

0. Summary

This project aimed to improve the healthcare services of Kampong Cham province and neighbouring areas by upgrading the Surgery Ward, Obstetrics/Gynaecology Ward, Operation Theatre, Emergency and Imaging Building of the Kampong Cham Provincial Hospital. Because this project aimed to improve deteriorated health facilities and equipment for a top referral hospital at the provincial level, it is highly relevant to the priorities of Cambodia’s health policy, which aims to improve healthcare services and respond to the development needs of the country. In the same way, the project supported Japanese assistance policies at the time of planning, which promoted Basic Human Needs (BHNs)¹ of the socially vulnerable in the health sector. After the project completion, the number of hospital users (including poor residents from Kampong Cham province as well as from outside the province) has increased and most of the facilities and equipment provided by the project have been utilised effectively. Users have also indicated high levels of satisfaction. Furthermore, the project has strengthened the function of the hospital as a top referral hospital and has contributed to capacity building of health workers in the region. Taking these facts into consideration, the effectiveness and impact of the project can be evaluated as high. Although the project cost remained within the plan, the project period slightly exceeded the plan; therefore, the efficiency of the project is rated as fair. Despite a lack of technical knowledge and manpower, the status of the operation and maintenance of the facilities and equipment is currently good. The sustainability of the project effect is therefore fair. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Kampong Cham Provincial Hospital
Obstetrics/Gynaecology and Surgery Ward

¹ BHNs are vital needs for human survival, such as the need for food, water, primary health and education, etc.

1.1 Background

The Kingdom of Cambodia (Cambodia), located in the Indochinese peninsula, experienced more than 20 years of civil war from the year 1970, yet has continued to enjoy stable economic growth in the same way as its Association of Southeast Asian Nations (ASEAN)² neighbours such as Thailand, Laos and Vietnam. However, the huge loss of human resources due to the civil war led to a severe decline in the number of health professionals such as doctors, nurses and midwives, which had not been remedied until now.

At the time of the Basic Design Study (BD) of the project, health facilities and equipment throughout the country remained undeveloped, which prevented the establishment of a strong nationwide health system. Particularly at provincial and lower administrative levels, quantitative and qualitative deterioration of healthcare services was a serious issue due to a lack of manpower and decrepit facilities. Eventually, this also affected Cambodia's national health indicators dropping to lower level compared to those of other ASEAN countries at that time.

In order to tackle these issues and develop the health sector, the Government of Cambodia launched its *Health Sector Strategic Plan 2003–2007* (HSP), focusing on capacity building of health-related human resources, as well as improvement of healthcare services. At the same time, the Government of Cambodia formulated the *Plan for Improving Provincial Hospitals and Strengthening Provincial Schools for Nursing and Midwifery*. The plan targeted provincial hospitals and nursing schools that were highly in need of improvement in the Western Region, the Eastern Region and the North Western Region in particular³. The Government of Cambodia requested grand aid assistance from the Government of Japan to support the construction of facilities and procurement of equipment under the plan.

In response to the request, the Government of Japan implemented a preliminary survey. The survey team concluded by selecting Kampong Cham Provincial Hospital in Kampong Cham province as a target hospital for the project because it was assumed to be the most effective support. Kampong Cham province had the largest population among the 24 provinces at the time of the survey. Kampong Cham Provincial Hospital was the only facility providing surgical operations in Kampong Cham province and was the top referral hospital not only in the province, but also in the whole eastern region of Cambodia. Thus, the hospital admitted many patients that were unable to access hospitals in Phnom Penh, the capital of Cambodia, due to geographical constraints or poverty. The project was also expected to benefit the north of the province, in which many poor households were identified.

² ASEAN was established in 1967 and consists of 10 member countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam,.

³ There were 24 provinces in Cambodia in 2006.

2. Outline of the Evaluation Study

2.1 External Evaluator

Kyoko Harada, Foundation for Advanced Studies on International Development

2.2 Duration of Evaluation Study

Duration of the Study: October 2013–October 2014

Duration of the Field Study: January 12, 2014–January 25, 2014, March 31, 2014–April 4, 2014

3. Results of the Evaluation (Overall Rating: B⁴)

3.1 Relevance (Rating: ③⁵)

3.1.1 Relevance to the Development Plan of Cambodia

In the *National Strategic Development Plan 2006–2010* (NSDP 1) formulated in 2004, “Capacity Building and Human Resource Development” was set out as a priority for improving healthcare services. The *National Strategic Development Plan Update 2009–2013* (NSDP 2) went on to specify action plans for developing human resources to achieve the key policy strategy of “Enhancing Health Services”.

HSP, which comprised effective health policies at the time of planning the project, aimed to improve the health conditions of Cambodians as well as to contribute to poverty alleviation and socio-economic development. As one of the core strategies of HSP, “Health Service Delivery” set out several actions. These included improving coverage and access to healthcare services nationwide, especially for the poor and other vulnerable groups, through expanding provision of health facilities, strengthening the delivery of good quality primary healthcare, and improving the quality of healthcare services by all health providers through the complementary package of activities (CPA)⁶ and the minimum package of activities (MPA)⁷. The *Health Sector Strategic Plan 2008–2015* (HSP 2) is currently in effect and comprises three health program areas: 1. Reproductive, Maternal, Newborn and Child Health, 2. Communicable Diseases, and 3. Non-Communicable Diseases and Other Health Problems. These are implemented through a set of five cross-cutting health strategies: 1. Health Service Delivery, 2. Healthcare Financing, 3. Human Resources for Health, 4. Health Information Systems, and 5. Health System Governance, which form a strategic framework in order to develop the health sector and also to improve healthcare services.

The *Cambodia Emergency Obstetrics and Newborn Care (EmONC) Improvement Plan 2010–2015*, which was formulated to reduce maternal and newborn mortality and morbidity, set objectives to

⁴ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁵ ③ High, ② Fair, ① Low

⁶ CPA is the package of standardised services provided by the second and third level of health facilities.

⁷ MPA is the package of basic services provided by the first level of health facilities.

improve coverage and utilisation of quality EmONC services, particularly among the poor and vulnerable.

As can be seen from the above, the project was highly relevant to Cambodia's policies at the time of both planning and the ex-post evaluation survey because the objectives of the project supported the improvement of hospital healthcare services at the provincial level. Also the project corresponds to Cambodia's maternal and child healthcare policies as well as EmONC since the project contributes the improvement of maternal and child healthcare through the improvement of the Obstetrics/Gynaecology and Emergency Building.

3.1.2 Relevance to the Development Needs of Cambodia

According to the BD report, Kampong Cham Provincial Hospital serviced the largest population⁸ in Cambodia at that time and admitted a large number of patients from surrounding provinces as a top referral hospital in the eastern region. When compared to urban areas, most of the health facilities at the provincial and lower administrative levels remained undeveloped. Kampong Cham Provincial Hospital suffered from breakdown of medical equipment and potential collapse of facilities so on, which affected the healthcare services of the hospital.

This project aimed to reinforce the function of Kampong Cham Provincial Hospital as a top referral hospital by upgrading facilities and equipment in order to improve the healthcare services in Kampong Cham province and neighbouring areas. Of note, Kampong Cham Provincial Hospital admitted not only the residential population of approximately 270,000 living near the hospital, but also the further 1.8 million people living in Kampong Cham province. In addition, 300,000 poor residents⁹ around Kampong Cham province who were unable to access quality healthcare services due to economic and geographic constraints also accessed the services of Kampong Cham Provincial Hospital.

