

BASIC DESIGN STUDY REPORT
ON
THE PROJECT
FOR
THE EXTENSION OF JAPANESE LANGUAGE CENTRE
AT
THE UNIVERSITY OF MALAYA
IN
MALAYSIA

APRIL 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

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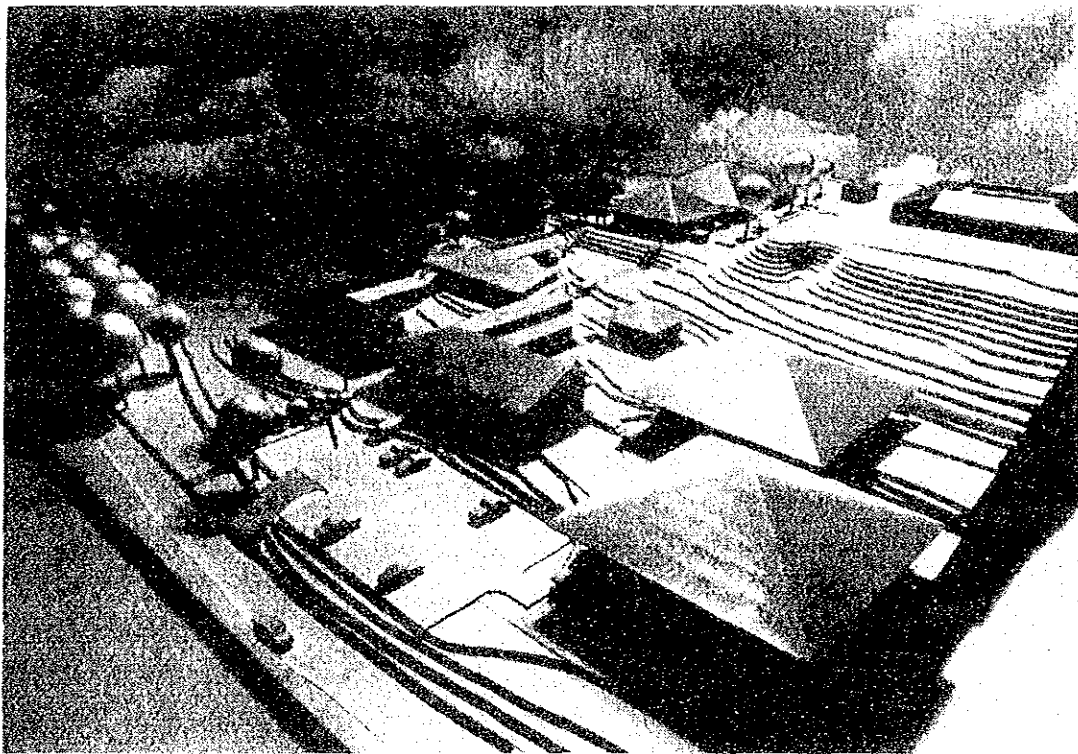
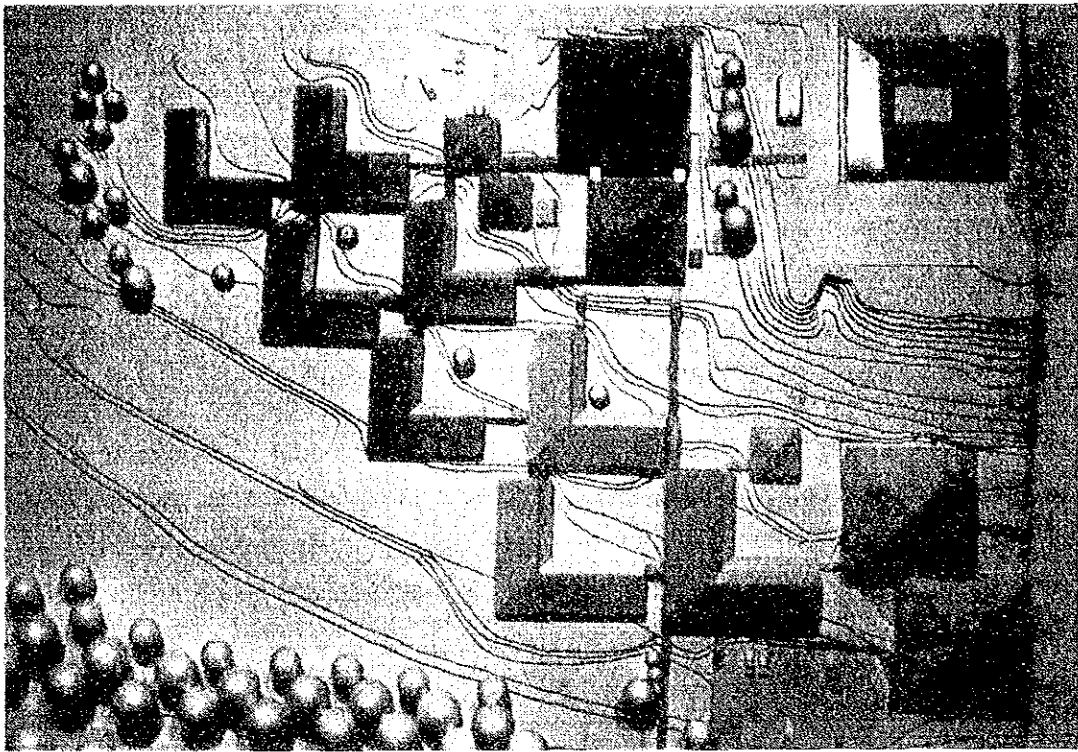
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PREFACE

In response to the request of the Government of Malaysia, the Government of Japan has decided to conduct a basic design study on the Project for the extension of Japanese Language Centre at the University of Malaya, and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Malaysia a study team headed by Mr. Takeo Yoshikawa, Assistant Director of Second Southeast Division, Asian Affairs Bureau, Ministry of Foreign Affairs, from January 28 to February 11, 1988.

The team had discussions on the Project with the officials concerned of the Government of Malaysia and conducted a field survey at the University of Malaya. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of Malaysia for their close cooperation extended to the team.

