Malaysia

Hospital Universiti Kebangsaan Malaysia (HUKM)

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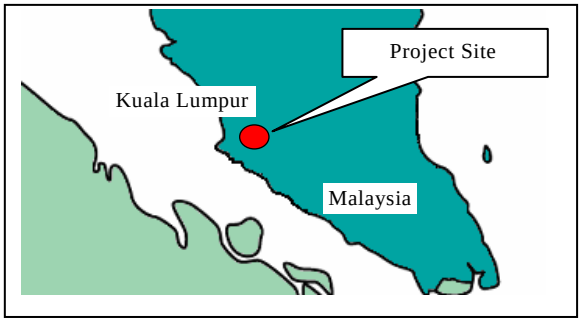
Field Survey: May 2008

1. Project Profile and Japan's ODA Loan



Map of the project area

Exterior view of UKM Medical School's hospital ward

1.1 Background

At the beginning of the 1990s, the main issue in Malaysia's public health and medical sector was the shortage of human resources (doctors and nurses). There were 2,500 persons per doctor in 1990, or nearly three times the level of Singapore and over five times the level of Japan. Extreme disparities existed among regions in Malaysia, and the doctor shortage in rural areas was particularly severe.

At that time, although medical education was indispensable for resolving the problem, there were only three universities with medical schools in Malaysia: the University of Malaya (UM), Universiti Sains Malaysia (USM), and Universiti Kebangsaan Malaysia (UKM). Of these, UKM was the only one without a teaching hospital attached to its medical school. The UKM Medical School was conducting education and training at Hospital Kuala Lumpur (HKL), but due to the heavy demand for healthcare services at HKL, education and training could not be adequately carried out.

UKM is a national university founded in 1970, and currently it has 10 departments, including the medical school (total students: approximately 24,000; staff: approximately 8,000; graduates: approximately 120,000). The university hospital which is the subject of this project was built in Cheras, located on the outskirts of Kuala Lumpur (about 15 to 20 minutes by car from central Kuala Lumpur).

1.2 Objective

The objective of this project is to promote (i) improvement of medical techniques and knowledge among UKM medical students and graduates (through retraining after

graduation) and training of nurses, (ii) acceleration of research and development in the clinical fields, and (iii) provision of healthcare services, through new construction of a medical education facility equipped with the latest medical equipment at UKM, which is the only medical school among the three in Malaysia without a university hospital; thereby contributing to the improvement of health in the surrounding area and in rural areas.

1.3 Borrower / Executing Agency

Government of Malaysia / Ministry of Education (currently the Ministry of Higher Education)

1.4 Outline of Loan Agreement

Copied from materials provided by JBIC

Loan Amount / Loan Disbursed Amount	10,215 million yen / 8,203 million yen
Exchange of Notes / Loan Agreement	August 1993 / September 1993
Terms and Conditions - Interest Rate - Repayment Period (Grace Period) - Procurement	 3.0% 25 years (7 years) General untied
Date of Disbursement Completion	January 2001
Main Contractors	E&A Letrik (M) Sdn. Bhd.(Malaysia)
Consulting Services	None

2. Evaluation Result (rating: A)

2.1 Relevance (rating: a)

This project was wholly consistent with the national plans, both at the time of appraisal and at the time of ex-post evaluation. Thus, the relevance of the project implementation is extremely high.

2.1.1 Relevance at the time of appraisal

The government of Malaysia formed and implemented many policies in its 5th and 6th five-year plans under the slogan of “Health for all by the year 2000” with the aim of enabling all people in Malaysia to receive every healthcare service so that they could lead high-quality lives. In the 6th plan in particular, improvement of healthcare facilities and healthcare services as well as rectification of the disparity in healthcare services between urban and rural areas were upheld as the most important issues and were allocated 2.4 times the budget allocated in the 5th plan.

The specific content of the 6th plan may be considered from the perspective of the three functions of a university hospital, i.e., "human resources development," "research," and "healthcare services." First, for human resources development, in order to rectify the chronic doctor shortage and regional inequality in public regional hospitals, steps were planned to implement the rehiring of retirees, invitation of foreign doctors, human resources development and retraining of doctors, improvement of the employment terms of public healthcare workers, boosting of the capacity of nurse training institutions, and expansion of the hiring of foreign nurses. One of the specific measures clearly stated in the 6th plan is new construction of a university hospital for UKM, which is the purpose of this project. Furthermore, for research, advancement of research related to malaria and dengue fever was planned, and for healthcare services, expansion of healthcare facilities (primary, secondary, and tertiary) was planned.