Provincial hospitals are expected to play an important role in developing human resources for their respective provinces and to act as regional referral hospitals in order to tackle the chronic lack of health workers at the provincial or lower levels of health facilities. This has been one of the crucial issues in the health sector of Cambodia. Insufficient health services and a lack of skills in the lower-level health institutions have led to a perception of unreliability among patients. This has prompted many patients to go to upper-level hospitals such as national or provincial hospitals without referral letters and as a consequence, the referral system has been undermined. In order to

⁸ At the time of planning, the BD report described the approximate population as 1,830,722 (Annual Health Statistics 2004) and 1,827,305 at the time of ex-post evaluation (Annual Health Statistics 2012). Kampong Cham province had the largest population of all Cambodian provinces at both times.

⁹ As of 2004

create a strong and functioning referral system, human resource and technical skills development at the provincial and lower-level health facilities is an urgent task.

In this context, the project contributed to strengthening the facilities and equipment of Kampong Cham Provincial Hospital and facilitated clinical and technical training for health workers at lower-level health institutions. It can therefore be concluded that the project responded to both qualitative and quantitative needs of the area in the provision of better healthcare services.

3.1.3 Relevance to Japan's ODA Policy

At the time of planning, Japan's ODA policy (formulated in 2002) identified "Sustainable Economic Growth" and "Poverty Reduction" as areas of focus in Cambodia. One of the priorities, "Supporting Socially Vulnerable People", aimed to fulfil BHNs in the Education and Health sectors, through improving maternal and child healthcare, increasing the number of health workers and providing primary healthcare services in rural areas. This has direct benefits for the poor. Thus, the project is highly relevant to Japan's ODA policy at the time of planning.

This project has been highly relevant to Cambodia's development plan and needs, as well as Japan's ODA policy. Therefore its relevance is evaluated as high.

3.2 Effectiveness¹⁰ (Rating: ③)

3.2.1 Quantitative Effects

Three quantitative outcome indicators, "number of inpatients", "number of operations" and "number of diagnoses through use of medical equipment", were set out in the BD report and have mostly been achieved as noted below. The baseline for the indicators was set as 2005, and they are expected to have further increased by the time of ex-post evaluation.

3.2.1.1 Number of Inpatients

The number of inpatients in the Obstetrics/Gynaecology Ward supported by this project started increasing significantly around 2010 when construction was completed and peaked in 2013. The number of inpatients in the Surgery Ward reached its peak in 2011 but decreased in 2012, although there are still many inpatients being serviced.

Kampong Cham Provincial Hospital has dealt with a rapid increase in outpatients (reference data in Table 1) since the completion of the project in 2011 (as per Table 1). According to the hospital and Kampong Cham Provincial Health Department (PHD) officials, not only residents around the hospital but also people living in neighbouring provinces took note of the

¹⁰ The sub-rating for Effectiveness is to be taken into consideration for the Impact rating.

construction and informed others that new facilities had been built. As a consequence, the number of patients visiting Kampong Cham Provincial Hospital increased.

Table 1: Outcome Indicator - Number of Inpatients

	2005 (Baseline)	2006	2007	2008	2009	2010	2011 (Completion)	2012	2013 (Target)
Surgery	2,414	3,039	3,342	3,314	3,546	4,021	4,580	3,585	3,489
Obstetrics	1,024	458	613	588	956	2,497	3,279	3,194	3,874
Gynaecology	487	320	365	360	440	1,141	1,302	992	949
Outpatient (Reference data)	N/A	26,435	15,941	16,897	15,659	15,930	36,755	43,172	45,317

Source: Basic Design report and Kampong Cham Provincial Hospital

Note: New patients are registered in the Registration Ward then assessed on necessity for hospitalisation. If hospitalisation is not necessary, patients are sent to the health centre nearest to their home. Because of this procedure, the hospital does not identify which clinical department they would have been referred to. Therefore there are no records categorising visitors according to specific departments.

The Cambodian health system categorises each public health facility according to its function and services in terms of levels. Health posts and health centres comprise the first level of facilities. Referral hospitals are categorised as the second level of facilities. National hospitals and some provincial hospitals, such as Kampong Cham Provincial Hospital, are categorised as the third level of facilities, which is the top level of the referral system¹¹. Normally when patients wish to be seen in upper-level facilities, a referral letter from a lower-level facility is required. Yet in the Cambodian referral system, it has become common for many patients to visit upper-level facilities without a letter and for the upper-level hospitals to admit them anyway. As a consequence, the referral system has become dysfunctional.

Most patients currently visiting Kampong Cham Provincial Hospital since the project completion do not have referral letters (Table 2), which indicates strong demand for a higher quality of healthcare services from patients than those offered by lower-level facilities.

Table 2: Percentage of Referral Patients in Kampong Cham Provincial Hospital (%)

	2009	2010	2011	2012
Referral patients	12.9	13.6	11.1	8.1
Non-referral patients	87.1	86.4	88.9	91.9

Source: Kampong Cham Provincial Hospital

¹¹ In order from the lowest level (first level) of facilities: health posts and health centres are categorised as MPA, and referral hospitals at the OD, provincial and national level are categorised as CPA1, CPA2 and CPA3 based on their functions and services. Kampong Cham Provincial Hospital is categorised as CPA3 as a top referral hospital.

The increase in patients at Kampong Cham Provincial Hospital caused a substantial rise in the bed occupancy rate at the Surgery and Obstetrics/Gynaecology Wards. After 2010, the bed occupancy rate of both wards exceeded 100 percent (as shown in Table 3) and the rate of Obstetrics/Gynaecology in 2012 exceeded 200 percent. In response to this situation, the hospital provided extra beds in the corridors of the Obstetrics/Gynaecology Ward for extra patients.

Table 3: Bed Occupancy Rate of the Surgery and Obstetrics/Gynaecology Wards (%)

	2006	2007	2008	2009	2010	2011	2012
Surgery	100	107	97	98	113	122	165
Ob/Gy	87	118	106	144	144	188	208

Source: Kampong Cham Provincial Hospital

Table 3 shows that although the Obstetrics/Gynaecology Ward has been congested, maternal mortality and neonatal mortality have been reduced year by year¹² and it has been identified that the quality of healthcare service has been maintained to an appropriate level in the hospital. In order to reduce congestion, changing the layout of the building has been considered for the Obstetrics/Gynaecology and Surgery Wards, as well as increasing the number of beds.¹³ As far as overflow patients are concerned, so far there have been no incidences of patients with referral letters or emergency patients being refused from Kampong Cham Provincial Hospital.

3.2.1.2 Number of Operations

The BD report described Kampong Cham Provincial Hospital as the only facility in Kampong Cham province with sufficient facilities and equipment and highly specialised doctors for surgical operations. The hospital still continues now to fulfil the role of responding to serious cases as well as emergency patients.

Table 4: Outcome Indicator – Number of Operations in Operation Theatre¹⁴ (per year)

	2005 (Baseline)	2006	2007	2008	2009	2010	2011 (Completion)	2012	2013 (Target)
Planned	312	405	460	458	265	454	468	478	380
Emergency	1,357	1,486	1,621	1,516	1,366	2,190	2,290	2,433	2,523
Total	1,669	1,891	2,081	1,974	1,631	2,644	2,758	2,911	2,903

Source: Kampong Cham Provincial Hospital

¹² Maternal mortality rate in Kampong Cham Provincial Hospital: 0.09% (2010), 0.05% (2011), 0.02% (2012). Neonatal mortality rate (below 4 weeks old): 21.14% (2010), 13.19% (2011), 12.44% (2012) (Source: Kampong Cham Provincial Hospital)

¹³ Source: Interview with Directors of Kampong Cham Provincial Hospital and PHD.

