

## Summary

I. Outline of the Project	
Country : Cambodia	Project title : Promotion of Medical Equipment Management System
Issue/Sector : Health Sector	Cooperation scheme : Technical Cooperation
Division in charge : JICA Cambodia Office	Total cost : 37,000,000yen
Period of Cooperation	(R/D): 1/Jan/2006-3/Dec/2008
	(Extension):NA (F/U) :NA
Partner Country's Implementing Organization : Ministry of Health	Supporting Organization in Japan : NA
Related Cooperation Project :	NA
<p>1 Background of the Project</p> <p>The Royal Government of Cambodia (hereinafter referred to as RGC) has set out a strategy called Health Strategic Plan 2003-07 as national policy in the health sector (HSP, currently it is pursuing HSP2 2008-2015) and has been pursuing improvement of hospitals including medical equipment (ME) through construction and renovation as well as improvement of education for medical service providers. Maintenance and management of ME had been recognized as one of the most important concerns by the Ministry of Health (MOH) and development partners. However, the agency in charge, Hospital Service Department (HSD) of the Ministry had not been able to establish practical measures to manage ME in the whole country. Provincial public hospitals were facing many challenges such as insufficient number of ME at hand, and a large number of ME not in operation or prone to break down. These challenges are not only caused by technical capacity of ME technicians or operators but also by the way ME is managed. There was indeed a great need for establishing sound and comprehensive ME management system and improving capacity of HSD to give instructions to hospitals to follow the system.</p> <p>JICA had been implementing Phase II of the Maternal and Child Health Project at National Maternal and Child Health Centre (NMCHC) since April 2000 for five years, which included activities to upgrade ME maintenance and management capacity of the Engineering Section. As a result, the Section started to receive requests from other hospitals for ME maintenance and training. Given the fact that this was the first successful case, MOH started to examine the way to spread out such system across the country.</p> <p>Based on such background, did MOH request support to the Government of Japan to solve issues surrounding ME in this country. After a series of discussions and studies, it was decided to launch the Project on Promotion of Medical Equipment Management System (MEDEM Project) from January 2006 for three years, with an aim to introduce basic ME maintenance and management activities in hospitals as its main goal.</p> <p>2 Project Overview</p> <p>( 1 ) Overall Goal</p> <p>Basic maintenance of medical equipment is conducted at NHs and CPA3 RHs, and the following four indicators are defined for evaluation.</p>	

<p>( 2 ) Project Purpose</p> <p>Basic maintenance and management activities for medical equipment are introduced at target NHs and CPA3 RHs, by following the instruction of MOH and by receiving technical guidance of NW</p> <p>( 3 ) Outputs</p> <p>Output 1: Administrative instruction of HSD of MOH on medical equipment management for target NHs and CPA3 RHs is strengthened, with technical guidance of NW.</p> <p>Output 2: Technical skills of medical equipment technicians in target NHs and CPA3 RHs is improved.</p> <p>Output 3: Management skill of medical equipment managers in target NHs and CPA3 RHs is improved.</p> <p>( 4 ) Inputs</p> <p>Japanese side : ( Total 37,000,000yen )</p> <p>1 Long-term Expert</p> <p>4 Short-term Experts</p> <p>4 Trainees received</p> <p>Equipment 64,688 USD</p> <p>Local Cost 231,655.98 USD</p> <p>Cambodian Side :</p> <p>Counterpart Allocation</p> <p>Offices and Facilities</p> <p>Local Cost; Expenses for Medical Equipment Managemnet Seminar (8,853.15USD), Accommodations for Medical Equipment Technician Training(1,300USD/ training )</p>	
<p>II. Evaluation Team</p>	
<p>Members of Evaluation Team</p>	<p>Leader; Mr Hikoyuki UKAI (JICA Cambodia Office, Deputy Resident Representative)</p> <p>Medical Equipment Management; Mr Yoichi SUGIURA (General Manager, Clinical Engineering Division, Tokyo Women's Medical University Yachiyo Medical Centre)</p> <p>Evaluation Analysis; Mr Naoki TAKE (Consultant/ Economist, Kaihatsu Management Consulting Inc.)</p> <p>Cooperation Planning; Ms Masayo TERAKADO (JICA Cambodia Office, Assistant Resident Representative)</p>
<p>Period of Evaluation : 19/ Aug/ 2008~ 5/ Sep/ 2008</p>	<p>Type of Evaluation : Final Evaluation</p>
<p>III. Results of Evaluation</p>	
<p>1 . Project Performance</p> <p>( 1 ) Inputs and Outputs</p> <p>Output 1: Administrative instruction of HSD of MOH on medical equipment management for target NHs and CPA3 RHs is strengthened, with technical guidance of NW.</p> <p>The Project has sought strengthening administrative instruction of HSD on ME management with technical guidance of NW/NMCHC to 18 CPA3 RHs and 4 NHs designated as the target hospitals. A lot</p>	

of improvements especially for the capacity to carry out the following activities are identified; inventory update, monitoring trip and feed back, HSD annual work plan, HSD quarterly report, and implementation of ME training. It is possible to conclude Output 1 has been achieved.

