

The Republic of Korea

Medical Facilities Expansion Project

Report Date: March 2001

Field Survey: July 2001

1. Project Profile and Japan's ODA Loan



Site Map: Project Hospitals

(2 in Seoul-si, 1 in Guri-si, 1 in Busan-si)



Site Photo: Cineangiocardiology Unit

at Ewha Woman's University (Mokudong Hospital)

1.1 Background

At the time of project planning in 1986, the Republic of Korea was experiencing a rapid improvement in medical standards, accelerated by rapid economic growth. However, medical standards were not adequate if compared to those of developed countries. In the field of medical education, the sufficiency ratio of education facilities was also not sufficient. Particularly at private universities where more than 60% of physicians were educated and trained, it was difficult to finance, with their own funds, procurement of the medical equipment required for the newly constructed (or relocated) university hospitals, which were the basic facility for medical education and research through clinical practice. As university hospitals played the role of regional medical institutions, it was deemed highly necessary to support private university hospitals.

1.2 Objective

The project aimed at improving the standard of medical education by providing the medical equipment and facilities required for five newly constructed or relocated private university hospitals, in order to upgrade the environment for medical education.

1.3 Project Scope

- ① Construction of new hospitals affiliated to Ewha Womans University, Chungang University¹, and Hanyang University
- ② Construction of a new hospital affiliated to Dong-A University
- ③ Construction of a new hospital affiliated to Korea University where the then existing equipment and facilities were to be relocated.

The Japan's ODA loan covered the full amount of the foreign currency portion required for the procurement of medical equipment at the newly constructed or relocated hospitals.

1.4 Borrower/Executing Agency

The Government of the Republic of Korea / Ewha Womans University, Hanyang University, Korea University, Dong-A University, Chungang University (Chungang University did not borrow the

¹ As mentioned later, Chungang University was pulled out of the project scope.

ODA loan.)

1.5 Outline of Loan Agreement:

Loan Amount	5,624 Million Yen
Loan Disbursed Amount	3,886 Million Yen
Date of Exchange of Notes	April 1988
Date of Loan Agreement	June 1988
Terms and Conditions	
Interest Rate	4.25%
Repayment Period (Grace Period)	25 years (7years)
Procurement	General untied
Final Disbursement Date	November 1995

2. Results and Evaluation

2.1 Relevance

At the time of the project appraisal in 1987, ROK was experiencing a rapid economic growth and an improvement of medical service standards accelerated by the economic growth. However, it was pointed out that the standards were still low if compared with those of developed countries. Furthermore, there was a shared concern with the weakness of public medical institutions (national hospitals, city and provincial hospitals, etc.). In particular, since 19 out of 27 medical colleges were privately run in 1986, expectation was high concerning the role that private universities should play in supplying physicians. It was imperative to have affiliated hospitals as practical training venues for the education of physicians in clinical medicine. The purpose of the project was to improve the environment for medical education and upgrade the standard of medical education by procuring the medical equipment required for five university hospitals that were to be newly constructed or relocated. It is evaluated that the project was relevant considering the development needs of the country at the time of the project appraisal. In addition, as shown in the following table, the number of physicians per 100,000 persons was fewer than those of developed countries in both 1993 and 1998 (1999 in case of ROK). The project is still relevant to the needs of the country at present.

Table 1 : Comparison of Physicians (per 100,000 persons)

Country	1993 ^{Note1)}	1998
ROK	127	168 ^{Note2)}
Japan	177	189
USA	245	268
UK	164	172
Germany	319	345
France	280	298
Industrialized Countries	253	NA
World	122	NA

Source: The data in 1993 is from Human Development Report 1999, UNDP.

The data in 1998 is from Yearbook of Health and Welfare Statistics (Ministry of Health and Welfare, ROK) , except the figure from ROK that was data from 1999 taken from the homepage of the ministry.

Note: 1) Human Development Report uses Doctors and defines them as "physicians and all graduates of any faculty or school of medicine in any medical field (including practice, teaching, administration and research)."

2) Including Oriental Medical Doctors. If Oriental Medical Doctors are excluded, the number will be 146 instead of 168.

At the time of the project appraisal, it was planned that five universities would be the beneficiaries of the project. However, the final number became four, i.e. Ewha Womans University, Hanyang University, Korea University, Dong-A University. Chungang University had to change the planned construction site of the hospital, leading to a long delay in the project commencement². Under this condition, Chungang University would have to have started loan repayment prior to commencement of the procurement and was expected to face difficulties in raising funds. Thus, it decided to cancel the use of the ODA loan. The policy decision made by the government was not foreseen at the time of the appraisal and the decision that Chungang University came up with was due to circumstances beyond its control.