¹⁴ The number includes operations related to Obstetrics and Gynaecology at the Operation Theatre.

The operation rooms at the Operation Theatre are operating at close to full capacity all the time. From 2010 to 2011 when the project was completed, the number of emergency operations exceeded 2,000 times per year as shown in Table 4. In the delivery room at the Obstetrics/Gynaecology Ward, although two beds for delivery were set by the project, one more bed has been added to respond to rapid increases in deliveries.

According to Table 5, the growth rate of complicated/abnormal deliveries and C-sections indicates that the number of patients requiring a high quality of healthcare services has increased at Kampong Cham Provincial Hospital. The number of normal deliveries, which should be carried out by the first or second-level health facilities, also increased at the same time. It is therefore assumed that there are many non-referral patients also attending Kampong Cham Provincial Hospital.

Table 5: Number of Obstetrics/Gynaecology-Related Operations (per year)

	2006	2007	2008	2009	2010	2011	2012	Average Growth Rate (%)
Normal deliveries	791	950	941	1,315	1,240	1,782	2,168	1.18
Growth rate (%)	-	1.20	0.99	1.40	0.94	1.44	1.22	
Complicated/abnormal deliveries	363	572	538	679	1,237	1,499	1,318	1.24
Growth rate (%)	-	1.58	0.94	1.26	1.82	1.21	0.88	
C-sections	271	371	433	555	683	797	862	1.21
Growth rate (%)	-	1.37	1.17	1.28	1.23	1.17	1.08	
Gynaecology operations	274	261	182	217	289	354	346	1.04
Growth rate (%)	-	0.95	0.70	1.19	1.33	1.22	0.98	
Total	1,699	2,154	2,094	2,766	3,449	4,432	4,694	

Source: Kampong Cham Provincial Hospital

3.2.1.3 Number of Diagnoses through Use of Medical Equipment

The results of the outcome indicators, the numbers of diagnoses through use of medical equipment (such as radiograph, ultrasonic and electrocardiogram (ECG) devices) are shown in Table 6.

Table 6: Outcome Indicator – Number of Diagnoses through Use of Medical Equipment (per year)

	2005 (Baseline)	2006	2007	2008	2009	2010	2011 (Completion)	2012	2013 (Target)
Radiograph	2,561	3,929	4,370	4,547	6,219	7,628	9,835	10,578	10,781
Ultrasonic	1,565	2,459	2,419	1,974	2,001	1,731	2,276	1,999	1,902
ECG	525	692	579	658	210	560	481	479	347

Source: Kampong Cham Provincial Hospital

Note 1: Although the project provided two ultrasonic devices (one of which was for Ob/Gy and another for abdominal use), there are no records from the Ob/Gy device. Records are for the abdominal ultrasonic device only.

Note 2: The number of ECG diagnoses in 2013 includes the number of diagnoses by another ECG that was not provided by the project.

Standard medical equipment was installed at the Imaging Department in which there were many new patients required effective and accurate diagnoses to specify their illness. Before the project, the hospital utilised radiograph, ultrasonic and ECG devices and the number of diagnoses through their use had been increasing gradually. After 2011 when the project was completed, due to a rapid increase in traffic accidents, the number of radiograph diagnoses further increased. Ultrasonic diagnoses fluctuated both before and after the project. The number of diagnoses by the ultrasonic device provided for the Obstetrics/Gynaecology Department has not been recorded however, so the number counted by the hospital is for abdominal use of the device only.

The project provided two ECGs to the hospital: one for the Imaging Department and another for the Intensive Care Unit (ICU) of the Emergency Department. At the time of the ex-post evaluation survey, it was identified that the ECG at the Imaging Department had barely been utilised since the provision of the equipment. Therefore, the number of ECG diagnoses shown in Table 6 includes ECGs diagnoses by devices provided by other financial sources. There is no actual record for the ECG provided by this project.

According to Kampong Cham Provincial Hospital officials, the hospital used to utilise an ECG at the Imaging Department before the project. The project installed a new ECG at the ICU of the Emergency Department and a doctor from the Imaging Department was transferred to the ICU due to high demand for ECG diagnoses. As a result, there were no health workers who understood ECG data at the Imaging Department and the device remained unused for a long time. On the other hand, the increase of emergency patients created huge demand for effective and quick ECG diagnoses at the ICU. In response to this high demand, the hospital decided to purchase a new ECG for the ICU using the hospital's own budget. The hospital considered transferring the unused ECG from the Imaging Department to the ICU. However, it would have been necessary to discuss this with the Japanese side as the ECG was originally given to the Imaging Department. The hospital missed the opportunity to consult with Japan and finally the hospital decided to undertake their own procurement for the ICU.

From 2014, Kampong Cham Provincial Hospital has commenced an internal training program for hospital staff members on interpretation of ECG data. The hospital has committed to

utilising the ECGs effectively in order to respond to the need for correct diagnoses for new patients at the Imaging Department as well as to respond to increasing numbers of emergency cases at the ICU¹⁵.

3.2.2 Qualitative Effects

The BD set out the expected qualitative effects of the project as “strengthening function as a top referral hospital”, “contributing to mother-to-child transmission and infection control”, “establishing a radioactive protection system” and “improving responses for emergency patients from traffic accidents”, the status of which are described below. It is concluded that this project brought positive effects.

3.2.2.1 Strengthening Function as a Top Referral Hospital

Prior to the project, Kampong Cham Provincial Hospital was constrained in its capacity to provide sufficient quality healthcare services due to the deteriorated condition of the health facilities and equipment at the Surgery, Obstetrics/Gynaecology Ward, Operation Theatre, and Emergency and Imaging Building. This project supported the improvement of facilities and equipment according to provisions for CPA3 facilities set out in the CPA Guidelines developed by the Ministry of Health (MoH). Most answers to a questionnaire completed by the hospital indicated that although it has not yet reached an adequate level to be classified as CPA3 and has not accomplished the required CPA duties¹⁶, the functions of Kampong Cham Provincial Hospital have been strengthened by the project. Accordingly, it has become possible to provide quick responses and accurate diagnoses for patients through use of medical equipment as well as to maintain a hygienic environment as a top referral hospital in the region.

3.2.2.2 Contributing to Mother-to-Child Transmission and Infection Control

A prevention of mother-to-child transmission (PMTCT) room was prepared at the Obstetrics/Gynaecology Ward by the project. The PMTCT room has been utilised for consultations and examinations mainly for expectant mothers who are possibly infected with HIV/AIDS. Kampong Cham Provincial Hospital requires HIV/AIDS tests for all expectant mothers. In cases where patients referred from lower-level health facilities did not receive a test in the health centre or showed a positive reaction to a simplified test, the hospital asks for a full HIV/AIDS test upon admission. The PMTCT room has handled 80 to 130 patients per month.

A new dedicated corridor between the operation rooms, post-operation room and the ICU was built as a separated area in the Operation Theatre in order to prevent intersections from the

¹⁵ 37 ECG diagnoses were counted at the Imaging Department as of April 2014.