April, 1988



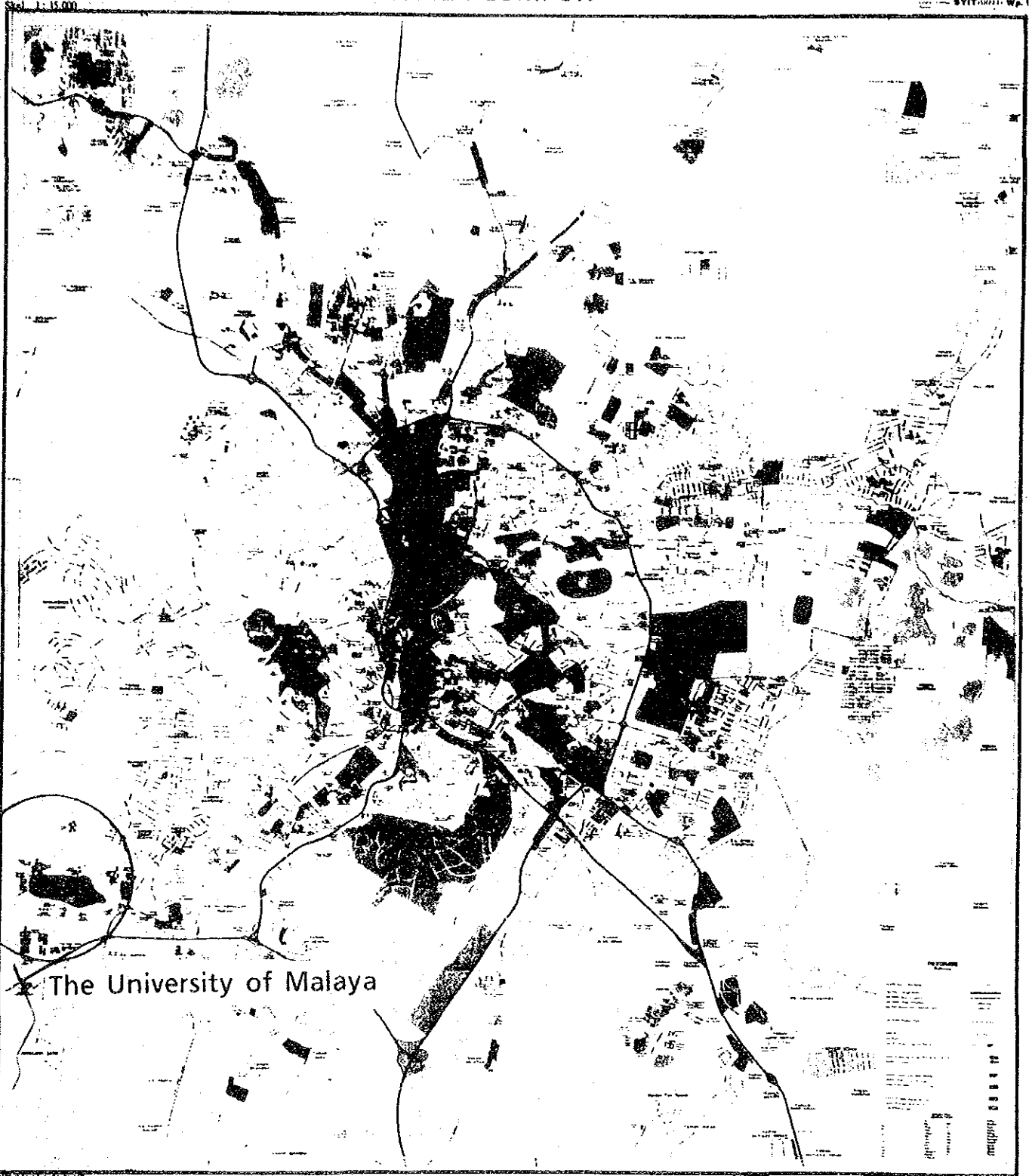
Kensuke Yanagiya

President

Japan International Cooperation
Agency

KUALA LUMPUR

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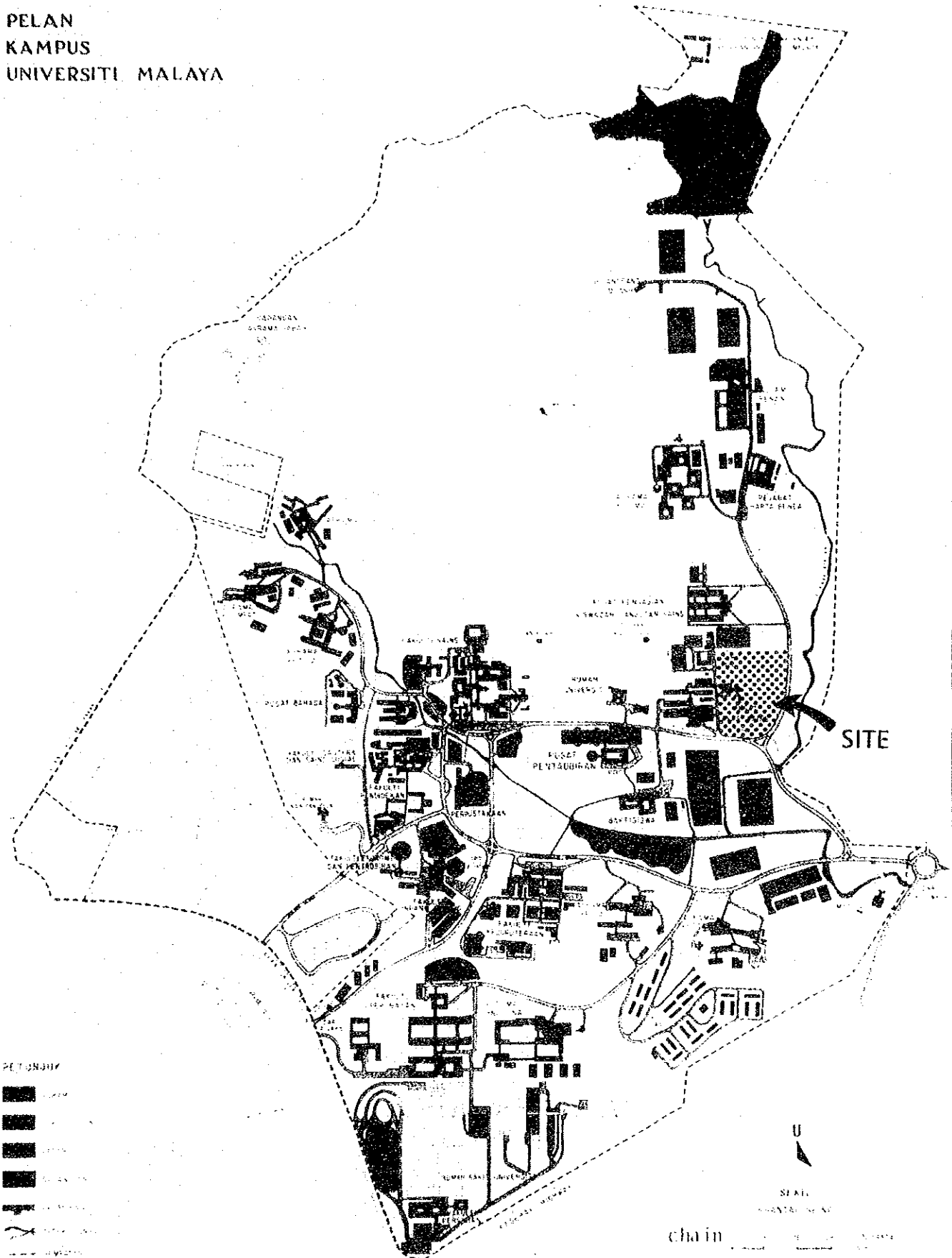
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The University of Malaya

PELAN
KAMPUS
UNIVERSITI MALAYA



SUMMARY

Japanese language education at the University of Malaya has been carried out since 1982 for Malaysian students preparing to study at Japanese universities in line with the "Look East" policy of the Government of Malaysia.