2.2 Efficiency

① Project Scope

Under the project, new hospitals were constructed at four universities, excepting Chungang University, which cancelled the loan. Various types of medical equipment and facilities were procured at the newly constructed hospitals. While the total numbers of equipment for the five university affiliated hospitals, according to the original plan, were 1,103 units in 803 types, the actual figures were 83 types for Ewha Womans University, 161 units in 77 types for Hanyang University, 201 units in 86 types for Korea University and 438 units for Dong-A University³. The following Table 2 shows the comparison of planned and actual figures at the university hospitals in terms of the opening years, locations, gross floor areas, clinical departments, beds and floor areas per bed.

Table 2 : Comparison of Plan and Actual in terms of Opening Year, Location, Gross Floor Areas, Number of Clinical Departments, Number of Beds ^{Note 1}

Name of University and Affiliated Hospital	Opening Year	Location	Gross Floor Area (m ²)	Clinical Department	Beds (Bed)
Ewha Womans University (Mokdong Hospital)	Plan (Oct. 1989)	Seoul-si, Gangseo-gu	31,700	15	500
	Actual (Sept. 1993)	Seoul-si, Yangcheon-gu ^{Note 2)}	34,773	22	544
Chungang University	Plan (Mar. 1990)	Kyonggi-do, Gwacheon-si	26,000	20	500
	Actual (Cancelled)				
Hanyang University Medical Center (Kuri Hospital)	Plan (Mar. 1990)	Seoul-si, Gangseo-gu, Mokdong	34,000	19	500
	Actual (May 1995)	Kyonggi-do, Guri-si, Gyomun-dong	34,000	20	454
Korea University Medical Center (Anam Hospital)	Plan (Jan. 1991)	Seoul-si, Seongbuk-gu, Anam-dong	44,836	23	460
	Actual (July 1991)	ditto	48,650	29	716
Dong-A University Medical Center	Plan (Mar. 1989)	Busan-si, Nam-gu, Dongdaesin-dong	38,534	21	749
	Actual (Mar. 1990)	ditto	20,800	22	459

Source: Respective Hospitals

Note: 1) "Actual" means actual in the opening year.

2) At the time of the post-evaluation, the administrative ward of the location was changed from Gangseo-gu to Yangcheon-gu.

² Chungang University decided to change the construct site of the hospital to Seoul-si after the government had announced a policy that the name "affiliated hospital" could be used only when a university hospital was built within the same administrative ward as the university was located. It was considered that the use of "affiliated hospital" would be advantageous in terms of the hospital management, including a tax reduction.

³ As some hospitals reported either the number of equipment types or the number of equipment units, it was not possible to sum up the total number of types as well as units for the entire project.

Hanyang University changed the construction site of its hospital to Kyonggi-do, Guri-si, due to a sharp increase in land prices at the planned construction site in Seoul. In the case of Korea University, the gross floor area increased more than the number of beds did. The gross number of inpatients at Korea University recorded a 40% increase in 1992 compared with that in 1991, the opening year of the university hospital. This may imply the hospital's prompt response to increasing service needs through an improved provision of medical services. In the case of Dong-A University, on the other hand, the number of beds and gross floor areas decreased for unknown reasons⁴.

②Implementing Schedule and Opening Years

The Office of Supply, the Republic of Korea (OSROK), which was the Supply Administration, the Republic of Korea (SAROK) at the time of the post-evaluation, undertook the procurement of equipment with international competitive bidding and delays resulting from the procurement procedures were not reported. However, some university hospitals experienced a significant delay in terms of the implementing schedule and opening year. Hospitals that experienced a long delay are Ewha Womans University Mokdong Hospital (delay of 47 months) and Hanyang University Medical Center Kuri Hospital (delay of 62 months). Various factors contributed to delays in the opening years. One of the factors was the market competition between Ewha Womans University Mokdong and Hanyang University Hospital. While Hanyang University planned to establish Mokdong Hospital in Seoul-si, Gangseo-gu, Mokdong, Ewha Womans University also planned to build Gangseo Hospital (Ewha Womans University Hospital was named provisionally Gangseo Hospital and later Mokdong Hospital at the opening time). It took a longer time to resolve the issue of the market competition between the two hospitals. As Hanyang University also faced a sharp increase in the land prices for its planned hospital site, it had to give up the purchase of the land and look for an alternative site for the hospital. Hanyang University finally located a hospital site in Kyuli; however, it took time to go through all the procedures required for the arrangement of an alternative site, leading to a tremendous delay in the completion of the construction works. Other than the issue of market competition between the two university hospitals, other reasons behind the delay in the project completion were a delay in the hospital design works, difficulties in procuring construction materials and labor, etc. In the case of Dong-A University, there was a delay of 12 months from the original schedule due to changes in the design works, a procurement delay of medical equipment from abroad, and so on. Korea University experienced a delay of 6 months from the original schedule due to changes in the design works, a shortage of construction materials, etc.