¹⁶ HSP 2 described the following five duties of a CPA hospital: 1. Distinct and complementary to care provided by health centre, 2. Specialised services, 3. Treatment for complex health problems, 4. Follow-up/continuing care, and 5. Support for health centre in clinical training and supervision.

movement of general patients. It was also designed to improve infection control as well as provide appropriate post-operation care, according to interviews with health workers of the hospital. Furthermore, certain answers on the questionnaire completed by the health workers demonstrated that the new facilities and equipment provided by the project encouraged motivation among workers and raised awareness of hygiene in cleaning facilities and infection control. From design and construction points of view, connecting specialised wards such as the Operation Theatre and Surgery Ward facilitates the transfer of patients from ward to ward and also contributes to infection control and greater efficiency since pavilion system is common in Cambodian hospitals.

3.2.2.3 Establishing a Radioactive Protection System through Provision of a Control and Radiologist Room Next to the X-ray Room

The project provided a control and radiologist room next to the X-ray room at the Imaging Building. According to technicians and staff working in the X-ray room, the new layout and facility protect workers from radiation exposure. An X-ray technician assigned by Japanese Overseas Cooperation Volunteers (JOCV) was working in the X-ray room at the time of the ex-post evaluation survey. The hospital officials noted that the volunteer provided instruction on the technical aspects of operation and maintenance of the X-ray machine, which enhanced the health workers' understanding of the machines.

3.2.2.4 Improving Responses for Emergency Patients such as Increasing Traffic Accidents at the Emergency Ward

Rapid economic growth has led to a large increase in motorcycle and car ownership. This has subsequently also led to an increase in traffic accidents throughout Cambodia according to the hearing with the hospital. In 2011, approximately 20 percent of operations in Kampong Cham Provincial Hospital were in response to traffic accidents (Table 7), which was the most frequent category of operations, followed by C-section, appendicitis, gastric ulcers, ovarian cysts, abdominal bruising and so on.

The number of operations at the Operation Theatre has increased since 2010 (Table 4). Presumably, this is because the capacity of the Emergency Building was developed through the project through provision of new facilities and equipment. The enhanced capacity made immediate interventions and accurate diagnoses possible for emergency patients.

However, currently planned operations with fixed operation dates in advance are prone to schedule changes due to unexpected emergency operations for high priority patients. Thus, patients receiving planned operations often need to be on stand-by for longer than the initial schedule communicated by the hospital according to the hospital officials.

Moreover, Kampong Cham Provincial Hospital regularly receives missions from NGOs and donors engaged in supporting medical services for local communities and the hospital offers operation rooms with equipment provided by the project for their use. Thus, the facilities and equipment by the project are widely used at the Emergency Department.

Table 7: Number of Operations Due to Traffic Accidents (per year)

		2010	2011	2012
Total number of operations		2,644	2,758	2,903
Number of operations due to traffic accidents	Minor operations	356	515	541
	Major operations ¹⁷	20	25	25
	Total	376	540	566
% of operations due to traffic accidents		14%	20%	19%

Source: Kampong Cham Provincial Hospital

At the Emergency Building, the project provided six beds for the post-operation room, however due to an increase in patients, the hospital installed one more bed by themselves after the project. There are currently seven beds in the post-operation room. An interview with the hospital revealed that a treatment and minor operation room as well as an observation room provided by the project enabled health workers to offer quick diagnoses and quality of care.

3.2.2.5 Beneficiary Survey

In order to identify the level of improvement of healthcare services provided by Kampong Cham Provincial Hospital through the project, a beneficiary survey of 50 patients each from the Surgery and Obstetrics/Gynaecology Wards was conducted¹⁸. 39 hospital staff members working at the Surgery, Obstetrics/Gynaecology and Emergency Wards also cooperated in responding to the questionnaire and participating in interviews to verify the outcomes of the project.

The answers from the majority of patients revealed the healthcare services provided by the hospital enjoyed a good reputation, and that patients experienced a high level of satisfaction in regards to the quality of service provided by hospital staff. Some answers from the patients demonstrated that the high level of medical technology and skills of staff were the main motivations for patients to visit Kampong Cham Provincial Hospital. The answers provided by

¹⁷ Major operations include operations such as visceral injuries and severe cases. All other cases are categorised as minor operations.

¹⁸ More than 80 percent of patients selected by the survey team at random were from Kampong Cham province. The rest of the patients were from Prey Veng, Kratie and Kampong Thom provinces. Kratie and Kampong Thom provinces are neighbouring provinces of Kampong Cham province, which have a high incidence of poverty. (Source: Asian Development Bank "Cambodia Poverty Analysis December 2011" <http://www.adb.org/sites/default/files/cambodia-country-poverty-analysis.pdf>)

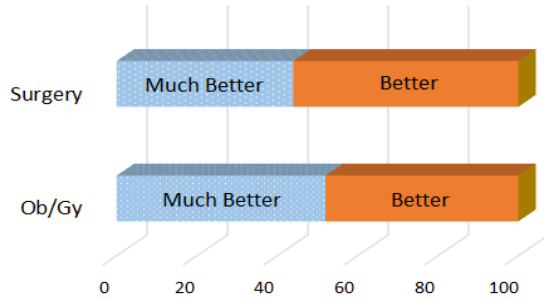
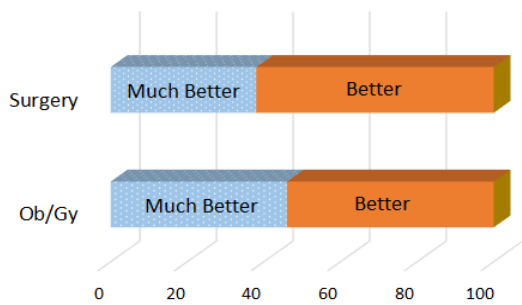
hospital staff illustrated that the project has contributed to improving infection control and efficiency of work (refer to BOX).

BOX Results of Beneficiary survey

1. Answers from Surgery and Obstetrics/Gynaecology patients

● Quality of healthcare services after the project

● Care provided by hospital staff after the project



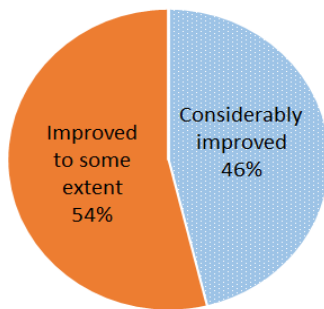
Note: There were options “No Change” and “Worse” but no one chose these answers on the questionnaire.