A grant-aid program was executed by the Government of Japan for constructing the facilities necessary for providing Japanese language education at the Japanese Language Centre (to be called JLC hereafter) of the University of Malaya, and the facilities were completed in 1984.

A two-year course is offered at JLC, mainly for education in the Japanese language supplemented by other subjects including physics, chemistry, mathematics, English language and world history etc., for students who intend to study at Japanese universities. The Government of Japan has dispatched 17 lecturers, through the Ministry of Education and Japan Foundation, to assist the implementation of the teaching program. A total of 227 graduates of JLC have been admitted to Japanese universities up to 1987 and, as is evidenced by this figure, JLC is making favorable progress since its opening as the central facility in Malaysia for providing training in the Japanese language. The number of students attending JLC has increased considerably over the years, and the current number of students is 200. Since the facilities of the JLC were originally designed to accommodate a total of 100 students (50 students per grade), the shortage of classrooms is causing serious problems. The shortage is tentatively being managed by using other facilities of the University of Malaya.

Under these circumstances, the Government of Malaysia forwarded to the Government of Japan a request for Grant Aid cooperation for extending the facilities of JLC for the purpose of enhancing the effects of the preparatory education for studying in Japan.

In response to this request, the Japan International Cooperation Agency (JICA) dispatched the Contact Team for the Project headed by Mr. Minoru Ekuni, an official of the Grant Aid Division, Economic Cooperation Bureau, the Ministry of Foreign Affairs, for the period of October 26 through 30,

1987, for the purpose of confirming the details of the request and examining the adequacy of the Project and the possibility for cooperation.

Based on the result of the above examination, JICA sent a basic design study team headed by Mr. Takeo Yoshikawa, Assistant Director of Second Southeast Division, Asian Affairs Bureau, Ministry of Foreign Affairs to Malaysia from January 22 through February 11, 1988 for the purpose of clarifying the contents of the Project in detail, confirming the executing agency and schedule for implementation of the Project as well as the agency and system for its operation and maintenance.

The Basic Design Study Team held discussions with officials of the Economic Planning Unit, the Prime Minister's Department, Government of Malaysia as well as the administrators of the University of Malaya to confirm the contents of the request and made the following investigations in order to examine the appropriate scale of the facilities and equipment required for the Project.

- (1) Examination on the background and contents of the request
- (2) Study on the curriculum of JLC and the way the existing facilities are used.
- (3) Surveys on the facilities related to JLC in the University of Malaya
- (4) Confirmation on the system of implementation of the Project, system of operations and maintenance and budgetary measures to be taken by the Government of Malaysia in relation to the costs to be covered by the Malaysian side
- (5) Surveys at the site for the extension and of the present circumstances of construction skills, techniques, etc. in Malaysia

As a result of the above studies, the objectives of the Project were confirmed and the details of the facilities required for implementing the Project were determined as follows.

Objectives: To extend the existing facilities of JLC, formerly planned for 100 students, to accomodate 200 students in

order to enhance the effects of the preparatory education offered at JLC for studying in Japan.

Contents: (1) Facilities to be Extended

	No. of Rooms	Capacity	Floor Area
1) Tutorial Room	3,	40 persons/room	192 m ²
2) Language Laboratory	2,	for 30 persons and 25 persons (including Editing Room)	123 m ²
3) Lecturer's Office	3,	7 lecturers/room	190 m ²
4) Chemistry & Biology Laboratory	1,	75 persons	306 m ²
5) Physics Laboratory	1,	75 persons	306 m ²
6) Audio/Visual Room	1,	40 persons	69 m ²
7) Printing Room	1,		27 m ²
8) Toilet	2,		76 m ²
9) Corridor			841 m ²

(2) Accessory Facilities

Parking Lot

(3) Rehabilitation and Conversion of Existing Facilities

Tutorial Room,
Meeting Room,
Study Room etc.

(4) Educational Equipment

- 1) Audio-visual equipment
- 2) Science laboratory equipment
- 3) Other equipment

The facilities to be newly provided by the Project will be located adjacent to the existing facilities.

The site forms a moderate slope and faces paved roads on three sides except the northern side.

It has been confirmed that the Malaysian side will backfill and prepare the part of the site where the extended facilities will be constructed.

The University of Malaya will continue to operate and maintain the extended facilities of the Project as they are now doing for the existing facilities. It has already been confirmed that the Government of Malaysia will take necessary budgetary measures for the costs to be covered by the Malaysian side.

By implementation of the Project, sufficient facilities and equipment for the 200 students studying at JLC will be provided and it will be possible to carry out adequate and efficient training in the Japanese language and other general subjects. As a result, study by Malaysian students in Japanese universities is expected to be more efficient and fruitful.

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- III Itinerary of the Study Team
- IV List of Persons Interviewed
- V Curriculum of JLC

CHAPTER 1 INTRODUCTION

CHAPTER 1: INTRODUCTION

1-1 Background of the Basic Design Study

The Japanese Language Centre (JLC) of the University of Malaya was constructed in 1984 as a Japanese grant aid project and has played a vital role as the central facility in Malaysia for preparatory education for Malaysian students who will be sent to study at Japanese universities in line with the "Look East Policy" advocated by Prime Minister Mahathir of Malaysia.

At the time of the former basic design study conducted in 1982, the University of Malaya had planned to provide a preparatory 2-year course with 100 students per grade for studying at Japanese universities at JLC. However, it was subsequently decided that the capacity of the course be scaled down to 100 students (50 students per grade) because of insufficient preparation on the Japanese side for receiving many students from Malaysia and also because of the capacity of the teaching program and organization on the Malaysian side. Consequently, the former basic design was carried out with the target of providing facilities to accommodate 100 students while taking into consideration the additional space required for future expansion.

Since then, the Japanese Language Centre has been operated smoothly and the number of students per grade has increased to 100 today, a little more than four years after its opening. However, the increased number of students is causing such a serious shortage in facilities such as tutorial rooms that some lectures have to be given in classrooms of the University of Malaya that are some distance away from the facilities of the Japanese Language Centre.

Under these circumstances, the Government of Malaysia planned a project for expansion of the Japanese Language Centre including the required facilities and equipment for training 200 students attending the preparatory course for studying in Japan, and has requested grant-aid cooperation of the Government of Japan.

1-2 Basic Design Study

In response to the request by the Government of Malaysia, the Japan International Cooperation Agency (JICA) dispatched the Preliminary Study Team for the Project headed by Mr. Minoru Ekuni, an official of the Grant Aid Division, Economic Cooperation Bureau, the Ministry of Foreign Affairs, for the period of October 26 through 30, 1987, for the purpose of studying the circumstances of Japanese language education in Malaysia, confirming the contents of the request and examining the adequacy of the Project and the possibility for cooperation.