Thus, it may be reasonably concluded that the project was relevant at the time of the appraisal.

2.1.2 Relevance at the time of evaluation

At the time of this evaluation, the government of Malaysia is placing importance on policies for the public health and medical sector. Specifically, the public health and medical sector is clearly positioned in the 7th plan (1996–2000), 8th plan (2001–2005), and the 9th plan (2006–2010) as an important element for boosting the quality of life (QOL) of the Malaysian people, on par with education and housing. Budget allocations to the public health and medical sector are also increasing, and in the 8th and 9th plans, the budget allocations are 4.5 to 5 times larger than that in the 6th plan. Particularly for "expansion and improvement of healthcare facilities," "health improvement in rural areas," and "healthcare-related training," the budget allocation in the 9th plan is over 10 times greater than that in the 6th plan.

The recent five-year plans are examined specifically from the perspective of the above-mentioned three functions filled by university hospitals as follows. Beginning with human resources development, the 9th plan places importance on the enhancement of services through collaboration between and integration of medical institutions and enhancement of primary healthcare. For research, from the 7th through the 9th plan, emphasis is placed on the acceleration of research and development to improve prevention, diagnosis, and treatment, and for that purpose, emphasis is also placed on the strengthening of research and development capabilities. For healthcare services, importance is placed on the continued strengthening of specialized education (post-graduation) and improving the employment terms of doctors, in conjunction with strengthening measures to deal with the healthcare human resources shortage.

Thus, the project is relevant at the time of evaluation as well.

2.2 Efficiency (rating: b)

Although the project cost is estimated as being basically as planned, the project period significantly exceeded the planned period. For this reason, the efficiency is rated as being moderate.

2.2.1 Outputs

In the planning stage, the project was to construct a university hospital to conduct specialized education and treatment in seven departments (internal medicine, obstetrics and gynecology, surgery, orthopedics, ophthalmology, otorhinolaryngology, and pediatrics). The project consisted of three components, specifically (i) construction of medical office, education, and residential facilities, (ii) installation of service facilities, and (iii) procurement of other medical and office equipment (not affixed to the building). Of these, it was assumed that the component (i) would be implemented using Malaysian funds and that approximately half the funds for the component (iii) would be supplied by the government of Malaysia.

Table 1: Overview of Project

Group	Facilities and Equipment for Procurement and Installation
(i) Construction of medical office, education, and residential facilities (257,179 m^2)	
(ii) Installation of service facilities	
Electrical and communications-related equipment	- Low and high voltage power supply system and emergency generator equipment for power failures - Internal telephone system (approximately 1,000 line capacity) - Internal communication system (nurse-patient calls, announcement, internal communications, emergency communications) - Installed medical equipment (large equipment affixed to building, such as X-ray, CT scan, and magnetic resonance imaging (MRI) equipment)
Machines and equipment	- Medical gas (oxygen, carbon monoxide, anesthesia, and suction devices) supply system - Refrigeration system for preserving cadavers - Air-conditioning system - Incinerator (for medical pathological waste, dissection waste, and surgical waste) - Meal preparation system and LP gas supply system - Vertical movement system (elevators) - Centralized sterilization system - Boiler and steam system - Laundry facilities - Fire prevention system - Warm/hot water supply system - Automated building management system - Soundproofed rooms

	- Material transport system - Repair equipment - High-pressure air supply system
(iii) Procurement of other medical and office equipment (not affixed to the building)	
Class 2	Small-scale machines that are incidental to construction but may be installed after construction
Class 3	Mobile large-size machines, computers, etc.
Class 4	Mobile small-size equipment, etc.

Source: Project Appraisal Documents

Due to the fact that time has passed since the installation of the equipment and machines actually procured by this project, the hospital of UKM (hereinafter referred to as "HUKM"), which is in charge of the operation and maintenance, is unable to determine each item's purchase price, model, manufacturer, installation location, and overall condition of usage. So, an accurate ex-post evaluation of the project's output is difficult.

