aid

<sup>&</sup>lt;sup>22</sup> Data provided by JICA

agencies, clearance activities sometimes have to be stopped on site. Therefore, it is important to create a framework where the Cambodian government can allocate budgets to CMAC or a framework to help CMAC's self-sustaining efforts in the financial aspect." CMAC implements landmines/UXO clearance activities as its most important duty, but there are concerns of stagnation of other activities such as MRE and landmine dog training due to budget cuts or withdrawal by the international aid agencies.

#### 3.5.4 Current Status of Operation and Maintenance

Serial numbers are given to all equipment used at each branch, and information including operation hours, fuel costs, and places used are summarized in the monthly report. The equipment database is maintained based on the reports so that operating conditions and repair records can be immediately checked at the CMAC headquarters. List of equipment which was out of order at the time of the ex-post evaluation are described in Table 4. All spare parts provided under the project were in use. There are some cases where spare parts need to be imported and may not be able to be promptly purchased due to the budget limitation. So far, most spare parts have been properly procured with their own funds. As for special equipment such as mine detectors, CMAC confirms the equipment performance and durability in advance, and then requests the Japanese side to provide them. Therefore, it is considered that CMAC properly operates and maintains the provided equipment.

Although there are no problems with the institutional and technical aspects, some minor problems have been observed in terms of financial aspect. Therefore, sustainability of the project effects is fair.

### 4. Conclusion, Lessons Learned and Recommendations

## 4.1 Conclusion

The project was implemented for the purpose of improving clearance activities of landmines/UXO through procurement of necessary equipment for CMAC in Cambodia which faced serious problems with buried landmines/UXO. Relevance is high, because the project was consistent with the development policy and needs of Cambodia and with Japan's ODA policy. Efficiency is also high, since both project cost and period were within the plan. It was confirmed that CMAC's clearance activities of landmines/UXO are improved through appropriate utilization of the procured equipment. In addition, positive impacts of the project, such as securing safe living and improving convenience of living by developing infrastructure such as road, public facilities, and farmland, were confirmed. Therefore, effectiveness and impact of the project are high. The status of operation and maintenance of the equipment was considered as appropriate and no major problems were observed in terms of institutional and technical aspects.

On the other hand, the prospects of sufficient budget allocation to CMAC looked unclear. Therefore, sustainability of the project is deemed fair.

In light of the above, the project is evaluated to be highly satisfactory.

## 4.2 Recommendations

#### 4.2.1 Recommendations to the Implementing Agency

CMAC is in the process of drafting a strategy for landmines/UXO clearance activities by 2025. It is important for CMAC to present a specific plan about financial sources, purchase and renewal of equipment, clearance technology, and manpower required for activities for landmines/UXO clearance to the Cambodian government and the international aid agencies. Currently, activities for landmines/UXO clearance are expected to slow down around 2020. Therefore, it is recommended that CMAC should present its exit strategy on how CMAC will evolve after 2020.

## 4.2.2 Recommendations to JICA

CMAC has a plan to accelerate activities for landmines/UXO clearance until around 2020 and then to reduce the activity scale. Because landmines/UXO clearance activities heavily rely on equipment, needs to upgrade deteriorated equipment will be continuously high. Therefore, it is desirable for JICA to continue assistance in procuring equipment for CMAC until around 2020 when CMAC activities for landmines/UXO clearance are planned to be reduced. After that, it is also recommended to consider assistance in improving financial situations of CMAC that depends on the international aid agencies. Based on the exit strategy for the future organization which will be clearly stated in the 10 year plan being made by CMAC, it is desirable that JICA discuss new assistance direction. For example, expansion of South-South Cooperation to other countries and regions which have landmines and UXO issues like Cambodia, assistance in landmines/UXO victims in the country, capacity building as an organization that implements community development are some options.

## 4.3 Lessons Learned

## Notes for projects to procure equipment

At the time of the ex-post evaluation, it was confirmed that most equipment provided by the project were by and large operated and maintained well. The reasons are as follows : 1) most equipment that the project provided had been utilized by CMAC even before the project. 2) as for special equipment such as mine detectors, CMAC purchased it with its funds and confirmed the equipment's performance and durability in advance, and then requested the Japanese side to provide them. This process lead to CMAC's operation and maintenance of provided equipment in good conditions.