Output 2: Technical skills of medical equipment technicians in target NHs and CPA3 RHs is improved.

The Project is aimed at upgrading the knowledge and skill of ME technicians assigned at the target hospitals. Judging from the improvements in scores of pre-test and post-test conducted in the training courses where these technicians are trained in theory and practice with a number of useful manuals developed by the Project, as well as the improvements in monitoring on the performance of ME technicians, it is also possible to conclude that Output 2 is achieved.

Output 3: Management skill of medical equipment managers in target NHs and CPA3 RHs is improved.

The Project has sought to upgrade the knowledge and skill of ME management at the target hospitals, as it has done in the field of ME technician. Judging from the improvements in scores of pre-test and post-test conducted in the training courses where these managers are trained with a number of useful manuals developed by the Project, as well as the improvements in monitoring scores, it is also possible to conclude that Output 3 is achieved. However, on-site observations on the progress might be required to capture the real progress of the Output.

( 2 ) Project Purpose: Basic maintenance and management activities for medical equipment are introduced at target NHs and CPA3 RHs, by following the instruction of MOH and by receiving technical guidance of NW.

Based on the designated three indicators, it is possible to say that the Project Purpose has been generally achieved. As a result of Project activities, all target hospitals could manage to submit the ME management reports to MOH without delay. Based on the scores of evaluation of the ME reports, all target hospitals passed the target. Regarding the preventive maintenance and minor repair activities, there are great varieties in the performance from hospital to hospital, although the Project indicator has been achieved. However, most of the hospitals can conduct preventive maintenance as planned.

( 3 ) Implementation Process

The Project made a number of efforts to facilitate the implementation of the Project.

For example, the Project has regularly held the workshops for monitoring the progress of activities and revised PDM timely, with referring to PDM and PO. Another example is its efforts to have as many opportunities for discussions among the Project as possible. Taking advantage of the opportunities like the Mid-term Evaluation and Joint Coordination Committees, the Project actively engaged in discussions to ensure the sustainability of the activities and organizations required for ME management, and ownership of the Cambodian side. The Mid-term Evaluation also enabled the Project to set the concrete targets to some indicators for evaluation.

## 2. Summary of Evaluation Results

( 1 ) Relevance

It is possible to conclude that relevance of the MEDEM Project is high for the following reasons.

First of all, it has strong relevance to the Cambodian Policy, by contributing to the implementation

of Health Strategic Plan (HSP) 2003-2007 which puts importance on the improvement of health service. The Project is also in line with the Japanese assistance strategy to Cambodia.

As for the relevance to the needs of stakeholders of the Project, it is also confirmed high, considering the situation at the target hospitals where the number ME is on increase from 2,340 in 2006 to 2,948 in 2008. While there is a clear need expressed for knowledge and skills for repairing ME at hospitals, the Project was not designed to include components to meet such demands. This judgement can be justified, in light of the feasibility, cost, possibility of utilization of ME agents and the Project period.

The Evaluation team also recognized the relevance and appropriateness of the skills and knowledge transferred by the Project.

#### ( 2 ) Effectiveness

Effectiveness of the Project can be confirmed as high.

As described before, the Project Purpose has been generally achieved. Outputs (capacity building of three levels at central ministry, technicians at hospital, and its management) are appropriate for achieving the Project Purpose since these three outputs are all indispensable to introduce sound ME management system and the logic is in line with the principles for capacity development.

While almost all target hospitals conduct periodical check and maintenance, it is also found that there are differences of the number of preventive maintenance among them. One explanation may be that hospitals with active hospital management activities tend to be also rigorous in preventive maintenance. Hospital management activities enable MEM-WG to cooperate with other clinical departments smoothly, and facilitate communication with PHD in charge of budget and negotiation with donors, using reliable data drawn from the MEDEM inventory.

#### ( 3 ) Efficiency

It is possible to affirm that efficiency of the Project is considerably high.

Quantity, quality and timing of the inputs from Japanese side can be evaluated as appropriate. Performance of Japanese experts is satisfied by Cambodian counterparts.

Cambodian counterpart personnel of HSD, an input from Cambodian side, were frequently changed, however, it resulted in positive development to improve the management and operation of the Project.

One of the important and significant inputs from Cambodian side is cost-sharing. From 2007, there was a remarkable increase in their financial contribution to the MEDEM training operation, mainly through the support to trainees' accommodation and operational cost (HSSP supported MOH's budget).

It is also important to note here that the Project design contributed to increase the efficiency by fully utilizing the outcome of the Phase II of the Maternal and Child Health Project at National Maternal and Child Health Centre (NMCHC).

#### ( 4 ) Impact

Although it is too early to conclude the prospect to achieve Overall Goal, it is possible to say that the Project has some positive impacts and is actively pursuing goals beyond the Project Purpose and making a progress toward the achievement of the Goal.