Regarding (ii) procurement and installation of incidental facilities by this project, a total of 37 procurement contracts were signed, according to JBIC documents. The annual breakdown is 7 contracts in 1994, 27 contracts in 1995, and 3 contracts in 1996. The total cost was 6,649 million yen.

Regarding (iii) procurement of equipment by this project, a total of 144 procurement contracts were signed, according to a document (procurement contract list) from HUKM's financial department. The annual breakdown is 59 contracts in 1997 and 85 contracts in 1999.

Procurement contracts in the amount of 1 million Malaysian Ringgit (hereinafter referred to as "RM")(equivalent to approximately 30 million yen) or more are for equipment such as the following and are consistent with the items planned for purchase in advance: beds (for pediatric treatment, intensive care treatment, and general wards), measurement devices (blood glucose meters, etc.), patient monitoring systems, monitors, mobile fluoroscope, x-ray machines, artificial respirators, fiber optic laryngoscope, anesthetic equipment, surgical implements and materials, and others. In addition to the above, the low-cost items procured are assumed to be equipment that is generally used in hospitals.

The necessary facilities and equipment appear to have been appropriately procured and put in place for the overall activities of HUKM, based on the above and on the smooth operation of HUKM since its opening.

2.2.2 Project period

The project period was much longer than planned.

HUKM began operating in July 1997, but if the date of disbursement completion

(January 2001) is taken as the project completion date, the project required 89 months to complete. This represents an overrun of the original plan of four and a half years. The delays began in the planning stages due to inclement weather and additional construction, which delayed the scheduling of the hospital construction which was implemented using Malaysian funds.

In the Progress Report on this project which the HUKM's financial department prepared in 1999, it is mentioned that equipment was procured using Malaysian funds in the first stage up to the hospital's opening (1997) and that ODA loan funds were utilized for some equipment in stage two following the hospital's opening. Moreover, because the above-mentioned contracts and payments also support the facts of this equipment procurement, it appears to be valid to set 2001 as the completion date of this project.

Planned	**Actual**
September 1993 – June 1996 (33 months)	September 1993 – January 2001 (89 months, 270% of the planned period)

2.2.3 Project cost

The overall project cost is unknown because no detailed data remains due to the fact that a long period of time has elapsed since the end of the project and the government of Malaysia underwent reorganization following the end of the project.

However, setting aside the construction portion which was funded entirely by Malaysia, the following analysis and estimates are possible for the incidental facilities and equipment.

First, only 80% of the originally planned ODA loan amount was used. Although the cost of incidental facilities increased due to additional building construction, the amount spent on equipment decreased as a result of bidding.

Moreover, of the incidental facilities and equipment, the above-mentioned Progress Report made a statement to the effect that Malaysia earmarked 109 million RM (approximately 2.932 billion yen) during the 7th plan (1996–2000) for equipment which was to be funded by Malaysia. If it is assumed that this entire amount was used for procurement of equipment, then when combined with the Japanese funds, the monetary amount is basically as planned. Also, looking at the amount funded by Malaysia, because it is possible that an inflation adjustment and reserve funds are included in the amount under "Other," it may be assumed that the overall amount is basically as planned. (An exchange rate of 1 RM = 26.8962 yen, which was used in the Progress Report, was adopted.)

Planned	Actual
26,754 million yen (ODA loan portion: 10,215 million yen) (1 US dollar = 123 yen) (1 RM = 49.2 yen) [Breakdown] Construction: 11,177 million yen (100% Malaysian funds) Incidental facilities: 5,653 million yen (100% ODA loan funds) Equipment: 5,118 million yen (Malaysia: 2,507 million yen) (ODA loan: 2,611 million yen) Other: 4,806 million yen [Incidental facilities and equipment] 10,771 million yen (Total of the above, not including "other.") [ODA loan portion breakdown] Incidental facilities: 5,653 million yen (100% of above amount) Equipment: 2,611 million yen (Approximately half of the above amount) Other: 1,952 million yen Total: 10,215 million yen (Other: Such as inflation adjustment, or reserve funds)	Project cost: Unknown (ODA loan portion: 8,203 million yen) [Incidental facilities and equipment] Malaysia: 2,932 million yen* Japan: 8,203 million yen Total: 11,135 million yen [ODA loan portion breakdown] Incidental facilities: 6,649 million yen Equipment: 1,154 million yen Total: 8,203 million yen

*The Malaysian amount may include an amount posted as "Other" in the planning stage.