③Project Cost

Due to cancellation of the ODA loan to Chungang University, the total project cost, exclusive of the portion of Chungang University, was 4,588 million yen for the foreign portion and 89,677 million won for the local portion. In practice, the actual amounts of the foreign project costs at the respective hospitals were nearly same as the planned costs except at Hanyang University, which recorded a decrease against the foreign cost estimate. As for the local cost portion, all the universities experienced cost over-runs. In particular, Dong-A University showed a significant cost over-run. Because time had passed since the completion of the project, detailed information on the breakdown of the local project cost was not available from the university. The project cost at Ewha Womans University was affected by an increase in the costs of construction materials and a change of design due to a delay of the implementation schedule. Similarly, Korea University experienced an increase in the costs of construction materials and labor by 20% to 30% during the construction period. Korea University financed the local cost portion _ with its own funds. However, information on the funding sources was not available for the rest of the university hospitals.

⁴ According to Dong-A University Hospital, it originally planned to construct a 15 story building but actually constructed an 11 story building, resulting in a 50% decrease of the planned gross floor areas. However, at the appraisal time, it was already planned to build an 11 story building. Reasons why the number of beds and the size of the gross floor areas were reduced are not known.

2.3 Effectiveness

① Utilization of Equipment Procured

It was difficult to examine all the conditions for the equipment procured because the equipment that had been procured under the project constituted only a part of the medical equipment installed at the hospitals. Under this post-evaluation, the hospitals were requested to report on the utilization of the main medical equipment procured under the project. Table 3 shows the results of their responses. As far as the reports show, the equipment procured under the project plays a significant role at the hospitals. It can be seen that the equipment is being well utilized.

Table 3 : Conditions of Equipment at Respective Hospitals

Ewha Womans University (Mokdong Hospital)

No.	Name and Use of the Equipment	Quantity procured	Year of Installation	Ratio of project equipment against similar types of equipment available at hospital	Conditions of Utilization
1	Cineangiocardiology unit	1 System	1993	50%	Normal operation Utilized as much as possible
2	Chemical analyzer, automated	1 System	1993	33%	
3	Hematology Diff counter	1 System	1993	50%	
4	R&F X-ray	2 Sets	1993	100%	
5	C-Am X-ray	1 Set	1993	50%	
6	Panoramic&cephab X-ray	1 System	1993	50%	

Hanyang University Medical Center (Kuri Hospital)

No.	Name and Use of the Equipment	Quantity procured	Year of Installation	Ratio of project equipment against similar types of equipment available at hospital	Conditions of Utilization
1	CT	1	May 1995	100%	In use
2	Echocardiography	1	May 1995	100%	In use

Korea University Medical Center (Anam Hospital)

No.	Name and Use of the Equipment	Quantity procured	Year of Installation	Ratio of project equipment against similar types of equipment available at hospital	Conditions of Utilization
1	Cine Angiography unit	1	Sept 1991	100%	Well utilized
2	Radiography & Fluoroscopy	1	Sept 1991	20%	Well utilized
3	Gamma Camera System	1	Sept 1991	25%	Well utilized
4	Ultrasound Scanner for OB/GY	1	Sept 1991	10%	Well utilized
5	Dual Contact, Surgical Laser System	1	Sept 1991	30%	Well utilized

6	Contact Laser System	1	Sept 1991	30%	Well utilized
7	Cath Lab System	1	Sept 1991	100%	Well utilized

Dong-A University Medical Center

No.	Name and Use of the Equipment	Quantity procured	Year of Installation	Ratio of project equipment against similar types of equipment available at hospital	Conditions of Utilization
1	Angiography system	1	Aug 1991	100%	Well utilized
2	Gamma camera	1	Nov 1990	100%	Well utilized
3	Linear accelerator	1	May 1991	100%	Well utilized