Based on the results of the above study, the Government of Japan decided to conduct basic design studies and JICA dispatched a Basic Design Study Team headed by Mr. Takeo Yoshikawa, Assistant Director of Second Southeast Division, Asian Affairs Bureau, the Ministry of Foreign Affairs, to Malaysia from January 22 through February 11, 1988 for the purpose of clarifying the request, confirming the executing agency and schedule for implementation of the Project as well as the agency for operation and maintenance, examining the scale of the required facilities and equipment for the Project.

The Basic Design Study Team held discussions with the Economic Planning Unit, Prime Minister's Department, the administrators of the University of Malaya and Japanese language lecturers to confirm the contents of the request. The basic items agreed upon are outlined in the Minutes of Discussions dated February 5, 1988.

The Basic Design Study Team worked out the optimum basic design for implementing the Project, with reference to the results of the consultations with related parties in Malaysia and documents used for construction of the existing facilities. The results have been compiled in this Report.

The Minutes of Discussions, Member List of the Study Team, Itinerary of the Study Team and List of Persons Interviewed are attached at the end of this Report.

CHAPTER 2 PROJECT BACKGROUND AND EXTENSION PLAN

CHAPTER 2: PROJECT BACKGROUND AND EXTENSION PLAN

2-1 Current Circumstances of Preparatory Education for Study in Japan

2-1-1 Preparatory Education at Universities in Malaysia

The school education system in Malaysia consists of 6 years of primary school, 5 years of secondary school and 2 years of preparatory education after which the students enter university (Refer to Fig. 2-2). The organization which provides the preparatory education (Centre for Foundation Studies in Science: Pusat Asasi Sains in Malaysian), which is managed by the University, currently counts 1,259 enrollees including 200 students attending the preparatory course for study in Japan. Language classes as well as studies on general subjects including natural and social sciences are provided as preparatory education. In 1982, a special course focusing on lessons in Japanese language was opened at the University of Malaya and the National University of Malaysia (UKM). In 1984, the Japanese Language Centre (JLC) was constructed as a Japanese Grant-aid Project as facilities to be exclusively used for this course. The preparatory course at the National University of Malaysia was eventually merged into the course offered at JLC.

Since then, JLC has been playing a vital role as the sole organization in Malaysia that provides preparatory education for studying in Japan. Each year 100 students, who have graduated from secondary school, enter JLC. After attending a two year preparatory course and passing the examination by the Ministry of Education, Japan, they are admitted to enter the 1st grade of Japanese universities (Refer to Fig. 2-1).

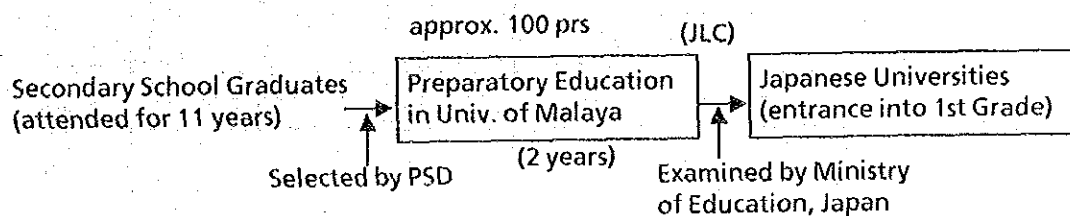
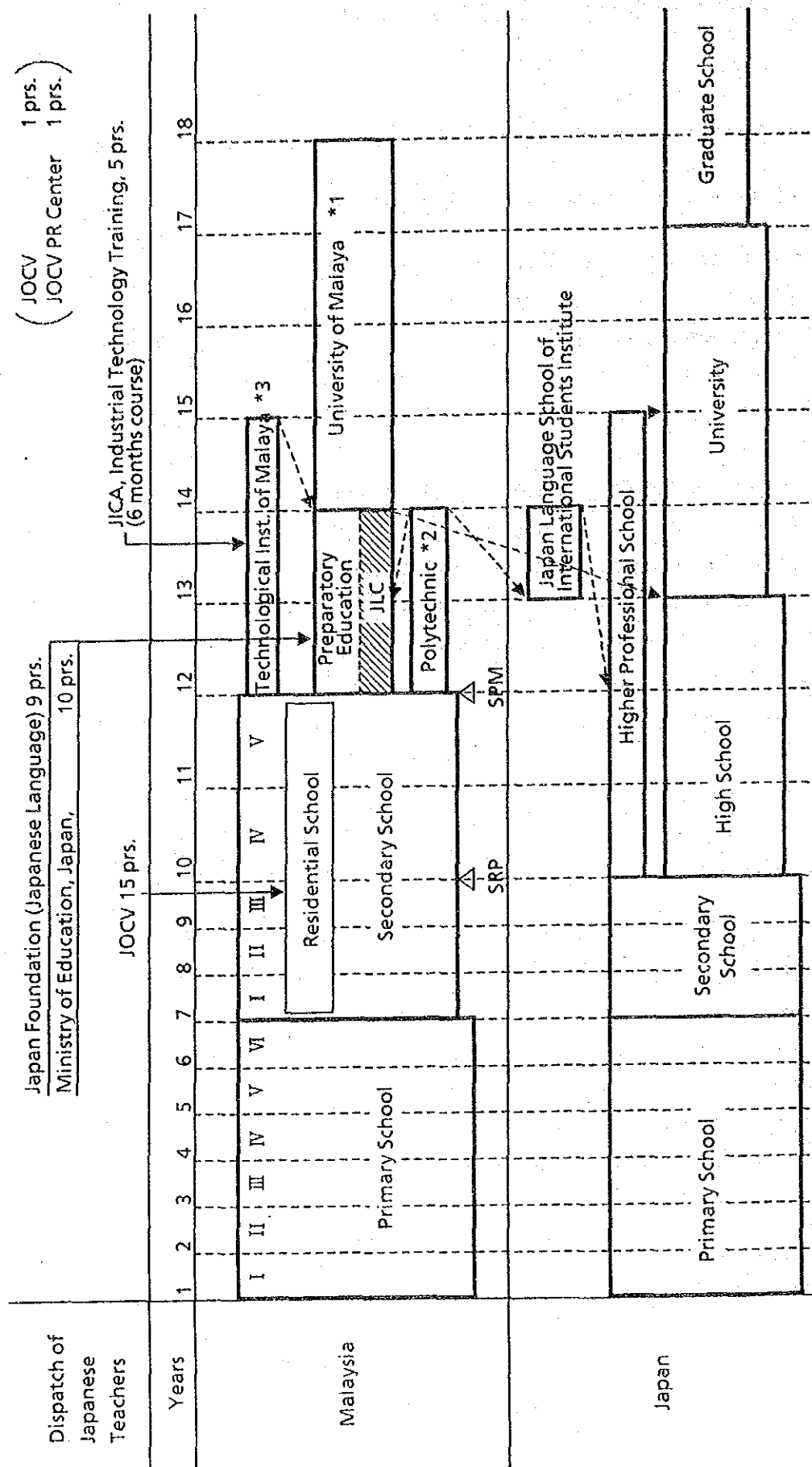


Fig. 2-1 Preparatory Course for Studying at Japanese Universities



*1: Bachelor Course *2: Certificate Course *3: Diploma Course SRP: Lower Certificate of Education SPM: Malaysian Examination Certificate

Fig. 2-2 Education System in Malaysia and Japan

2-1-2 Preparatory Education for Study in Japan undertaken at JLC

The 2-year course offered at JLC is divided into 4 Semesters. The 1st grade consists of Semester 1 (from May) and Semester 2 (from November) and the 2nd grade consists of Semester 3 (from May) and Semester 4 (from November). A special curriculum is drawn up for Semester 4 to prepare for the qualification examination for attending Japanese universities.