2.3 Effectiveness (rating: a)

This project has largely achieved its objectives, and effectiveness is highly satisfactory.

2.3.1 Operation and effect indicators

Operation and effect indicators are analyzed below in light of the project's objectives: "training of healthcare personnel," "acceleration of research in the clinical fields through introduction of the latest medical equipment," and "provision of healthcare services."

[Training of healthcare personnel]

Some data remains unclear, but school staff, medical students, graduated medical students, and nurses are increasing in keeping with the planned levels.

Planned Figures for 2001

Teaching staff: 333
Medical students: 1,000
Graduated medical students (retraining): 600
Nurses: 1,000 (100 graduating annually)

Table 2: Actual Figures

Number of Teaching Staff

Year	Number of Staff	Of Whom Are Full-Time
2001	285	**241**
2002	327	254
2003	353	272
2004	368	271
2005	375	289
2006	380	-
2007	400	-

Source: HUKM

Number of Medical Students

Year	Total	Bachelor	Diploma
2001	**926**	723	203
2002	1,237	916	321
2003	1,269	958	311
2004	1,269	997	262
2005	1,285	1,072	213

Source: HUKM

Number of Graduated Medical Students

Year	Graduated Medical Students	Master's Program	Doctoral Program
2001	**693**	26	8
2002	848	34	9
2003	873	38	15
2004	943	44	12
2005	895	22	13

Source: HUKM

- The number of graduates who received retraining is unknown.

Number of Nursing School Graduates

Year	Number of Persons
2001	**178**
2002	145
2003	97
2004	99
2005	107
2006	83
2007	55
Total	764

Source: HUKM

- Number of nurses: 1,338 (2007)
- Of whom 764 are UKM Nursing School graduates (2007)

[Acceleration of research in the clinical field through introduction of the latest medical equipment]

Because the objectives were not set in advance, their achievements cannot be evaluated. Results have been realized, however, in grant research, international research projects, the number of papers published, awards, and patent registrations, and others.

Table 3: Trends in Research at HUKM

Indicator (unit)	Actual Figures
Research grant (government/private)	9,086,374.25 RM (2001) 11,620,185.00 RM (2003) 1,386,178.20 RM (2005)
Number of chief researchers with research grants	77 (2001) 132 (2003) 217 (2005)
Participants in international research projects	141 (2001–2005 cumulative) Total research cost: 4,905,725 RM
Papers printed in international journals, etc.	Approximately 170 papers annually (2001–2004) 221 papers (2005)
Academic awards	Domestic: 900 cases (2001–2005 cumulative) International: 664 cases (same as above)
Number of patents registered	18 patents (2001–2005 cumulative)
Ranking	Times Higher Education Supplement (THES) Bio-medical 56th (2006)

Source: HUKM, JBIC Study Report (2007)[1]

[Provision of healthcare services]

According to Table 4, the number of specialized outpatients is achieving the planned level. The inpatient capacity utilization is also basically achieving the planned level, although it is slightly low.

Goal for Provision of Healthcare Service (Planned Figures for 2001)

Number of specialized outpatients: 1,500–2,000 per day
Inpatient capacity utilization: 70% (1,000 beds)

Table 4: Actual Figures

Number of Specialized Outpatients

	Out-patients	Emergency Room Patients	Number per Day
1997	49,208	2,992	197
1998	172,978	36,888	767
1999	239,473	51,756	1,063
2000	280,967	54,072	1,229
2001	299,406	54,462	**1,301**
2002	335,323	61,553	1,459
2003	346,344	60,902	1,499
2004	363,547	63,969	1,574
2005	348,807	71,213	1,537
2006	360,488	69,245	1,577
2007	349,637	-	1,345

Source: HUKM

Inpatient Capacity Utilization

	In-patients	Hospital Beds	Inpatient Capacity Utilization
1997	2561		74.85
1998	22,208		74.85
1999	29,439		68.90
2000	34,677		63.70
2001	34,507	802	**63.70**
2002	35,348	819	65.60
2003	35,596	839	66.60
2004	36,536	835	65.10
2005	35,857	871	61.10
2006	36,188	874	61.30
2007	35,801	873	62.40

Source: HUKM

[1] JBIC Study Report (2007) commissioned to a healthcare expert (Professor Somei Kojima, International University of Health and Welfare).