Source: Respective Hospitals

②Number of Beds per Medical Student

It is necessary to have an affiliated hospital for education in clinical medicine. At the time of the project appraisal, university hospitals were deemed adequate if they were general hospitals equipped with all the clinical departments and if the bed-to-student ratio was 10 beds per student. According to the survey at the appraisal time, the ratios were 3.1 beds per student for public university hospitals and 6.1 beds per student for private university hospitals. Although the ratio of the private university hospitals was higher than that of the public university hospitals, the ratio was short of the benchmark figure of 10 beds per student. Meanwhile, the number of beds per intern and resident were 3.0 beds for public university hospitals and 4.5 beds for the private university hospitals.

At the three universities⁵ out of the four under the project, where affiliated hospitals already existed, the number of beds per student⁶ was 5.6 for Ewha Womans University, 6.9 for Hanyang University, 9.5 for Korea University. On the other hand, at the time of the post-evaluation, the number of beds per student were as shown in the following table. As the number of beds per student exceeded 10 if the number of beds is compared with the simple average number of students in a class, the benchmark ratio has been already achieved.

Table 4 : Trial Calculation for Number of Beds per Medical Student for Year 2001

	Ewha Womans University	Hanyang University	Korea University	Dong-A University
No. of students in a class ^{Note 2)} (persons) (A)	90	140	91	39
No. of Beds (beds) (B)	1,013	1,497	1,435 ^{Note3)}	952
Out of which, the no. of beds at project hospitals (beds) (C)	611	503	815	952
(B) / (A) (no. of beds/student)	11.3	10.7	15.8	24.4
Without the project (B - C) / (A) (no. of beds/student)	4.5	7.1	6.8	0
No. of beds at the appraisal time (no. of beds /student)	5.6	6.9	9.5	0

Source: Respective hospitals and JBIC

⁵ At the time of the project appraisal, there was no affiliated hospital at Dong-A University.

⁶ The number of students in a class was used to calculate the number of beds per student.

Note: 1)The above data were based on answers to questionnaires received in July and August 2001, describing the conditions at respective university hospitals at the time of the reply.

2) The number of medical students in a class is calculated by dividing the total number of students at the respective universities with 6 years.

3)The total number of beds at Anam Hospital and Guro Hospital. Guro Hospital was not a beneficiary hospital under the project.

③Space of Education and Research

The space necessary for education and research activities was planned to be areas ranging from about 1000 m² to 2400 m² at the respective university hospitals. The actual spaces for education and research activities are shown in the following Table 5. All the universities hospitals except for Hanyang University Kuri Hospital secured the size of space that fell within or exceeded the planned size of the areas. In particular, Anam Hospital at Korea University allocated more than 30% of the gross floor areas for _ education and research activities. According to Anam Hospital, this is because the hospital aimed to develop medical services through the strengthening of educational and research activities in light of the ideas of the establishment.

Table 5 : Space for Education and Research in 2001

Unit : m²/bed

	Ewha Womans University Mokdong Hospital	Hanyang University Kuri Hospital	Korea University Anam Hospital	Dong-A University Medical Center
Gross Floor Areas	36,918	34,000	48,650	20,800
Areas spared for Education and Research	2,127	722.8	15,631	1,437.7

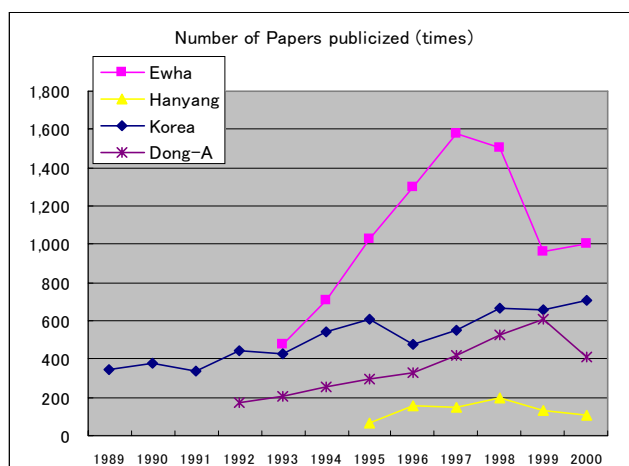
Source: Respective University Hospitals

Note: The above data were based on answers to questionnaires received in July and August 2001, describing the conditions at respective university hospitals at the time of the reply.