In this way, for similar projects to procure equipment, it is important to select equipment after fully understanding the conditions of the equipment and operational and maintenance ability of the recipient organization.

In the project, spare parts were provided together with the equipment. At the time of the ex-post evaluation, all parts were used, and purchase of some spare parts were delayed due to the limited budget. Therefore, for similar projects to procure equipment, it is desirable to consider not only operation and maintenance ability of the recipient organization but also possibility to continuously purchase spare parts in the medium and long term.

#### Notes for Grant Aid Projects that are implemented for multiple years to the same organization

The project was implemented as the sixth phase of "the Project for Improvement of Equipment for Demining Activities" of the Japanese Grant Aid Projects that has been implemented for CMAC since 1998. The reason why these projects have been implemented for many years is that the complete clearance of landmines/UXO from the whole country is still in its half way. Also, its budget for updating equipment for clearance activities was not sufficiently secured.

The project has assisted the same organization for many years from the urgent assistance phase to the reconstruction assistance phase. For similar projects, especially in the reconstruction assistance phase, it is important to discuss if the organization can independently procure equipment and secure necessary budgets for maintenance in the future. Also, if necessary, incorporating assistance and suggestions to secure financial resources into the project design can be effective in order to secure sustainability of the organization.

JICA Evaluation Department

## On Views of Experts

This ex-post evaluation was carried out by referring to views of experts (universities and NGOs) to reflect more specialized and diverse views, in addition to evaluation based on the DAC five evaluation criteria by the external evaluator. The external evaluator selected experts, and gained cooperation from three experts: Naruhiko Takesada, Professor of Faculty of Sustainability Studies, Hosei University; Nagatoshi Sako, Resident Representative, Japan Mine Action Service (JMAS) Cambodia Office; and Ratha Seng, a researcher at the Research and Development Center, University of Battambang.

Professor Takesada of Hosei University specializes in the issues of resettlement and social consideration in ODA projects, and has visited CMAC with university staff in the past. For these reasons, the external evaluator asked him to share his views based on his expertise and experience. Specifically, the external evaluator made a questionnaire that incorporated his comments, provided Professor Takesada with answers of the questionnaire and the evaluation report, so that he can make comments based on theoretical assessment.

Nagatoshi Sako, Resident Representative of the JMAS Cambodia office, has been engaging with activities in collaboration with CMAC in the same field as this project. He received information on this project and results of the field survey from the external evaluator, and gave his comments based on his knowledge of CMAC's activities and its capacities. It should be noted, however, that JMAS activities were not implemented in a direct collaboration with this project.

Ratha Seng, a researcher at the University of Battambang's Research and Development Center, specializes in community development and poverty issues, and has made comments on CMAC's contributions to peace building in Cambodia.

The external evaluator introduced the views of these three experts by citing them or summarizing them into boxes in the evaluation report. The essays of Nagatoshi Sako and Professor Takesada were appended to the evaluation report as attachments.

## JMAS's Operation in Cambodia



JMAS Cambodia Office

Nagatoshi SAKO, Resident Representative

# 1. Introduction of JMAS

Japan Mine Action Service (JMAS) consists of mainly retired officials of the Self Defence Force. It was established to contribute to the reconstruction of countries suffering from the after-effects of war or civil war by using its experience and specialities. Due to characteristics of JMAS, it was natural to implement its activities in Cambodia, the first overseas country where the Self Defence Force was dispatched. It was in 2002 that JMAS started UXO clearance activities in collaboration with CMAC. Since then, JMAS has been undertaking demining projects, mine risk education, and local reconstruction assistance projects. Major projects that JMAS is currently implementing are described below.

# 2. Landmines/UXO clearance activity

JMAS gives CMAC's demining staff on-site instructions on "integrated demining" which is a combined use of anti-personnel demining machines or brush cutters and human power so that they can work safer and more efficiently. While JICA projects are to provide equipment, JMAS projects are to provide (transfer) knowledge and skills for deploying demining platoons. Therefore, I consider myself that JMAS projects bring about synergies to JICA projects. Also, JMAS provides CMAC's UXO clearance staff with guidance through on-the-job training and lectures on safe and proper clearance of Explosive Remnants of War (ERW), so that they can build capacities as clearance teams. In addition to technical education, furthermore, JMAS provides CMAC's team leaders with training on planning, appropriate chain of command, and safety management, which was not clear to them when they worked as teams. JMAS also highlights the importance of observing rules, reporting, and recording to team staff.