The students attend either the Science/Engineering Course or Social Science/Business Administration Course and study the following subjects throughout the four semesters:

- Science/Engineering Course : physics or biology, chemistry, mathematics, English language, Japanese language, Japanese affairs
- Social Science/Business Administration Course : social science, mathematics, world history, English language, Japanese language, Japanese affairs

Students passing the qualification test after finishing the 2-year preparatory course will be accepted as freshmen at Japanese universities.

In 1984, two years after the opening of the special preparatory education course, a total of 39 Malaysian students were admitted to Japanese universities.

The number of students studying in Japan is increasing steadily thereafter, recording 79 in 1987.

The accumulated total of Malaysian students who attended Japanese universities has reached 227 (refer to Table 2-1).

Table 2-1 Number of Students Admitted to Japanese Universities

Year	admittance	graduate	admittance to Japanese Univ.
1982	43		
1983	55	42	
1984	92	51	39 (10)
1985	97	72	45 (10)
1986	100	86	64 (10)
1987	100	83	79 (10)
計	—	—	227 (40)

Note: The figures given in parenthesis are the number of students awarded the scholarship of the Government of Japan.

Approximately 70% of those students attend engineering courses in Japan and the remaining 30% major in economy or business administration (Refer to Table 2-2). Ten students out of the graduates of the preparatory course are annually awarded the scholarship of the Government of Japan. The first group of students sent to study in Japan will graduate from Japanese universities in March 1988, and they are expected to make major contributions to the progress of various industries after their return to Malaysia.

Table 2-2 Lists of Courses Taken by Students from Preparatory Programme for Entrance to Japanese Universities

Field of Studies/Courses	1984	1985	1986	1987
Computer Science			5	4
Electro-Communication	4	2		
Engineering	19	28	41	47
Fisheries	1			
Mining		3		
Science	2	1		1
Management Engineering	1			2
Architecture				2
Total	27	34	46	56
Business Administration	2	2	12	7
Business/Commerce	2			
Economic	4	5		11
Commerce	4	4	6	5
Total	12	11	18	23
Grand Total	27(M) 12(F)39	26(M) 19(F)45	36(M) 28(F)64	46(M) 33(F)79

Key: (M) = Male
(F) = Female

2-1-3 Organization and Budget of JLC

JLC is operated under the control of the University of Malaya as one of the organizations for providing preparatory education for the university.

The following is the organization chart of the University of Malaya (Fig. 2-3).

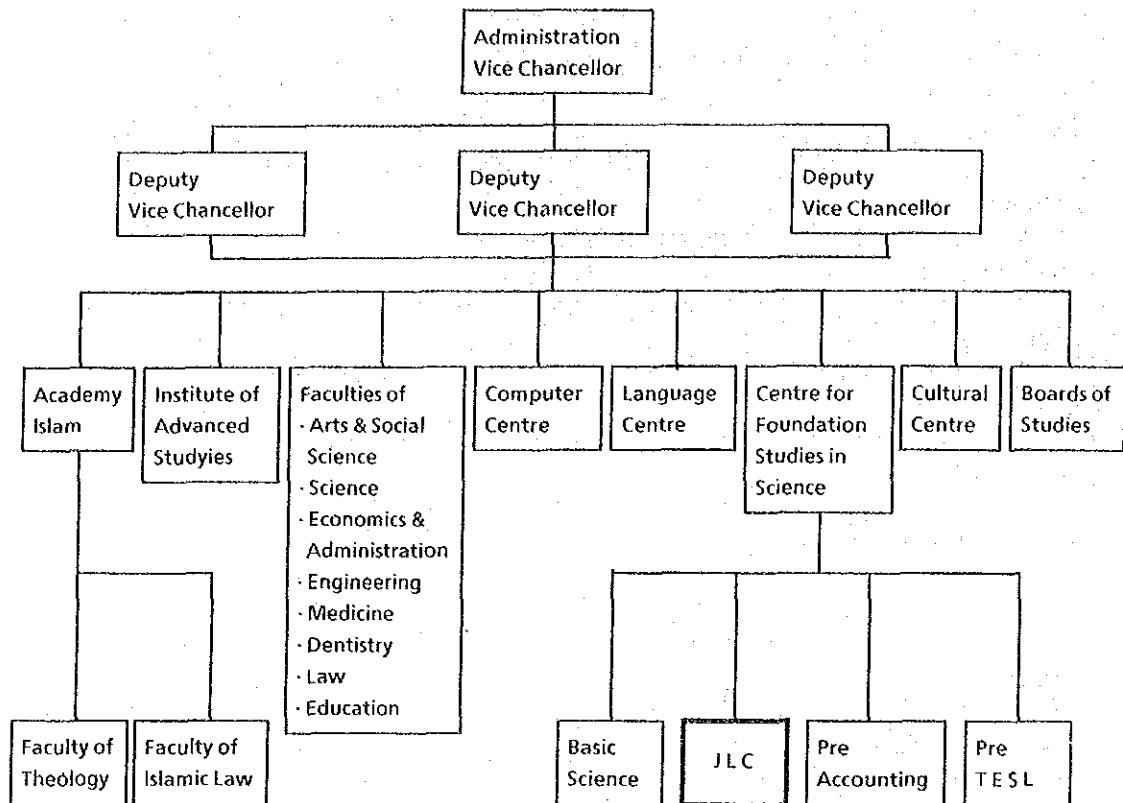


Fig. 2-3 Organization Chart of the University of Malaya

The Director of the Centre for Foundation Studies in Science, assisted by a Deputy Director, is responsible for management and operations of JLC.

The administration staff of JLC consists of 4 persons (one assistant registrar, one typist, one technician and one attendant).