④Number of Papers Publicized

The following Table 6 compares the number of papers publicized at each of the university hospitals. All the university hospitals have been vigorously undertaking research activities. Except for Hanyang University, the number shows an increasing trend in the second half of 1990s. In particular, it is understood that research has been very active at the project beneficiary hospitals of Ewha Womans University and Korea University .

Table 6 : Number of Papers publicized



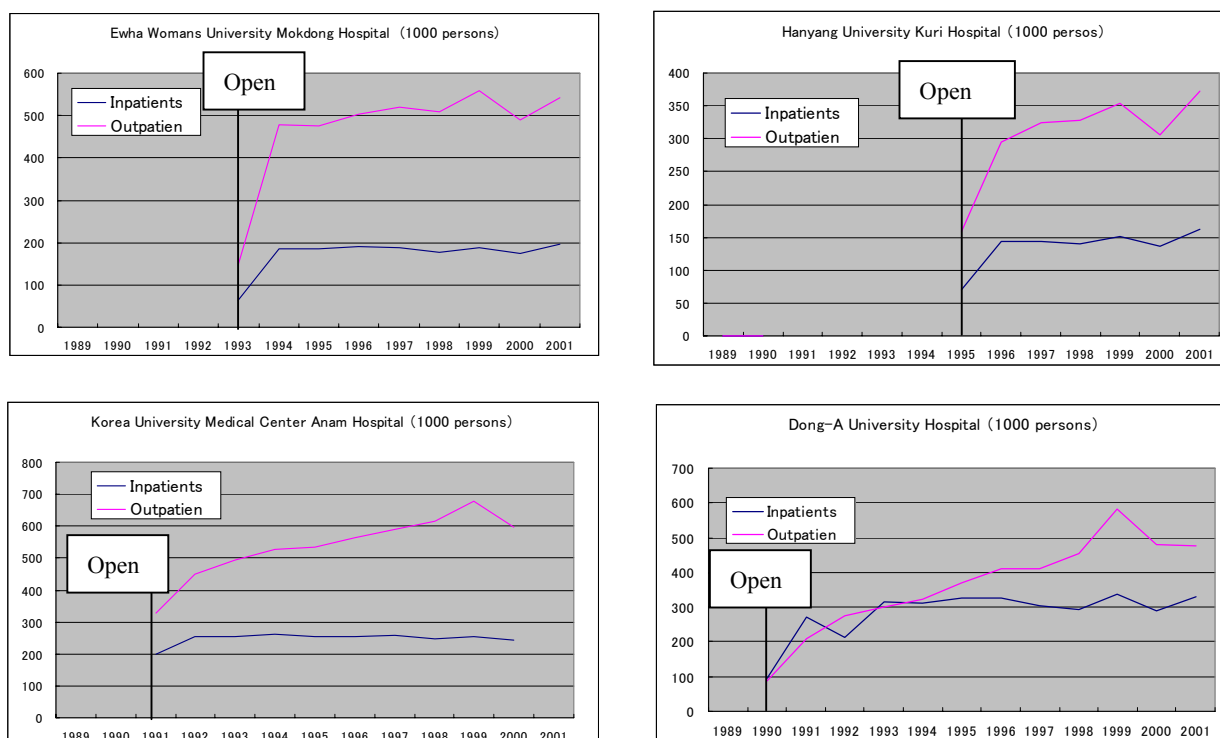
Source: Respective hospitals

2.4 Impact

① Impact on Supply of Medical Services

The supply conditions of medical services at the university hospitals are shown in the following table. All the four hospitals experienced increases in the number of in- and outpatients from the opening years. Positive project impacts have been observed. The number of in- and outpatients decreased in 2000 when the separation of prescribing and dispensing drugs was put into practice. Except 2000, the number of inpatients has been stable in the long run, while the number of outpatients has been on an increasing trend.