2. Reasons to choose Kampong Cham Provincial Hospital

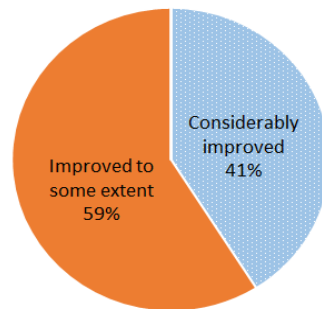
Reason (multiple answers allowed)	Surgery (person)	Ob/Gy (person)
Visit with referral (among 50 patients)	10	12
Good quality of medical technology	14	16
Good reputation	17	14
See a particular doctor	7	13
Good quality of medical equipment	10	8
Close to home	2	5
Quality of facilities	0	2

3. Answers from hospital staff/Contribution of the project to the hospital (%)

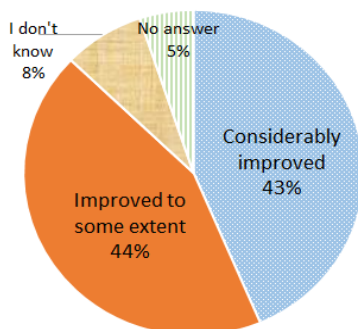
● Quality of healthcare services



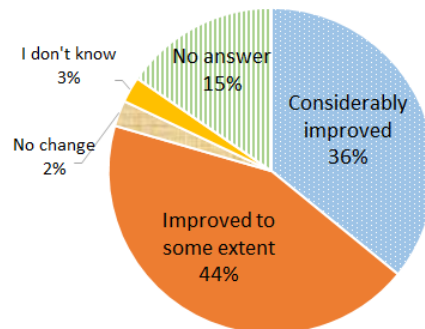
● Efficiency of work



● Contribution to infection control



● Contribution to PMTCT



3.3 Impact

3.3.1 Intended Impacts

Intended impacts such as improving the referral system in Kampong Cham province, enhancing opportunities for poor patients to access healthcare services and developing medical human resources for the region were expected at the time of planning to eventuate as results of the project. The overall impact of the project is evaluated as high because of the good status of the intended impacts as described in the section below.

3.3.1.1 Contribution to Improvement of the Referral System in Kampong Cham Province

At the time of planning, it was assumed that if Kampong Cham Provincial Hospital strengthened its medical human resources capacity as a teaching institution, those medical human resources assigned to lower-level health facilities would contribute to improvements in the healthcare services at each level of the health system in the province and also lead to an increase in users at the lower levels of health facilities. Finally, the referral system in Kampong Cham province would improve.

Kampong Cham Provincial Hospital presently organises training sessions and workshops for CPA1 and CPA2 health workers using facilities and equipment provided by the project at the Obstetrics/Gynaecology Ward, Surgery Ward and Emergency Building. The project clearly assisted in creating more opportunities for health workers from the lower level of health facilities to access training. It also worked to rebuild reliance of patients on lower-level services. Therefore it is expected that the project will strengthen the patient referral system between upper and lower-level health facilities in the long term.

Furthermore, if the quality of healthcare services at the lower level of health facilities improves and more patients are received, the upper level of health facilities, such as Kampong Cham Provincial Hospital, will be able to concentrate on provision of advanced medical technologies and healthcare services as a system of respectable referral hospitals. Therefore, it is assumed that the project will contribute to the improvement of the referral system of Kampong Cham province.

3.3.1.2 Enhancement of Opportunities for Poor Patients to Access Healthcare Services

According to the interview with the hospital, many poor residents of neighbouring provinces of Kampong Cham province such as Kratie or Northern highland areas visit Kampong Cham Provincial Hospital because of the quality of healthcare services and its location, which is closer than the capital Phnom Penh.

The above-mentioned beneficiary survey demonstrated that around 90 percent of the answers supplied were from patients from Kampong Cham province and 1 to 4 percent of answers were from patients from outside of Kampong Cham, such as from Kratie, Kampong Thom and so on.

MoH attempts to disseminate services of the Health Equity Fund (HEF)¹⁹ throughout Cambodia in order to promote physical and financial access to healthcare services for the poor²⁰.

Table 8: Number of Health Equity Fund (HEF) Users among Inpatients of the Hospital

	2010	2011	2012	2013
Number of inpatients	15,605	17,725	18,618	19,152
Number of HEF users among inpatients	6,712	8,039	6,899	7,435
Percentage of HEF users among inpatients	43%	45%	37%	39%

Source: Kampong Cham Provincial Hospital

The hospital officials noted that revenue from HEF has increased since the project completion and it was interpreted as coming from the increase in poor patients. On the other hand, HEF users among inpatients, which increased in 2011, decreased in 2012 before again increasing in 2013 (Table 8).

A staff member from the HEF office at Kampong Cham Provincial Hospital commented that HEF staff allocated to particular health centres in Kampong Cham province introduced HEF services and benefits to poor residents who had no prior information about the fund. The staff explain the procedure for obtaining ID cards and also provide consultations relevant to the patient's physical conditions. In the case of serious or particular diseases identified by staff, HEF strongly advises patients to go to Kampong Cham Provincial Hospital. The coupling of increased HEF access and the project presumably has accelerated the rate of poor patients reaching Kampong Cham Provincial Hospital, especially those patients who demand a high quality of healthcare services.

Moreover, the hospital recognised that many poor patients managed their medical expenditure by borrowing from relatives or acquaintances rather than through accessing HEF. These patients are also part of the increasing number of patients seen after the project completion. Likewise, discussions with residents and health workers living and working in two different communities (Kohroka and Kien Cherry) revealed that some people did not know about HEF services and generally borrowed money from relatives and friends when necessary.

¹⁹ HEF is run by an overseas fund and established offices and staff members in public health facilities in Cambodia to provide consultation for application and issue ID cards for the poor.

²⁰ It is reported that approximately 80 percent of the poor has no access to HEF. (Source: Where Have All The Poor Gone? Cambodia Poverty Assessment 2013, November 2013, The World Bank)

As a result of the interviews with the hospital and HEF staff, it is assumed that access to Kampong Cham Provincial Hospital by poor patients has been promoted after the project with the growing demand for high quality healthcare services.

3.3.1.3 Human Resource Development for the Region

Kampong Cham Regional Training Centre (RTC), located close to Kampong Cham Provincial Hospital, trains new health workers such as nurses, midwives and co-medicals with coverage of five nearby provinces²¹. RTC also offers training for in-house health workers from Kampong Cham Provincial Hospital, CPA1 and CPA2 facilities, private hospitals, military hospitals and so on as well as hosts internships for students from medical universities in Phnom Penh. Facilities and equipment provided by the project have been effectively utilised in the training sessions held at RTC (also refer to 3.3.2.3 Unintended Positive Impacts).

3.3.2 Other Impacts

3.3.2.1 Impacts on the Natural Environment

It is noted in the BD report that a public sewerage system was not in place at the time of project planning. General service water and hospital effluent were discharged into old septic tanks for removal of solid matters or flow-through to a pond on the premises.

At the time of the ex-post evaluation survey, discharge water was being appropriately treated through new septic tanks provided by the project, resulting in a lessened environmental burden by reducing biochemical oxygen demand (BOD). Thus, there were no negative impacts on the natural environment identified through the project, but rather some positive impacts.

General garbage and medical waste are treated separately at Kampong Cham Provincial Hospital. General garbage is disposed of by a private company and medical waste is adequately burned by an incinerator in the hospital.

3.3.2.2 Land Acquisition and Resettlement

There was no land acquisition and resettlement resulting from this project because new facilities were built in place of old facilities that were removed on the site of Kampong Cham Provincial Hospital. No additional land acquisition was undertaken by the project.