2.3.1 Qualitative effects

[Training of healthcare personnel]

The UKM Medical School has set up a total of 21 courses in basic medical science (9 courses) and clinical medicine (12 courses) using HUKM as its training hospital though further confirmation is necessary concerning the specific operating condition and details.

○ Basic medical science (9 courses): Anatomy, biochemistry, physiology, pathology, microbiology and immunology, parasitology and medical entomology, pharmacology, local public health studies, and medical pedagogy
○ Clinical medicine (12 courses): Internal medicine, surgery, obstetrics and gynecology, pediatrics, ophthalmology, otorhinolaryngology, orthopedics, psychiatry, radiology, anesthesiology, nursing, family medicine

[Acceleration of research in the clinical field through introduction of the latest medical equipment]

The following qualitative effects are visible in the research field though further confirmation is necessary concerning specific operating conditions and details,.

First, the UKM Medical Molecular Biology Institute (UMBI) was established in 2003 and, in regard to illnesses such as cancer, began “research related to the molecular mechanisms of the illness’s occurrence and related gene therapy as well as research concerning Helicobacter pylori and stem cells.”[2]

HUKM is “also publishing a scientific journal called the Malaysian Journal of Community Health (featuring articles in Malay and English) whose contributors are mainly the instructors of the local public health studies course.”[3]

As a result of research in the clinical fields enabled by this project’s introduction of the latest medical equipment, HUKM became the first public hospital in Malaysia to successfully undertake in vitro fertilization (IVF). Moreover, startling results have been achieved in surgery and orthopedics (tissue engineering), and success has also been achieved in kidney transplants and autologous chondrocytes transplantation of cartilage.

In 2007, research related to the above-mentioned research of UMBI was conducted aboard Russia’s Soyuz spacecraft, and HUKM researchers were on board the spacecraft.

[2] JBIC study report commissioned to a healthcare expert (Professor Somei Kojima, International University of Health and Welfare).

[3] Same as above.

[Provision of healthcare services]

The following qualitative effects were visible concerning the provision of healthcare services though confirmation is necessary concerning the specific operating conditions and details.

Referrals from neighboring countries: HUKM receives referrals for the tertiary healthcare it provides from across Malaysia as well as from neighboring countries (Singapore, Brunei, and Indonesia). Its position as an institution providing tertiary healthcare is well established.

Special clinical department: A clinical department staffed by renowned doctors has been established where "patients can choose the doctor they want for their examination. Here, there are also special rooms for an extra charge where healthcare services can be provided effectively to wealthy patients. This helps to fund the hospital and also helps the hospital to retain renowned doctors rather than have them lured away by private hospitals."[4]

Local public health department and family healthcare department: These departments provide services such as general outpatient and dental consultations, health consultations, and pregnancy care to low-risk patients in the local area as a form of "outreach to local residents" with the aim of "improving regional health."[5]

2.4 Impact

2.4.1 Impact on healthcare services in the surrounding area

According to the field survey (which include interviews at HUKM and a beneficiary survey), local residents (Klang Valley residents) account for approximately 90% of the patients (outpatients and inpatients) at HUKM. Thus, the hospital is positioned to have an impact on the improvement of public health in the surrounding area.

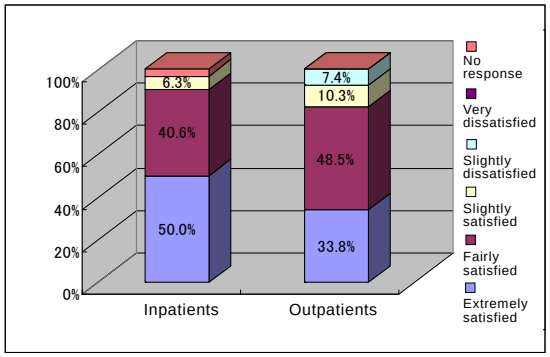
According to the beneficiary survey (100 persons surveyed, 68 outpatients and 32 inpatients), the patients' (outpatients and inpatients) level of satisfaction (overall satisfaction, treatment level, facilities and equipment) at HUKM is generally high. Moreover, many residents mentioned "easy access," "more accurate treatment," and "better treatment" as benefits provided to residents.