Table 7 : Annual No. of Inpatients and Outpatients at Beneficiary Hospitals under the Project



Source: Respective University Hospitals

Note: 1) Forecast for 2001

2) The number of patients is based on the accounting years (March 1 to end of February)

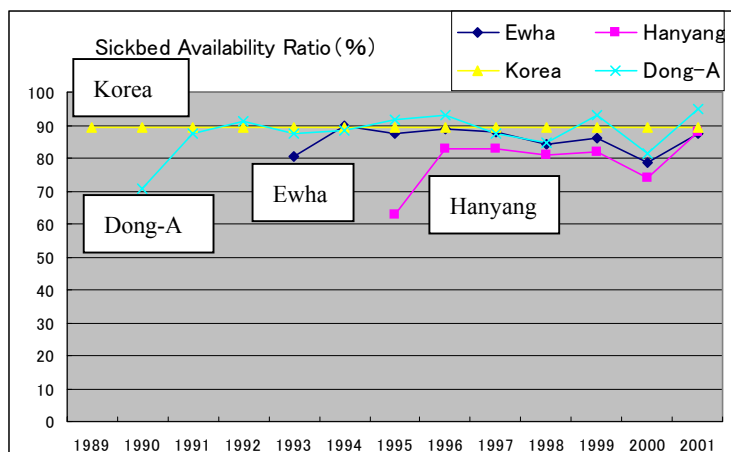
Responding to the questionnaire, Ewha Womans University Mokdong Hospital commented that the actual figures exceeded the forecast made at the time of the establishment of the hospital. At the time of the site survey, the hospital was undertaking the reconstruction of hospital buildings in order to increase the number of beds by 240, with the intention of improving its medical services in response to the increasing demand⁷. At Hanyang University, the number of patients constantly increased except in 2000. At Korea University, the number of patients increased every year. Although the number of patients temporarily decreased in 2000 due to changes in medical policies and strikes resulting from a separation of prescribing and dispensing drugs, the hospital reported that, based on the actual figures from March to June 2001, the number of patients has gradually recovered to the same level as recorded in the previous years. Dong-A University pointed out that the hospital had become attractive because of the spaciousness and cleanness of the newly constructed building, that it had improved medical services through the introduction of equipment with high technology, and also that it had upgraded services to patients. The hospital commented that all these were contributing factors in a constant increase in the number of patients. The

⁷ There is another affiliated hospital called Dongdaemum Hospital (out of the project scope) at Ewha Womans University. Due to decentralization of medical services, the demand for medical services at Dongdaemum Hospital was on a decreasing trend. The number of beds decreased compared with the situation in the past.

gross number of in-and outpatients at the four university hospitals in 1999 reached 930,000 and 2,170,000 persons, respectively. This accounts for 2.7% of the gross number of inpatients⁸ and 2.5% of the gross number of outpatients at general hospitals in ROK as a whole⁹.

Furthermore, the sickbed availability ratio has been as high as about 90% in the years following the opening of the hospitals except in 2000.

Table 8 : Sickbed Availability Ratio at Four University Hospitals



Source: Respective Hospitals

Note :

1) Sickbed Availability Ratio = $\frac{\text{No. of occupied beds in respective years}}{\text{No. of available beds in respective years}} \times 100$ (%)

2) In the case of Korea University Medical Center (Anam Hospital), the data prior to the relocation (July 1991) was also included.

② Impact on Supply of Personnel in Medicine

The following Table 8 compares the number of medical graduates from the respective universities with the number of applicants for the national licensing examinations for physicians. If all the graduates passed the examinations, the graduates from the four universities would account for about 10%. Considering the fact that there are 41 educational institutions for physicians in ROK, the four universities have a corresponding share in terms of the supply of physicians. It is estimated that physicians who received medical education through clinical practice at hospitals under the project account for about 10% of the total physicians supplied in recent years.

Table 8 : No. of Applicants and Successful Applicants for National Licensing Examinations for Medical Personnel

	Unit : Persons			
	1997	1998	1999	2000
Ewha Womans University	90	81	92	90
Hanyang University	89	91	117	149
Korea University	123	125	125	109
Dong-A University	52	58	57	47
Total no. of medial graduates of the four	354	355	391	395

⁸ The "number of bed-days" was used for the gross number of inpatients.

⁹ The statistics of the whole of ROK is based on "Yearbook of Health and Welfare Statistics, 2000" by the Ministry of Health and Welfare.

beneficiary universities (A)				
No. of applicants for national licensing examinations for medical personnel (Nation-wide statistics) ^{Note1} (B)	3,622	3,177	2,961	NA
No. of passes in national licensing examinations for medical personnel (nation-wide statistics) ^{Note 1} (C)	3,239	2,842	2,772	3,300 ^{注2)}
(A)/(B)	9.8%	11.2%	13.2%	

Source: Respective university hospitals and the Ministry of Health and Welfare (Yearbook of Health and Welfare Statistics for 1997 – 1999 and homepage for 2000)

Note: 1)The statistics refers to "Physician", not to "Medical Specialist." As for 2000, the statistics classification uses not "Physicians" but "Doctor."