The annual operation budget for JLC has been raised from 607,703 Malaysian dollars in 1984 to 686,112 Malaysian dollars in 1987, recording an increase of approximately 13% in four years. (Refer to Table 2-3)

Table 2-3 Summary of Expenditure for the Japanese Language Centre
for the Period 1984 - 1987

<u>SALARIES AND OTHER ALLOWANCES</u>	1984	1985	1986	1987
	\$	\$	\$	\$
Salaries	289,677	308,509	317,731	344,278
Employee's Provident Fund	26,063	27,000	27,095	28,449
Pension Fund	2,000	2,186	2,726	3,266
<u>Allowances</u>				
Overseas Allowance (Japanese Language Teachers)	67,765	69,148	70,560	72,000
Housing Allowance (Japanese Language Teachers)	98,155	92,407	86,382	80,073
Entertainment Allowance	9,199	9,387	9,578	9,774
Service Allowance	26,996	27,547	28,109	28,683
Divisional Headship Allowance (5)	2,823	2,881	2,940	3,000
Part-time Teaching (Pengajaran Sambilan)	11,375	11,375	8,775	8,775
	534,053	550,440	553,897	578,299
<u>DEPARTMENTAL EXPENDITURE</u>				
Travelling and Transportation	5,416	5,617	5,842	2,375
Communication	107	229	326	232
Printing Services	689	505	976	616
Supplies and Materials	18,093	23,778	23,261	23,686
Other Services	1,565	2,480	2,289	2,383
Furniture and Equipment, and Animal Husbandry	1,591	1,628	1,660	1,721
	27,461	34,237	34,353	31,013
<u>UTILITIES</u>				
Electricity	42,000	56,398	63,168	70,000
Water	4,189	3,223	5,196	6,800
	46,189	59,621	70,361	76,800
Total Expenditure for Establishment of the Japanese Language Center	<u>\$607,703</u>	<u>\$644,298</u>	<u>\$658,614</u>	<u>\$686,112</u>

2-2 Current Circumstances of JLC

2-2-1 Increase in the Number of Students

The two courses of Science/Engineering and Social Sciences/Business Administration are offered at JLC and the number of students admitted to the two courses is 75 in the former course and 25 in the latter. The number of enrollees has jumped from 43 at the opening of the preparatory course to 100 in 1987 and the shortage in facilities and education equipment is causing serious concern. (Refer to Table 2-4)

Table 2-4 Admission Figure of the Preparatory Course for Entrance to Japanese Universities from 1982/83 to 1987/88

Academic Session	Course		Total
	Science/Engineering	Social Science/Business Administration	
1982/83	20 + (11 from UKM)	12 (from UKM)	43
1983/84	35 + (9 from UKM)	11 (from UKM)	55
1984/85	70	22	92
1985/86	74	23	97
1986/87	75	25	100
1987/88	75	25	100

2-2-2 Current Circumstances of the Existing Facilities of JLC

(1) Existing Facilities of JLC

The following are the facilities currently provided for JLC.

(Classrooms)		(Capacity)
Lecture Theatre	1	300 persons
	2	150
Tutorial Room	1	20
	2	20
	3	20
	4	20
	5	20
	6	20
LL Room		25

(Lecturers' Rooms)

Lecturer's Office	1	8
Lecturer's Office	2	10
Lecturer's Office	3	9

(Others)

Meeting Room
Wordprocessor Room
Administration Office
Deputy Director's Room
Coordinator's Office
Counseling Room
Common Room
Toilet

(2) Current Status of Utilization of the Existing Facilities

The status of utilization of the existing facilities was confirmed based on the curriculum for JLC and Pusat Asasi Sains obtained from the University of Malaya (Refer to Table 2-5).

1) Utilization of Other Facilities

Some of the classes for mathematics, physics, chemistry and Japanese affairs and English language for the 1st grade (1st and 2nd semester) as well as the Japanese language and English language for the 2nd grade (3rd and 4th semester) are being held in facilities other than the existing ones of JLC. Moreover the following four subjects will be newly added to the curriculum: business administration, business/commerce, economy, and commerce. The Malaysian parties' wish to hold these classes within the facilities of JLC was one of the reasons they are requesting extension of the facilities.

2) Class Hours

Classes are held from 8:00 a.m. to 5:00~7:00 p.m. for a total of 8~10 periods per day. However, the Malaysian parties believe it is undesirable to teach the 5th, 9th and 10th periods considering that the students cannot concentrate on study in these periods. The desire to decrease the number of classes per day is another reason they are requesting extension of the facilities. Incidentally, the two Lecture Theatres with a seating capacity of 300 and 150, respectively, are also being used as classrooms.

3) Utilization Ratio of Classrooms

For the hours excluding the above periods (in other words, the periods from the 1st to 7th from Monday through Thursday and the 1st to 4th for Friday and Saturday), the utilization ratio (total classes per week $\div$ no. of classrooms $\times$ periods per week) of the classrooms (6 Tutorial Rooms, 1 Language Laboratory, 2 Lecture theatres and 1 classroom of the other courses) is quite high at approximately 74%. Supposing that Lecture Theatres 1 and a classroom of the other courses are not utilized, the utilization ratio jumps to 92%. It is impossible to draw up a reasonable curriculum

under such an overcrowded time schedule, considering the rotation of the lecturers, etc.

4) Language Laboratory

There is only one Language Laboratory in the existing facilities and this is causing problems in drawing up the curriculum and, consequently, making it difficult to promote effective training. The existing facilities also lack a suitable room for preparing teaching materials for Japanese language education.

5) Lecturer's Offices

The existing Lecturer's Offices are too small for the number of lecturers they are accommodating, and some of the lecturer's desks have been replaced with more compact ones as a tentative solution. Moreover, the offices do not have sufficient storage space such as bookshelves for the lecturers to store the considerably large amount of books and materials (encyclopedias, reference books and picture books) they must have at hand for teaching the Japanese language.

6) Preparation of Teaching Materials

The existing Lecturer's Offices are too small to allow lecturers sufficient room to prepare their teaching materials.

7) Existing Equipment

- Because the equipment of the existing Language Laboratory are the products of a Japanese manufacturer that has its own factory in Malaysia, they are maintained in good condition and are used effectively.
- Two Japanese language wordprocessors are installed in the Wordprocessor Room and are used mainly by Japanese teachers. However the two machines are not sufficient for all the teachers who constantly use them to prepare their teaching materials.