# 3. Mine Risk Education

One of the efforts that JMAS makes together with CMAC is the mine risk education to residents living in areas where landmines/UXO clearance activities are implemented. This education is given at local elementary schools, administrative agencies, and local resident assemblies. Although CMAC has its mine risk education teams, they rarely visit the actual demining site and schools. Therefore, JMAS implements demining work and mine risk education together. Since residents' awareness clearly differ after the education at interviews and surveys, I believe that the education was effective. Also, I believe that this has indirect effects in that JMAS has started receiving more information on landmines and UXO locations and victims have been decreasing.

4. Local reconstruction assistance project

JMAS has a philosophy; i.e., "For full reconstruction, especially for independent livings for villagers, what is important is not only landmines/UXO clearance but also developing infrastructures." Since 2008, JMAS has been getting supports for the local reconstruction assistance project as a joint project between JMAS and CMAC from Komatsu Ltd, a construction machinery manufacturer. The contents of the project are varied. The project has constructed new roads (approximately 28.2km), conduits (63 places), reservoirs (43 places), wells (13 wells), elementary schools (6 schools, though school constructions themselves were done not by CMAC staff but by construction companies), and 500 lots of residential land development for settlers (100m<sup>2</sup> per household). In the Province Demining Meeting held at the Governor's official residence in Battambang Province, the Vice Governor expressed his appreciations as follows. "We greatly appreciate JMAS activities not only for conducting landmines/UXO clearance, but for contributing to the improvement in the residents' lives by means of developing infrastructures on safe land."

# 5. Issues in the future

CMAC has cleared most landmines together with the Royal Cambodian Armed Forces, and thus I consider that CMAC is an indispensable organization for the development of Cambodia. However, it is said that more than 90% of CMAC's budget relies on international aid agencies. If international aid agencies significantly reduced or stopped their financial assistance to CMAC, CMAC's activities maintained by them would be suspended. Therefore, in order to continue their activities, Japan (JICA) should play active roles in providing not only financial assistance (for procuring demining equipment) but also other forms of assistance, such as developing a framework where the Cambodian government allocates national budget to CMAC or a framework to promote CMAC's self-sustaining efforts like provision of construction equipment or agricultural machinery, conducting demining services as business for construction of industrial complex or farmland development.



Technical guidance to the demining platoon on site

## Appropriateness of Land Application after Demining and UXO Clearance



Naruhiko Takesada Professor of Faculty of Sustainability Studies Hosei University

Demining activities (including UXO clearance) in Cambodia are very important efforts to get rid of dangers to local lives, secure safety in local social economy, and create a foundation for development. Because of its importance, JICA (Japan International Cooperation Agency) has continued its assistance in demining activities to the Cambodian government for many years. The ex-post evaluation survey shows, as the result of demining activities, that the numbers of casualties and accidents by landmines/UXO have been steadily decreasing, and the areas cleared of landmines/UXO have been steadily expanding. Therefore, there is no doubt that demining activities have been enhancing safety in Cambodia.

Here, I would like to bring another aspect to the evaluation as a third person. It is about the land use after demining. Land after demining is assumed to be used for agricultural activities and development of infrastructures such as roads. The land after demining is expected to serve as the base of social economic activities. In other words, demining activities intend to expand usable land. If it is expressed in an abstract way, demining activity is an activity for generating new "resources." Resources cannot be resources when they simply exist in the nature. It is said that they become resources when human intervenes. For example, crude oil is buried in the ground as a "natural minerals," and it becomes a "resource" when it is drilled out by human. As the drilling technology progresses, the amount of accessible oil reserve increases, which is what makes "resources" worthy of the name. Land containing landmines/UXO or land with the risk of landmines/UXO are unusable. However, such land becomes usable again or it can be said that it becomes a new "resource" when human intervenes for demining activities.