① Division of responsibilities between HSD and NW was made clear, and increased functioning of

HSD (e.g. quarterly reports)

- ② Some hospitals and PHD started to integrate ME management and hospitals and draft AOP based on accurate data
- ③ Technical inputs were provided to guidelines of the Ministry of Health, which defies important standards of services and infrastructure at hospitals and health centres.
- ④ Technical inputs and expertise were contributed to other JICA projects and the biggest health SWAp-type project (HSSP).

#### (5) Sustainability

Sustainability of the Project has significantly improved since the Mid-term Evaluation.

The current national policy provides strong foundation for promotion of ME management.

As for the organizational sustainability, there are positive remarks from the counterparts that required tasks are carried out smoothly thanks to the reform to clarify the responsibilities and Terms of References (TORs) of the NW team after the Mid-term Evaluation. At the same time, we should not overlook the situation where the workload of HSB has been intensified drastically and there is a danger that the unit would be overloaded, as a result of their upgraded capacity and performance of HSB and increase requests from those who started to appreciate and realize the utility of their services. The management of MOH is well aware of the phenomena and considering the way to encourage the staff.

As for the sustainability of budget, there is a trend that MOH attaches the importance and allocates relatively higher budget to capital spending, although the MOH budget spent on ME has been on decrease in these few years. There is also a good sign that both central and provincial level, the recognition for developing evidence-based-AOP is ever rising. This is the first important step to obtain national budgets including HSSP. However, it is necessary to have strong advocacy with related departments to actually secure the allocation.

Prospects for the sustainability at hospital levels greatly improved. Strong ownership and commitment to ME management activities are observed in several hospitals. The sense that there is now support and monitoring from the central level contributes to raise their motivation to the great extent. ME management activities started to take root at some hospitals, leading to make environment where hospital together with PHD and development partners as a whole to rigorously engage in ME management. However, challenges still remain to ensure financial and human resources for ME management activities.

### 3. Conclusion

It is concluded that the Project has generally achieved the Project Purpose to introduce basic ME maintenance and management activities at the target hospitals despite the great varieties in the performance from hospital to hospital.

One of the biggest attributions is the achievement of the Outputs. At the central level, HSD raised its capacity to give administrative instructions and the NW team started to play a leading and supportive role to promote ME management, through activities such as training, monitoring and follow-up visits.

At the hospital level, knowledge and skills of ME managers and technicians were upgraded, and on-site activities mainly through the newly organized MEM-WG are started, including preventive maintenance and minor repair.

Impacts of the Project are not negligible. It is now possible to assert that the Project is actively pursuing goals beyond the Project Purpose. There are a number of other examples of the Project's

impacts as mentioned above.

Sustainability of the Project was found to be improved significantly since the Mid-term Evaluation. However, there are several challenges in order to ensure the achievement of the Overall Goal. Firstly, there should be countermeasures to address ever-increasing workload of HSB as an organizational challenge. Option might include the delegation of the tasks to NW/NMCHC and in future to hospital levels. Secondly, ensuring sufficient budget as well as minimum level of human resources for ME management activities both at the central and provincial levels is an important task of MOH, although there is a significant improvement in AOP development process and remarkable efforts to increase the staff recruitment.

To improve conditions of ME (e.g. operable rate) at hospitals is an indicator to achieve the Overall Goal. How to ensure this achievement through the newly introduced ME management is a challenge. One of the important findings of the Project is that sound hospital management is a key to well-functioning MEM-WG. This enables the output of MEM-WG activities and information to be effectively utilized, which increases the possibility for ME-related problems to be actually addressed.

#### 4. Recommendations

##### (1) Recommendations to MOH as a Whole

- Ensure favorable working environment for ME Technicians (time allocated for ME management and workshop establishment)
- Take more proactive approach to recruitment of ME Technicians
- Ensure enough budget through preparation of AOP, enhanced negotiation with relevant authorities and identifying good practices for user fee utilization
- Analyse and disseminate good practices for utilizing user fees for ME management
- Share and utilize the information and outputs gained through the Project
- Continue efforts to Achieve the Overall Goal

##### (2) Recommendations to HSD

- Integrate ME management with hospital management and QI
- Continue efforts to improve human resource management of HSB
- Enforce the on-going efforts to support hospitals (e.g. monitoring visits)

##### (3) Recommendations to NMCHC

- Make efforts to support and develop the capacity of the hospitals that can play a leading role as a hub of specific areas.

##### (4) Recommendations to JICA

- Consider measures to address difficulties which MOH is facing, such as ever-increasing workload compared to the level of salaries.
- Enhance the collaboration with other development partners in the related areas like hospital management,

#### 5. Lessons Learned

- Use of existing resources whose capacities were developed from past cooperation projects is effective

- Systematic approach which developed capacity at both central and hospital level is effective
- Follow-up activities after training is more important in human resource development
- Mid-term Evaluation and its follow-up activities were positively utilized for opportunity to improve the Project activities and performances.