Table 2-5: Utilization of the Existing Classrooms

Classroom		L-1		L-2		T-1		T-2		T-3		T-4		T-5		T-6		LL		O	
Day of the week	Period	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade	1st grade	2nd grade
Monday	1		C*		C	JL		JL		JL				JL		SS	JL				
	2		C*		C	JL		JL		JL				JL		SS	JL				
	3		EL		EL	C		C		SS				C		EL	EL			C	
	4		EL		EL					SS						EL	EL			C	
	5																				
	6		M		M											WH				C*	
	7					JL		JL						JL		JL	JL			C*	
	8					JL		JL						JL		JL	JL			C*	
	9									WH											
	10									WH											
Tuesday	1		P*		P	JL		JL		JL				JL		WH	JL				
	2		P*		P	JL		JL		JL				JL		WH	JL				
	3					JL		JL		M				JL		JL	JL			MMM	
	4					JL		JL		SS				JL		JL	JL			M	
	5									SS											
	6		C*		C	JL		JL		JL				JL		M	JL				
	7		M		M	JL		JL		JL				JL		SS	JL				
	8		M		M											SS					
	9									WH											
	10									WH											
Wednesday	1	EL		EL		JL		JL		EL				JL			JL	EL	JL		
	2	EL		EL		JL		JL		EL				JL			JL	EL	JL		
	3		M		M					M						SS			M		
	4		M		M					SS						SS			P		
	5									SS											
	6					JL		JL						JL		JL	JL			P*	
	7					JL		JL						JL		JL	JL			P*	
	8		P*		P											M				P*	
	9									WH											
	10									WH											
Thursday	1		JA			JL		JL		JL				JL			JL				
	2				EL	JL		JL		JL				JL		EL	JL			EL, EL	
	3		M		M	P				SS		P	P			M				M	
	4		M		M					M						M					
	5					EL		EL		EL				EL							
	6		P*		P	JL		JL		JL				JL		SS	JL				
	7		C*		C	JL		JL		JL				JL		WH	JL				
	8		C*		C											WH				JA	
	9									WH											
	10									WH											
Friday	1		C*		C	JL		JL		JL				JL		WH	JL				
	2		C*		C	JL		JL		JL				JL		WH	JL				
	3					JL		JL		M				JL		JL	JL			M	
	4					JL		JL		SS				JL		JL	JL			C	
Saturday	1		P*		P	JL		JL		JL				JL		M	JL				
	2		P*		P	JL		JL		JL				JL		M	JL				
	3		P*		P					M						M				P	
	4					JL		JL		JL				JL		JL	JL			M	
No. of classes		2	24	2	24	17	12	16	10	38	2	1		17	12	34	14	14	24	4	
Utilization ratio of classroom		72%		72%		80%		72%		111%				80%		94%		78%			

Notes:

1. Tutorial Room - 4, which is a Video Room, has only chairs instead of desks.
2. The "*" mark for Physics and Chemistry indicates experiment sessions.
3. The total weekly classes for the 1st grade is 131.
4. The total weekly classes for the 2nd grade is 136. Consequently, the total classes per week is 267.
5. There are four periods in the morning and three periods in the afternoon, for a total of seven periods per day. (Only four periods on Friday and Saturday).
6. The shaded area indicate the hours unsuitable for holding classes.
7. The abbreviations stand for the following:

L-1 : Lecture Theatre - 1	JL : Japanese Language
L-2 : Lecture Theatre - 2	SS : Social Science
T-1 : Tutorial Room - 1	EL : English Language
T-2 : Tutorial Room - 2	WH : World History
T-3 : Tutorial Room - 3	M : Mathematics
T-4 : Tutorial Room - 4	JA : Japanese Affairs
T-5 : Tutorial Room - 5	P : Physics
T-6 : Tutorial Room - 6	C : Chemistry
LL : LL Room	
O : Other Facilities	

- There are two photo copying machines, one in the Administration Office and the other in the Lecturer's Office. As JLC has no printing machine, the copying machines are in heavy use.
- One manual typewriter is in the Administration Office and is used for general office work.

(3) Utilization of Science Laboratories

For the three natural science subjects of physics, chemistry and biology, only the lectures are currently held within the JLC facilities and experiments are conducted at other facilities (Asasi Sains) of the University of Malaya.

Natural science classes are being taught by Malaysian lecturers in the 1st grade (Semester 1 and 2) and by Japanese lecturers in the 2nd grade (Semester 3 and 4). It has been confirmed that this method will remain unchanged after the extension of the facilities.

The problem in this case is the difference in the teaching method of the Malaysian lecturers (1st grade) and the Japanese lecturers (2nd grade).

- 1) In the 1st grade taught by Malaysian lecturers, lessons are given to 75 students per class in a Science Laboratory by one lecturer and three demonstrators. Lectures for natural science subjects are given in different classrooms at different time zones. This is the same method that is adopted for 550 students at Asasi Sains. According to the Malaysian lecturers, it is impossible to divide the students into smaller groups.

One experiment per student is the basis of chemistry experiments, and one experiment per one or two students is the basis of physics and biology experiments so an adequate floor area and quantity of equipment should be secured to correspond to these standards.

- 2) In the 2nd grade taught by Japanese lecturers, Japanese methods are adopted for providing lessons to prepare for the qualification test of the Ministry of Education of Japan. A class of 75 students is divided into two and experiments and lecturers are concurrently given by two lecturers. Groups of four students are formed for experiments.

As explained above, the discrepancy between the teaching methods adopted by the 1st and 2nd grade calls for the establishment of adequate floor area and equipment for the Science Laboratories to suit each method.

2-2-3 Lecturers

The total number of lecturers at JLC currently counts 27: 10 lecturers for Japanese lessons (9 Japanese and 1 Malaysian) and 17 lecturers for other subjects (8 Japanese and 9 Malaysian). 8 lecturers for general subjects will be transferred to JLC in accordance with the extension of the facilities, increasing the number of lecturers to 35.

Lecturers from Japan to teach the Japanese language and other subjects are dispatched from the Japan Foundation and the Ministry of Education.

2-2-4 Contents of the Request from the Malaysian Side

The following are the specific contents of the request forwarded from the Malaysian side in order to improve the facilities and equipment of the JLC.

(1) Facilities

- 1) 1 Lecture Theater
- 2) 5 Tutorial Rooms
- 3) 1 Language Laboratory
- 4) 2 Lecturer's Offices
- 5) 3 Science Laboratories (Physics, Chemistry, Biology)
affiliated each with a Preparatory Room
- 6) 1 Study Room affiliated with Small Library
- 7) 1 Audio Visual Room
- 8) 1 Printing Room

(2) Educational Equipment

- 1) Equipment for Lecture Theatre
- 2) Equipment for Tutorial Rooms
- 3) Equipment for Language Laboratory
- 4) Equipment for Science Laboratories
- 5) Other equipment

CHAPTER 3 OUTLINE OF THE PROJECT

CHAPTER 3: OUTLINE OF THE PROJECT

3-1 Objectives of the Project

The Japanese Language Centre (JLC) of the University of Malaya was established in 1984 for the purpose of providing a 2-year Preparatory Course (50 trainees per grade) for students planning to study in Japan. The Centre has been operated smoothly since then and the number of students taking the course has jumped to 100 per grade today, a little more than four years since the opening of the course. The shortage of classrooms and related facilities has become so serious, however, that some of the classes have to be held in facilities of the University that are some distance away from JLC. Even within the facilities of JLC, the two lecture theatres with seating capacity of 300 and 150 have to be used for lectures. To acquire in two years a sufficient amount of knowledge of the Japanese language to understand lectures at Japanese universities is a difficult goal to achieve. Moreover, lectures on general subjects other than the Japanese language are concurrently provided at JLC. Consequently, the curriculum currently adopted at JLC is considerably overcrowded.

For effective implementation of this preparatory education course, it is vital for students taking the course to acquire sufficient command of the Japanese language, and revision of the ongoing curriculum is one of the solutions being considered for improving the functions of the facilities of JLC. However, taking the current overcrowded situation of the facilities into account, solving the problem of shortage of classrooms seems to be of primary concern.

Regarding the science laboratories planned to be provided in the Project, although past records on the number of Malaysian students sent to study at Japanese universities show that approximately 70% of the students major in technology or engineering in Japan, the students of JLC currently have to share science laboratories with students of other courses. For the above reason, science laboratories to be exclusively used by the students of JLC are

indispensable in the future for carrying out effective education. This will also lead to a more efficient implementation of the teaching programs.