Given the above, it may be assumed that HUKM's healthcare service is exerting an impact on the surrounding area.

[4] From a JBIC study report commissioned to a healthcare expert (Professor Somei Kojima, International University of Health and Welfare).

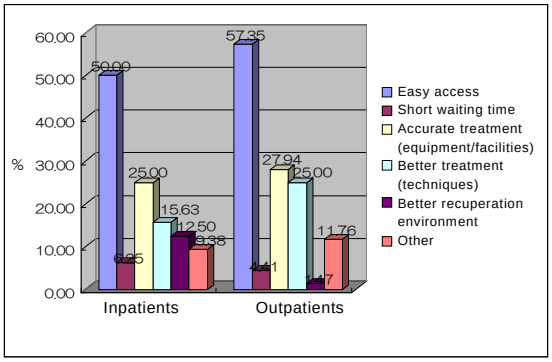
[5] Same as above.

Figure 1: Overall Satisfaction with HUKM's Healthcare Service



Source: Beneficiary survey

Figure 2: Benefits of the Establishment of HUKM (multiple responses possible)



Source: Beneficiary survey

2.4.2 Impact on rural healthcare services

The regional disparity in the number of persons per doctor in Malaysia remains large. There is currently an approximately seven-fold difference between the highest and lowest states. However, the situation is in fact improving nationwide, with clear improvement visible not only in urban areas but also in rural areas. No information was available concerning the percentage of UKM medical students from rural areas or the percentage of graduated medical students who located to rural areas; however, HUKM, which is the target of the project, is the hospital of one of the main medical schools in Malaysia, and so it is reasonable to assume that it is contributing to improvement in the number of persons per doctor in that country.

Table 5: Changes in the Number of Persons per Doctor

Year	National Average	Highest State	Lowest State
1985	1:3,175	1:815	1:6,898
1990	1:2,560	1:721	1:5,175
1995	1:2,177	-	-
2000	1:1,413	-	-
2005	1:1,387	1:396	1:2,719

Source: Malaysia's Ministry of Health

2.5 Sustainability (rating: a)

There are no major problems in the executing agency's capacity or the operation and maintenance system of this project, therefore sustainability of this project is high.

2.5.1 Executing agency

2.5.1.1 Operation and maintenance system

Of the facilities and equipment procured for HUKM, operation and maintenance of facilities is currently handled by Malaysia's Public Works Department (JKR), and operation and maintenance of equipment is handled by HUKM's engineering department.

Furthermore, heretofore the UKM Medical School and HUKM were two separate organizations, but they were reorganized by the government in February 2008. To integrate the UKM Medical School and HUKM, the UKM Medical Center (headquartered in HUKM) was established. Collaboration between both institutions has been further strengthened since their unification under one management system. One person serves as the dean and director, and on-site management is handled by several deputy deans who are in charge of education and research, and by the chief operating officer who conducts hospital administration. This reorganization is considered to be a desirable improvement.

2.5.1.2 Technical capacity

HUKM's level of medical technology is considered to be exemplary in Malaysia because, as mentioned above, it produces a variety of results in healthcare services as well as research and development, it is established as an institution providing tertiary care, and it is recognized as possessing the preeminent technology in Malaysia for IVF, and oters.

When five doctors at HUKM were asked about their perception of the level of "education and training," "research and development," and "healthcare service" in the hospital and the level of "facilities and equipment" used for the foregoing, they replied that they regard HUKM as being at a higher level overall than other domestic institutions but that there is still room for improvement when international comparisons are made.

In 2005, HUKM acquired ISO9001:2000 certification and has established operational processes to produce and maintain the quality of its services (in education, research, and healthcare).

Meanwhile concerning the procured equipment, HUKM has currently signed 64 usage license contracts, and it has secured the necessary technology for operation and maintenance. As stated below, HUKM is handling operation and maintenance primarily by outsourcing it. Given the conditions, it may be concluded that HUKM has secured the appropriate technology for sustaining operation and maintenance of the facilities and equipment.