3.3.2.3 Unintended Positive Impacts

In October 2013, the construction of a Training Ward at Kampong Cham Provincial Hospital was completed by Grant Assistance for Grassroots Human Security Project provided by the Japanese Embassy in Cambodia. Along with the construction, the hospital established a training

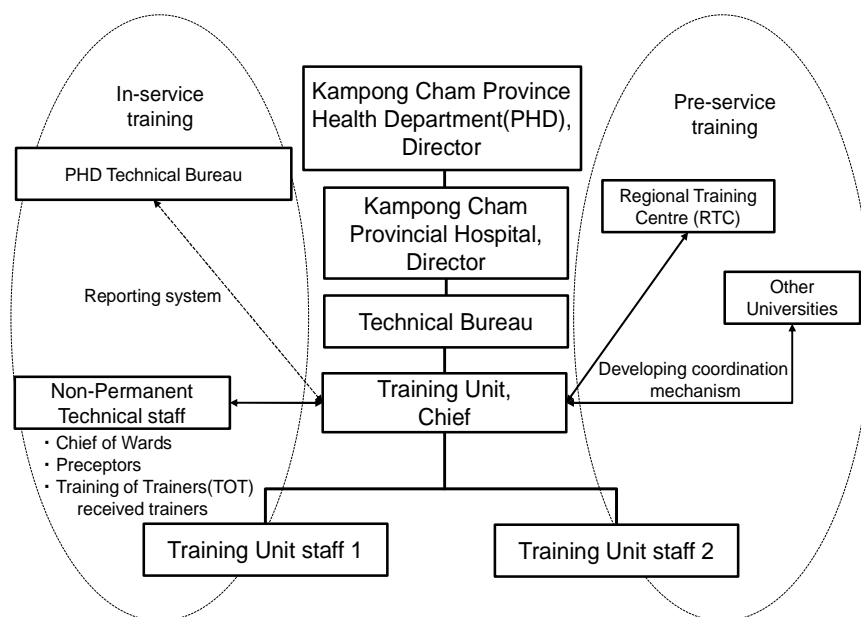
²¹ Kampong Cham province, Prey Veng province, Kampong Thom province, Svay Rieng province and Kandal province.

department with technical support from experts under the Japan International Cooperation Agency (JICA) technical cooperation project “The Project for Improving Maternal and Newborn Care through Midwifery Capacity Development” (2010-2015). Three staff members were assigned to the training department in order to carry out the goal of creating a teaching institute for the region by effectively using the facilities and equipment provided by the project. The hospital is making an effort to organise training activities as a teaching institute in the region.

Kampong Cham Provincial Hospital is one of the target hospitals of the above-mentioned ongoing JICA technical cooperation project, which is based in the National Maternal and Child Health Centre (NMCH) in Phnom Penh. The training department builds on practical experience with supervision by Japanese experts assigned to Kampong Cham Provincial Hospital.

The newly established training department was approved by MoH in May 2014 and has been identified as an official teaching institute in the region. Since the latest CPA Guidelines issued in July 2014 require each CPA3 level hospital to set up a training department, it is highly possible that Kampong Cham Provincial Hospital, as a CPA3 hospital, will play an important role under this initiative in providing more opportunities for training of health workers in the region utilising the facilities and equipment provided by the project.

In addition, Kampong Cham Provincial Hospital receives various missions, such as a group from the Radiograph Association visiting for X-ray unit inspection, staff from private hospitals and medical student interns from Phnom Penh.



Source: Kampong Cham Provincial Hospital

Figure1: Newly Established Training Department of Kampong Cham Provincial Hospital

It was also noted during the interview with hospital staff that midwifery related training and workshops provided through the JICA technical cooperation project contributed to capacity building of hospital human resources in addition to improving the quality of services of the Obstetrics/Gynaecology Ward. It has been recognised that synergetic effects have been generated together with the technical cooperation project.

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

3.4 Efficiency (Rating: ②)

3.4.1 Project Outputs

The project output by the Japanese side was produced mostly as planned although there were some minor changes that had no influence on the construction schedule. There was no soft component input into the project; therefore, there was no soft component output.

Table 9: Project Output by Japanese Side

For Facilities	Planned	Actual	Change From the Plan
Phase 1	Obstetrics/Gynaecology Ward (including delivery room), Surgery Ward and Machine Building Ward	Almost done as planned	Minor changes only
Phase 2	Operation Theatre, Emergency and Imaging Building, connecting corridor and walkway, etc.	Almost done as planned	Major changes were as follows <ul style="list-style-type: none"> ◆ Changed foundation level of the first floor of the Operation Theatre and Emergency and Imaging Building due to the level of the floor being lower than expected in the BD. ◆ A steel door was provided for outside of the oxygen room in order to prevent contact from visitors using the central courtyard
For Equipment	Planned	Actual	Change From the Plan
Phase 1	Obstetrics/Gynaecology-related equipment Delivery bed, Gynaecology examination table, Ultrasound apparatus for	Almost done as planned	Layout change X-ray film illuminator and stretcher Specification change Ultrasound apparatus for Obstetrics

	Obstetrics and Gynaecology (B/W), Infant incubator, Labour bed, Phototherapy equipment, etc. Surgery-related equipment Suction unit (small type), Examination table, X-ray film illuminator, Bed and Stretcher (wheels), etc.		and Gynaecology (B/W)
Phase 2	Operation, ICU and autoclave-related equipment Operation table, C-Arm mobile X-ray unit, Operating ceiling lamp, Anaesthesia apparatus with ventilator, Electro-surgical knife, Patient monitor, Autoclave etc. Emergency and imaging-related equipment Defibrillator, General diagnosis X-ray unit, Mobile X-ray unit, Ultrasound apparatus for general abdominal, Electric cardiograph, etc.	Almost done as planned	Change in number of installations X-ray film illuminator and instalment cabinet Change of specification General diagnoses X-ray unit, Ultrasound apparatus, Anaesthesia apparatus or general abdominal, Patient revolving stool, etc.

Source: Basic Design Study Report and JICA provided documents

At the time of Phase 1 of construction, it was identified that the floor level of the first floor of the Obstetrics/Gynaecology and Surgery Wards was positioned at a lower level than expected in the Detailed Design Study of the project. Changes to the foundation of the building were therefore required. Also, despite the fact that there were some minor changes in the location of the water receiving tank and machine building, increases to the budget or schedule did not occur.

The Cambodian side was responsible for removing obstacles on the project site. Obstacles such as underground pipes, overhead electric wires and utility poles were removed and transferred as planned before construction. Landscaping works and power receiving expenses were also

completed by the Cambodian side as planned. Furthermore, fences surrounding the hospital were provided with financial assistance from MoH although it was not planned initially.

3.4.2 Project Inputs

3.4.2.1 Project Cost

The actual project cost for the Japanese side was 963 million yen (93 percent of the planned amount), which was lower than the planned budget of 1,039 million yen. 16 million yen (266 percent of the planned amount) was borne by the Cambodian side, which was significantly higher than the planned budget of six million yen. The additional costs were due to building fences around the hospital and it was not expected at the time of planning. The overall cost of the project, which was the total cost of both the Japanese and Cambodian sides, was 979 million yen (94 percent of the planned amount), which was lower than the planned budget of 1,045 million yen.

3.4.2.2 Project Period

The actual project period (from the detailed design survey to the completion of the project) was 37.6 months (116 percent of the planned time), which was longer than the planned 32.5 months. The delay was caused by unsuccessful bidding at the first tender. The second tender was successfully held three months later.