2) The figure refers to those who graduated from the health education institutes and were licensed after passing the national examinations.

③Environmental Impact

External agents, which have been accredited by the environmental agencies and local governments, are commissioned to handle the disposal and processing of solid wastes and waste waters at the respective university hospitals. There is no negative environmental impact reported in connection with this project.

2.5 Sustainability

①Operation and Maintenance

After the project completion, operation and maintenance (O&M) have been carried out by the respective university hospitals.

Table 9 : Sections in charge of Maintenance and Repairs at the Respective Hospitals

University Hospital	Sections in charge of Maintenance and Repairs
Ewha Womans University (Mokdong)	Biomedical Engineering Section The Equipment Department
Hanyang University Medical Center (Kuri Hospital)	Medical Manufacture Room Management Section
Korea University Medical Center (Anam Hospital)	Buying Management Section
Dong-A University Medical Center	Biomedical Engineering Team

Source : Respective University Hospitals

At the sections in charge of O & M at the respective university hospitals, the staff of the sections conduct O & M and repair works. For the main equipment and facilities, however, the hospitals conclude after-sales service contracts with special agents or manufactures' agents or request agents to do repair works as required¹⁰. Problems were not reported in terms of the O & M system or the technical level of the staff. Ewha Women's University Mokdong Hospital has instituted internal technical training systems as well as overseas training systems with regard to the operation of medical equipment. At Korea University Anam Hospital, the staff receives on-the-job training for preventive maintenance from agents when the agents provide after-sales services. It is evaluated that university hospitals, in general, operate good O & M systems.

¹⁰ For example, in the case of Ewha Womans University Mokdong Hospital, the maintenance and repairs of major medical equipment and computer systems are done under a maintenance contract. Other medical equipment and facilities are internally handled by the Biomedical Engineering Section.

②Financial Conditions

The financial conditions of the university hospitals are shown below. Except for Hanyang University Kuri Hospital, revenues from medical services covered the corresponding expenses. However, some hospitals recorded a very high level of non-medical expenses. Kuri Hospital continued to experience deficits. According to Kuri Hospital, the reasons behind the difficult situation facing the hospital management were that it was at an early stage of operation as a newly opened hospital and also that the introduction of the separation of prescribing and dispensing drugs adversely affected the financial conditions of the hospital. The latter reason is understood not only as an issue for hospitals in ROK but also as an issue for financing the medical insurance system.

Table 10 : Profit and Loss Statements of Beneficiary Hospitals

					Unit: Million Won			
Accounting Year	1997	1998	1999	2000	Accounting Year	1998	1999	2000
Ewha Womans University (Mokdong Hospital)					Korea University Medical Center (Anam Hospital)			
Medical Operation					Medical Operation			
Medical Revenue	69,979	76,738	86,275	NA	Medical Revenue	91,848	100,588	92,188
Medical Expense	62,630	68,026	74,952	NA	Medical Expense	90,297	88,488	86,218
Medical Net Income	7,349	8,712	11,323	NA	Medical Net Income	1,551	12,100	5,970
Other Operation					Other Operation			
Other Revenue	2,210	2,599	941	NA	Other Revenue	8,083	3,345	3,667
Other Expense	7,202	11,234	11,822	NA	Other Expense	8,131	13,158	4,603
Other Net Income	-4,992	-8,635	-10,881	NA	Other Net Income	-48	-9,813	-936
Net Profit	2,357	76	442	NA	Net Profit before Tax	1,503	2,287	5,034
Hanyang University Medical Center (Kuri Hospital)					Dong-A University Medical Center			
Medical Operation					Medical Operation			
Medical Revenue	39,668	41,679	43,134	38,484	Medical Revenue	91,588	106,470	94,422
Medical Expense	39,844	42,074	38,384	40,559	Medical Expense	83,082	92,801	89,468
Medical Net Income	-176	-395	4,750	-2,075	Medical Net Income	8,506	13,669	4,954
Other Operation					Other Operation			
Other Revenue	698	1,082	474	299	Other Revenue	4,905	2,855	1,832
Other Expense	1,984	1,865	5,256	621	Other Expense	10,339	17,161	8,295
Other Net Income	-1,286	-783	-4,782	-322	Other Net Income	-5,434	-14,306	-6,463
Net Profit before Tax and Extraordinary Items	-1,462	-1,178	-32	-2,397	Net Profit before Tax and Extraordinary Items	3,072	-637	-1,509
Net Profit	-1,462	-1,178	-32	-2,397	Net Profit	3,072	-637	-1,509

Source: Respective Hospitals

No major problems with the O&M aspect were observed at the time of the post-evaluation. However, in terms of the financial aspect, some concerns should be addressed to certain hospitals. Sustainability of the project effectiveness should be ensured through the managerial efforts of respective hospitals.