It is necessary to recognize that resource generation is one of the characteristics of demining activities. This characteristic is important when we take into account the changes in the communities where demining activities were implemented, more specifically, when considering the relationship between demining activities and widening disparities within the communities. In general, the community where resources are newly generated face the following two issues. One is how a new "resource" or the benefits derived from the "resource" are distributed in the community. For example, suppose that demining activities were implemented in accordance with requests or priorities of a local authority like a land-owner. Even if large land becomes usable as a result of demining activities, the benefits from the land use may be enjoyed only by the local authority that has access to the land. Another issue is how a new "resource" affects the power structure in the community. For example, when emergency relief supplies are distributed

to tsunami stricken areas, if there is a person who can speak English in the community, the members in the community are more likely to receive relief supplies from international aid agencies earlier than the members in other communities that have no English speaker. Emergence of a new "resource" possibly creates a new channel for resource distribution that is different from existing channels. This might dilute the authority of influential people. Thus, while demining activities provide safety for people, they entail risks of causing changes or widening disparities in the community through generation of new "resource". Moreover, there is possibility that unfair resource allocation and widening disparities may become a new cause of dispute in the future.

Focusing on this characteristic of demining activities, which is to generate "resources," the following three points were pointed out by reviewing the information gathered during the ex-post evaluation.

(1) CMAC understands from their experiences that demining activities generate usable land, in other word "resources" (which can also expand disparity), in the past emergency phase. The selection process of sites for demining activities was developed and operated by reflecting the will of the residents.

(2) A monitoring system of land use after demining activity is established.

(3) Concerning the priority of demining sites selection, further adjustment is needed among the international aid agencies, demining operators, and Cambodian government.

Concerning (1), CMAC recognized that demining activities resulted to be in favour of some of the local authority in the emergency phase. It is worth mentioning that CMAC made reforms in the operations and the system so as to further value opinions at the grass-roots level. More specifically, MAPU and PMAC were established, and more transparent processes for site selection were applied. Especially, community opinions were reflected to the processes of site selection, and other demining operators and development partners were able to participate in the processes. In this way, this operational system is effective to secure transparency in the process of site selections.

Concerning (2), detailed monitoring system was established. In the monitoring report, land use status after demining (13 categories such as farmland and school) and the number of beneficiaries are summarised. It is expected that useful lessons can be obtained for future site selection by using the data. However, at present, it is not clear how much data have been compiled, how the data are actually used, or what feedbacks are given. More consideration will be needed on these matters.

Concerning (3), as a result of the interviews with CMAC, I understand that CMAC (both central and operational sites) recognizes that they still have unresolved issues. Specifically, CMAC suggested the following: i) priority setting between large-scale land-owner and poor families; ii) prioritization of national projects that was not in the original plan; iii) land is not used as expected after the demining activities. (e.g., expected infrastructure construction was not carried out). Concerning i), the current Cambodian government's guidelines stipulate that demining activities will be implemented in areas with high potential for agricultural and infrastructure development. It is assumed that land productivity (as "resources") is mainly prioritized. Therefore, it is not possible to find a clear standard emphasizing on benefit to poor families as international aid agencies expect. Meanwhile, it is not necessarily appropriate to

give a lower priority to large-scale land-owners, because there might be beneficiaries such as tenant farmers who make livings on the owner's land. It is desirable that current land use is shared with international aid agencies. In the future, purposes of land use might change as the economy grows. For example, the land intended for farming might be converted to the land for commercial development (including residential areas). Therefore, it is necessary to have straightforward communication on how such changes will be evaluated subsequently by international aid agencies. Looking at the interview results and keeping situations like ii) and iii) in mind, especially at CMAC's branch offices, prioritization is required in daily operation while dealing with local residents, and I have a sense that they have actual difficulties in facing these issues.

Regarding CMAC's issues related to priority (and effective use of limited resources), it is expected that CMAC's confusion regarding priority setting will be solved by sharing criteria of priority with international aid agencies. Moreover, demining operators and international development agencies need to become clearly aware of the fact that demining activities influence the community through newly generated resources and their allocation. Then they should share efforts to produce projects by enhancing understanding of the project effects and enriching project design. In this way, new disputes such as disparities in communities will be eliminated.