Although the project cost was within the plan, the project period exceeded the plan. Therefore, the efficiency of the project is fair.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

The administrative structure of Kampong Cham Provincial Hospital is almost the same as at the time of planning. Likewise, the operational and maintenance structure has remained almost the same. On the other hand, approximately 40 more staff members have been assigned compared to the time of planning due to the increase in patients. The Obstetrics/Gynaecology Department has the largest number of staff members in the hospital, which is 36 due to the largest increase in patients among the hospital. In ICU at the Emergency Department, there are 20 staff members now, while there were only six staff members available at the time of planning. With regard to the Operation and Maintenance section, there were four staff members at the time of planning, which have now been reduced by one engineer due to his retirement in 2013. Accordingly, there are only three staff engaging in operation and maintenance. In addition, two of the three staff members are in charge of management and administration, so there is only one engineer available in the hospital. Kampong Cham Provincial Hospital requested that MoH increase the number of engineering staff. However, this is an ongoing issue without an obvious resolution because of the serious shortage of

engineers as well as health workers in the whole of Cambodia, as noted by a MoH officer. MoH encouraged hospitals to develop human resources and strengthen capacity building through their own budgets if they have an adequate budget from user fees (hospital revenue), however the serious lack of human resources and developed engineers has made it difficult to secure the appropriate number of staff for hospitals.

The ongoing JICA technical cooperation project “Project for Strengthening Medical Equipment Management in Referral Hospitals Phase 2 (MEDEM2) (2009-2014)”²² aims to strengthen medical equipment management in referral hospitals in Cambodia. MEDEM2 launched the National Workshop Team (NWT)²³ in the Hospital Service Department in MoH in order to provide technical assistance and training to referral hospitals. Kampong Cham Provincial Hospital has requested the assistance of NWT²⁴ for their insolvable repairs and maintenance of large-sized equipment and alternatively the hospital has utilised services provided by external contractors or engineering companies. Kampong Cham Provincial Hospital owns more equipment than other referral hospitals because of the size and function of the facility. The hospital inspects the equipment regularly according to the equipment inventory in order to maintain equipment in good condition.²⁵ Facility inspections are also conducted on a regular basis.

PHD indicated that construction of a new building for the Operation and Maintenance Section in the hospital was under consideration within the provincial budget of 2015.²⁶

3.5.2 Technical Aspects of Operation and Maintenance

Technical capacity building is a serious issue, similar to the shortage of technical human resources in Kampong Cham Provincial Hospital. Usually technical staff refer to the manuals provided by the project or MEDEM2 to resolve small equipment, minor problems and repairs. For repairing large and complicated equipment requiring advanced techniques, the Operation and Maintenance Section makes enquiries to NWT, or alternatively requests a quote from outside agents and contractors. From a financial perspective, it is important to avoid spending on outside services from agents and contractors to be able to secure good technical staff in the hospital.

Operation and maintenance staff as well as doctors, nurses, midwives and other health workers who utilise equipment are required to attend technical training to obtain knowledge and improve their

²² Kampong Cham Provincial Hospital has been one of the target referral hospitals since MEDEM1 (2006-2008).

²³ NWT was launched under MEDEM1 to provide training on medical equipment management, monitoring and site monitoring, etc. NWT consists of staff members from MOH and engineers from the National Maternal and Child Health Centre.

²⁴ Although the Operation and Maintenance Section of Kampong Cham Provincial Hospital has been strengthened by MEDEM, it is still necessary to reinforce the structure and the linkage in the areas of both management and engineering.

²⁵ Operation and Maintenance staff monitor the equipment biannually, quarterly, monthly, etc., according to the specifications and type of equipment.

²⁶ PHD intends to manage the budget for the construction of the Operation and Maintenance building in the latter half of 2014 while considering other requisitions and expenditures.

skills. The staff of Kampong Cham Provincial Hospital are encouraged to attend training courses, which are organised by MoH and MEDEM2 (Table 10).

Worldwide medical equipment manufacturer General Electric Company (GE) organises training sessions on operation and maintenance for their own products in and near the capital Phnom Penh. So far only four nurses from Kampong Cham Provincial Hospital attending GE operation training sessions have been identified.

According to the hospital, in March 2014 GE contacted the hospital management directly to organise internal operation and maintenance training at Kampong Cham Provincial Hospital. The hospital is currently considering discussions with GE regarding this offer.

Table 10: Kampong Cham Provincial Hospital Attendee Status of Major Training Courses Provided by MEDEM2

● Training time period: December 2009–March 2014

Main Training Course	Main Attendee/s
Medical Equipment Management (MEM) seminar	Manager of Operation and Maintenance / Engineers
MEM brush-up seminar	Director of PHD / Manager of Operation and Maintenance / Engineers
ME user training at lead CPA3 /National Hospital	Doctors / Secondary nurses / Secondary midwives /Lab technicians
Brush-up workshop on MEM system	Manager of Operation and Maintenance /Engineers
5S seminar in Sri Lanka	Director, Kampong Cham Provincial Hospital / Manager of Operation and Maintenance
Total Attendees	85

Source: JICA MEDEM2 project team

Regarding operation of equipment, one ECG that was allocated to the X-ray examination room remained unused for a long time since no staff at the ward could interpret the data as noted above. The hospital management realised it was necessary to improve techniques and knowledge regarding equipment operation and started organising internal training on how to interpret ECG data. Now ECG diagnoses are being given to patients at the X-ray examination room.

A Japanese volunteer X-ray technician was assigned by JOCV to the X-ray examination room at Kampong Cham Provincial Hospital. The volunteer advised staff on not only operational know-how for the X-ray unit but also on how to control air ventilation and temperature in the room

to ensure the long life of the equipment. This is a substantial contribution to expanding the technical capacity of the staff of the X-ray examination room.

3.5.3 Financial Aspects of Operation and Maintenance

Kampong Cham Provincial Hospital has two major sources of revenue. One is the budget from MoH and the other is user fees (revenue from patients for medical services). As for user fees, MoH guidelines stipulate that 60 percent of the user fee is to be utilised as rewards for staff incentives and 1 percent is to be paid to MoH. The remaining 39 percent is to be utilised by the hospital management for its own purposes.

Kampong Cham Provincial Hospital has no specific budget for operation and maintenance of facilities and equipment so the hospital manages this kind of expenditure through user fees when necessary. The user fees of Kampong Cham Provincial Hospital have increased with the increase in patients since the project was implemented. As a result, the expenditure for operation and maintenance has been reliably provided. Additionally, the hospital occasionally makes use of funding services such as short-term borrowing and loans to repair large-sized equipment or to purchase new equipment.

Table11: Financial Statement of Kampong Cham Provincial Hospital Including Operation and Maintenance

Unit: Million Cambodia Riel (KHR)²⁷

	2010	2011	2012	2013
Total revenue	2,341	2,777	2,958	3,284
- From MoH	1,259	1,570	1,576	1,876
- User fees	1,082	1,207	1,382	1,408
Total expenditure	1,609	2,027	2,257	2,908
Item of expenses				
Operation and maintenance	26	36	61	74
Fuel	55	92	137	179
Electricity	302	448	649	603

Source: Kampong Cham Provincial Hospital

Alongside increasing user fees, expenditure for fuel and electricity has expanded (as per Table 11) due to the increase of patients. PHD, the supervising authority of Kampong Cham Provincial Hospital, supports the budget for electricity, oxygen, internal food services and so on as the separate budget from Annual Operation Plan (AOP) by MOH. There is serious concern that in the