3. Lessons Learned

None

Comparison of Original Plan and Actual

Item	Plan	Actual
① Scope Ewha Womans University (Mokdong Hospital)	Construction of affiliated university hospitals (relocation to new hospital buildings in the case of Korea University) and procurement of medical equipment required for the new hospitals. The total number of medical equipment to be procured under the project was 1,103 units in 803 types.	Construction of affiliated university hospitals (relocation to new hospital buildings in the case of Korea University) and procurement of medical equipment required for the new hospitals. The loan to Chungang University was cancelled. The number and types of equipment procured were as follows: 83 types for Ewha Womans University; 161 units in 77 types for Hanyang University; 201 units in 86 types for Korea University; and 438 units for Dong-A University.
Chungang University		
Hanyang University Medical Center (Kuri Hospital)		
Korea University Medical Center (Anam Hospital)		
Dong-A University Medical Center		
② Implementation Schedule Ewha Womans University (Mokdong Hospital)	April 1988~March 1989 Opening Year: October 1989	December 1989~September 1993 Opening Year: September 1993
Hanyang University Medical Center (Kuri Hospital)	April 1988~February 1990 Opening Year: March 1990	May 1991~May 1995 Opening Year: May 1995
Korea University Medical Center (Anam Hospital)	May 1987~November 1990 Opening Year: January 1991	May 1987~4 th Quarter 1991 Opening Year: July 1991
Dong-A University Medical Center	May 1987~January 1989 Opening Year: March 1989	February 1987~February 1990 Opening Year: March 1990
③ Project Cost Ewha Womans University (Mokdong Hospital) Foreign Currency Local Currency (Local Currency in Won) Total Out of which, JBIC Yen Loan	992 Million Yen 3,735 Million Yen (20,544 Million Won) 4,727 Million Yen 992 Million Yen	992 Million Yen 4,440 Million Yen (34,152 Million Won) 5,432 Million Yen 992 Million Yen 1 Won= 0.13 Yen (1993)
Hanyang University Medical Center (Kuri Hospital) Foreign Currency Local Currency (Local Currency in Won) Total Out of which, JBIC Yen Loan	1,110 Million Yen 4,175 Million Yen (33,962 Million Won) 5,285 Million Yen 1,110 Million Yen	580 Million Yen 4,226 Million Yen (24,860 Million Won) 4,826 Million Yen 580 Million Yen
Korea University Medical Center (Anam Hospital) Foreign Currency Local Currency (Local Currency in Won) Total Out of which, JBIC Yen Loan	1,036 Million Yen 4,047 Million Yen (22,256 Million Won) 5,083 Million Yen 1,036 Million Yen	983 Million Yen 5,175 Million Yen (30,878 Million Won) 6,113 Million Yen 938 Million Yen
Dong-A University Medical Center Foreign Currency	1,450 Million Yen	1,440 Million Yen

Local Currency (Local Currency in Won)	4,348 Million Yen (23,915 Million Won)	11,768 Million Yen (69,224 Million Won)
Total	5,798 Million Yen	13,208 Million Yen
Out of which, JBIC Yen Loan	1,450 Million Yen	1,440 Million Yen
(Total)		
Foreign Currency	5,624 Million Yen	3,995 Million Yen ^{Note)}
Local Currency (Local Currency in Won)	19,616 Million Yen (107,885 Million Won)	25,609 Million Yen (159,114 Million Won)
Total	25,240 Million Yen	29,604 Million Yen
Out of which, JBIC Yen Loan	5,624 Million Yen	3,886 Million Yen
Exchange Rate	1 Won = 0.18 Yen (1987)	1 Won = 0.17 Yen (Average of 1987 ~ 1995)

Source: JBIC and respective university hospitals

Note: The amount is the summation of the foreign currency portions reported by respective hospitals, which is different from the amount recorded at JBIC. The difference may be due to differences in exchange rates used for the calculation but the reason is not known.