2.5.1.3 Financial status

HUKM basically operates through government subsidies, and when urgent needs arise, it applies for additional subsidies. In addition to government subsidies, the hospital earns operating income which is equivalent to approximately 10% of the subsidies. Looking at

the trends in HUKM's income and expenditures, it can be seen that income including subsidies exceeds expenses every year. Aside from 2006 and 2007, government subsidies alone exceeded expenses. Furthermore, HUKM's management executives and staff in charge of financial affairs indicated that the hospital is not facing any particular problems in the area of finance.

Given these conditions, it may be concluded that HUKM has the necessary financial resources to sustain operation as well as maintenance of facilities and equipment and that there are few financial issues with regard to maintenance or daily operation.

Table 6: HUKM's Income and Expenditures

Year	Income (1,000 RM)			Expenditures (1,000 RM)		
	Government Subsidies	Operating Income	Total	Personnel Expenses	Other Expenses	Total
2001	175,032	16,000	191,032	49,666	121,868	171,534
2002	200,205	18,000	218,205	55,233	138,401	193,634
2003	233,174	20,000	253,174	59,171	143,546	202,717
2004	250,332	20,000	270,332	66,484	176,651	243,135
2005	266,358	20,000	286,358	69,705	190,570	260,275
2006	272,163	20,000	292,163	82,097	203,239	285,336
2007	296,920	20,000	316,920	93,941	213,578	307,519

Source: HUKM

2.5.2 Operation and maintenance status

Given that HUKM is operating smoothly and that it is producing the above-mentioned results, it appears that the facilities and equipment procured at HUKM are being properly operated and maintained overall, although precise confirmation is not possible.

HUKM's engineering department is ensuring operation and maintenance of the procured equipment by outsourcing it to private companies. For important equipment which requires special care, such as the MRI, X-ray, CT scan, ultrasound, and central patient monitoring system equipment, the hospital has annual operation and maintenance contracts with local manufacturers or manufacturers' agents. For less complex equipment, the hospital has operation and maintenance contracts with local maintenance companies.

Of the facilities and equipment procured by this project, the field survey confirmed the operation of intensive care beds, the CT scan, MRI, patient monitoring system, material transport system, artificial respirators, and drug injection equipment.

Mobile X-ray equipment

CT scan

3. Conclusion, Lessons Learned, and Recommendations

3.1 Conclusion (rating: A)

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

3.2 Lessons Learned and Recommendations

Because the executing agency had not submitted the Project Completion Report (PCR) for the project on its completion, neither the executing agency nor the Japanese side could precisely identify the project output (facilities and equipment procured with the ODA loan), the project period, or the project cost for components other than the ODA loan. The operating condition of the above output also could not be grasped. These made it difficult to conduct the ex-post evaluation this time. Given that HUKM itself is a healthcare service institution deeply rooted in its local region and that it functions as a healthcare education and research institution that represents Malaysia, it is regrettable that this situation has occurred.

So that the same problem does not occur in the future, both the executing agency and JBIC must thoroughly revise (and strengthen the implementation of) the rules for documentation, document management and storage, data collection, and reports.

Comparison of Original and Actual Scope

Item	Planned	Actual
(1) Project Scope	(i) Construction of medical office, education, and residential facilities (ii) Installation of service facilities ・ Electrical and communications related equipment ・ Machines and equipment (iii) Procurement of other medical and office equipment (not affixed to the building) Classified in the following four categories: - Class 1: Large equipment affixed to building, such as X-ray, CT scan, and magnetic resonance imaging (MRI) equipment - Class 2: Small-scale machines that are incidental to construction but may be installed after construction - Class 3: Mobile large-size machines, computers, etc. - Class 4: Mobile small-size equipment, etc.	(i) Construction of medical office, education, and residential facilities (ii) Installation of service facilities (iii) Procurement of other medical and office equipment (not affixed to the building)
(2) Project Period	September 1993 – June 1996 (33 months)	September 1993 – January 2001 (89 months, 270% of the planned period)
(3) Project Cost Foreign currency Local currency Total ODA loan portion Exchange rate	 12,152 million yen 14,602 million yen (296 million RM) 26,754 million yen 10,215 million yen 1 RM = 49.2 yen (as of August 1993)	 Unknown Unknown Unknown 8,203 million yen