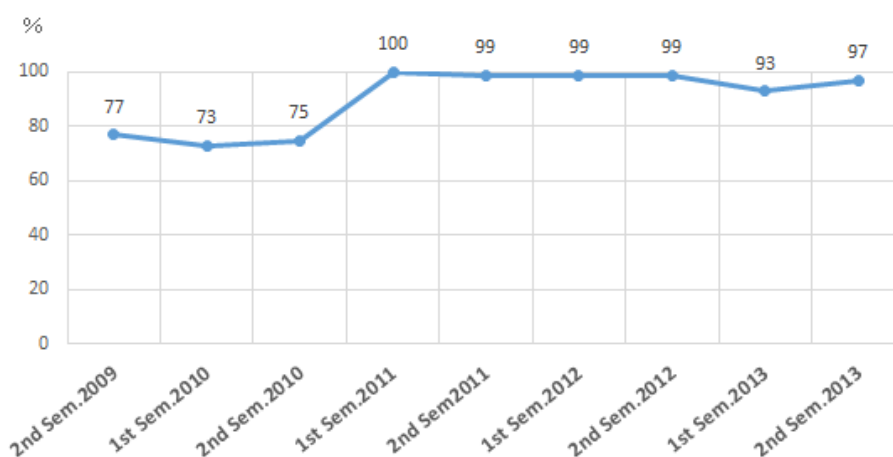
²⁷ Reference rate: KHR 1=JPY 0.026 (Source: JICA exchange rate as of April 2014 at the time of the second field survey for ex-post evaluation).

case of higher expenses for utilities, user fees may need to be allocated to those expenditures. Kampong Cham Provincial Hospital has applied for its operation and maintenance budget to MoH through PHD every year as a part of its AOP²⁸. So far no approval has been given. Nevertheless, Kampong Cham Provincial Hospital intends to keep applying for the AOP.

Despite the fact that there are still some considerable financial issues regarding expansion of utilities costs, it is expected that future operation and maintenance costs will be covered by increasing user fees as well as securing financial support from PHD or other funding sources.

3.5.4 Current Status of Operation and Maintenance

Training and advice from MEDEM2 have assisted in sustaining good equipment operation and maintenance in Kampong Cham Provincial Hospital. The hospital effectively incorporated know-how obtained through MEDEM2 training. The operable rate of medical equipment in Kampong Cham Provincial Hospital has improved since 2011, the time of project completion (Figure 2).



Source: JICA MEDEM2 project team

Figure 2: Kampong Cham Provincial Hospital - Medical Equipment Operable Rate

Improving the operable rate (the reduction of faulty equipment) illustrates the strong status of operation and maintenance of most equipment.

In terms of facilities operation and maintenance issues, sagging cupboard doors and water leakage in the shower rooms at the Obstetrics/Gynaecology Ward have been identified and dealt with by engineering staff on an occasional as-needed basis. Food waste being discarded in bathrooms by

²⁸ Applied for KHR 84 million for Operation and Maintenance and KHR 479 million for purchasing new equipment in 2013.

patients or family members was recognised as an issue at the time of planning but has since significantly improved due to careful reminders to patients by hospital staff.

The sterilising machine provided by the project in the Operation Theatre broke in October 2013 and the hospital took a few months to reach an appropriate agent to repair it²⁹. The extended absence of the large-sized sterilising machine certainly affected emergency operations, which were carried out several times a day due to increasing numbers of emergency patients and require the sterilisation of surgical tools and equipment. According to the hospital, some agents or contractors working with medical equipment are not very responsive in corresponding with the demands from public hospitals, although such agents and contractors are keen to deal with MoH and donors³⁰. Under these circumstances, it is suggested that Kampong Cham Provincial Hospital establishes contacts with reliable agents and contractors with a proven track record.

Although some issues and challenges still remain, Kampong Cham Provincial Hospital has made maximum efforts for operation and maintenance activities for facilities and equipment with limited human resources and technical skills. These efforts are assumed to contribute to the sustainability of the quality of healthcare services offered by the hospital.

As seen above, some problems have been observed in terms of institutional and technical aspects of operation and maintenance. Therefore, the sustainability of the project effect is considered fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project intended to improve the healthcare services of Kampong Cham province and neighbouring areas by upgrading the Surgery Ward, Obstetrics/Gynaecology Ward, Operation Theatre, and the Emergency and Imaging Building of Kampong Cham Provincial Hospital. Because this project supported the improvement of deteriorated health facilities and equipment at the provincial level, it is highly relevant to the priorities of the Cambodian health policy, which aims to improve healthcare services and respond to the development needs of the country. In the same way, the project supported Japanese assistance policies at the time of planning that promoted BHNs in the health sector for the socially vulnerable. After the project, the number of hospital users including poor residents not only from Kampong Cham province but also from outside has increased, and most of the facilities and equipment provided by the project have been utilised effectively. Users have mostly been highly satisfied. Furthermore, the project has strengthened the function of the hospital as a top referral hospital and contributed to capacity building for health workers in the region. Taking these facts into consideration, the effectiveness and the impact of the project can be evaluated as high. Although the

²⁹ It was fixed in March 2014.

³⁰ The MEDEM2 project team is also aware of the issue of some contractors neglecting to respond to public hospitals that often struggle to manage funding.

project cost was within the plan, the project period slightly exceeded the plan; therefore, the efficiency of the project is fair. Despite the lack of technical knowledge and manpower, the operation and maintenance of the facilities and equipment are of good status. The sustainability of the project effect is therefore fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

Improved facilities and equipment through the project assisted in expanding the good reputation of Kampong Cham Provincial Hospital and brought on a rapid increase in patients. However, given the vulnerable referral system that is the current situation in Cambodia, it is predicted that the extensive concentration of patients coming to Kampong Cham Provincial Hospital will continue to take place. There is also a possibility that high patient density will cause a reduction in the quality of healthcare services and infection control. In response to this situation, it is recommended that MoH strengthen the functions and capacities of CPA1 and CPA2 facilities in terms of technical skills and facilities and equipment to secure the referral system.

It is also suggested that Kampong Cham Provincial Hospital prepares its own database of outside agents and contactors with a good repair record to avoid a reduction in the quality of healthcare services due to poor operation and maintenance of facilities and equipment. Furthermore, the lack of engineers should be supplemented as soon as possible to reinforce operation and maintenance.

4.2.2 Recommendations to JICA

There is no particular recommendation for JICA.

4.3 Lessons Learned

4.3.1 Communications after the Project

One piece of equipment in almost unused condition at the time of the ex-post evaluation survey was identified. Usually, communications between the Japanese side and implementing agencies are prone to decreasing after the project. In order to maintain effective utilisation of facilities and equipment, it is preferable that opportunities are created for discussion between both sides to facilitate the sharing of any problems that arise after the project.

4.3.2 Decentralisation of Patients from New Facilities

The concentration of patients using the new facilities and equipment provided by the project is raised as an issue, especially in a country or region where the referral system is not yet securely established. In many cases, those patients who go to the upper level of health facilities without referral do not have serious conditions and are supposed to be treated at lower-level hospitals.

Consequently, the upper level of facilities receives too many patients beyond capacity, which causes poor functioning.

In order for the referral system to be functioned, it is necessary to create the appropriate patient flow in line with the referral system and the patient's conditions. This is especially important at the upper level of health facilities to discuss how to promote decentralisation of patients from new facilities with cooperation of all stakeholders of the whole referral system through MoH initiatives at the time of project planning. Strengthening the patient referral system and developing capacity building of both the first and second level of health facilities should be one of the solutions for decentralisation of patients.