3-2 Outline of the Extension of the Facilities

3-2-1 Outline of Education at JLC

The educational activities carried out at JLC are summarized as follows;

(1) Number of Students (Capacity)

The breakdown by course is as shown below:

Table 3-1 Number of Students

(persons)

	Course		Sub-Total (persons)
	Science/ Engineering	Social Science/ Business Administration	
1st Grade	75	25	100
2nd Grade	75	25	100
Total	150	50	200

(2) Number of Lecturers: 35

- 10 lecturers for Japanese language(9 Japanese, 1 Malaysian)
- 25 lecturers for general subjects(8 Japanese, 17 Malaysian)

The number of Malaysian lecturers for teaching general subjects is to be increased by 8 from the current 9, for a total of 17.

(3) Curriculum

Four basic curriculum are provided concurrently at JLC: Science/Engineering Course Semester I, Semester III Social Sciences/Business Administration Course Semester I and Semester III.

The Malaysian side is currently preparing a new curriculum, which is supposed to be adopted for the semesters starting May 1988, and which revises the ongoing one, specifically by

introducing the four new subjects of business administration, business/commerce, economy and commerce.

(4) Subjects and Number of Classes per Week

The table below shows the number of classes a week for each of the subjects being taught at JLC until February 1988.

Table 3-2 Number of Classes per Week

	1st Grade		2nd Grade		Total	Remarks *
	Science/ Engineer- ing Course	Social Sciences Course	Science/ Engineer- ing Course	Social Sciences Course		
Physics (lecture) (experiments)	6 3		7 7		13 10	(3)
Chemistry (lecture) (experiments)	6 3		7 7		13 10	(3)
Mathematics	9	5	14	7	35	(35)
English Language (classroom) (LL)	9	3	7 2	3	22 2	(22)
Japanese Language (classroom) (LL)	42 14	14	36 12	12	104 26	(104)
Japanese Affairs	(1)	(1)	(1)	(1)	2	(**)
Social Sciences		8		7	15	(15)
World History		8		7	15	(15)
Total	(93)	(39)	(100)	(37)	267	

* Figures in parentheses are the number of classes that are given in tutorial rooms, and total 197 classes per week.

** A total of two classes per week are being allocated for Japanese Affairs, one class for all 1st-grade students and one class for all 2nd-grade students.

(5) Other Activities

In addition to regular classes, the following events take place at JLC.

- seminars
- film sessions
- visits to Japanese homes
- discussions with Japanese students studying in Malaysia
- speech contests
- compilation of dictionaries (Malaysian-English-Japanese)

3-2-2 Expansion of the Facilities

(1) Tutorial Rooms

The former basic design had set up the capacity of 100 students for JLC in 1982, but the number of students attending JLC has increased to the current 200. The shortage of classrooms is tentatively compensated for by using tutorial rooms of facilities other than those of JLC, but provision of additional tutorial rooms is indispensable to the Project.

According to the curriculum obtained in Malaysia, the number of classes using tutorial room amounts to 197 per week. Four new subjects are to be added to the curriculum: business administration, business/commerce, economy and commerce. The new curriculum, which is supposed to be adopted for the semesters starting May 1988, is currently being drawn up by the Malaysian side. Supposing that each subject requires 1 class per week, the minimum required classes for the two grades is calculated as 8 classes. By adding this figure to the number of classes required for the current curriculum, the total of 205 classes ($197 + 8 = 205$) is obtained. On the other hand, the weekly periods per tutorial room are: 1 tutorial room $\times$ (7 periods $\times$ 4 days + 4 periods $\times$ 2 days) = 36 periods.

Applying the utilization ratio of 60%, which is the standard

ratio for schools of the same scale in Japan, the actual figure will be 21.6 periods ($36 \times 0.6 = 21.6$). Consequently, the number of tutorial rooms required is: $205 \text{ classes} \div 21.6 \text{ periods} = 9.49$ (approximately 10 tutorial rooms)

The results suggest that four tutorial rooms should be provided to complement the existing six.

It was therefore planned that three new Tutorial Rooms with seating capacity of 40 each should be furnished, and that the fourth be provided by refurnishing the existing Language Laboratory and Wordprocessor Room. Two of the three Tutorial Rooms for forty students would be separated from each other with a movable partition so that the seating capacity could easily be changed from 40 to 80.

(2) Language Laboratory (LL)

Considering the difficulty of mastering in only two years of preparatory education a sufficient knowledge of the Japanese language to understand lectures at Japanese universities, a language laboratory is an indispensable facility for JLC. The existing LL is being operated at a high utilization ratio and this is causing problems in drawing up the curriculum schedule. Moreover, the number of students has doubled from the initial 100 to the current 200 and provision of an additional LL is imperative for more effective language education.

In the extension plan, an additional LL for 30 students will be provided, to conform to the class scale of 25 to 30 students conceived in the new curriculum. The existing LL for 25 students will also be transferred and adjoined to the new one to facilitate the management of these laboratories. In other words, two new rooms for LL will be built, and one set of existing equipments (for 25 students) will be transferred from the existing LL.

(3) Lecturer's Office

A total of 27 lecturers now teach at JLC (10 for the Japanese language classes and 17 for general subjects). The number of

lecturers for general subjects is to be increased by eight to a total of 35 in accordance with the revision of the curriculum. Supposing that seven lecturers are to share one office, a total of five offices will be required. There are three existing lecturer's offices, but one of them is to be converted into a meeting room as explained later, so three new offices will be necessary in all. It was therefore planned that those three offices adjoin the existing lecturer's office block, at approximately the center of the facilities including the existing and the new.

(4) Science Laboratories

The ongoing curriculum includes lectures and experiments for natural sciences. Some lectures are given within the JLC facilities while experiments are carried out in other facilities of the University of Malaya. Science laboratories must be newly provided so that experiments can be conducted within the JLC facilities.

Corresponding to the subjects the students are expected to major in at Japanese universities, JLC is offering the two courses of science/engineering (75 students) and social science/business management (25 students). The 75 students attending the science/engineering course are to use the science laboratories. For the first grade, the entire 75 students will be taught together by one Malaysian lecturer and three demonstrators, but the students will be divided into two for the second grade and taught by Japanese lecturers. The required number of classes per week is 10 for physics and chemistry respectively. The number of students taking biology lessons is relatively small (0 - 5 students). Consequently, one physics laboratory, and one chemistry/biology laboratory where classes can be held for both chemistry and biology will be newly provided. The physics laboratory and chemistry/biology laboratory will be designed to accommodate 75 students each, so that it will be possible to hold classes according to the Malaysian method.

(5) Study Room

Because of the rotation of lecturers and the curriculum schedule, students may have vacant time between classes in a day. Under current circumstances, students have no room to spend their time between classes, and have to study in the entrance lobby or in the roofed open space located at the corners of each cluster. A study room with a small library will be provided by refurnishing the existing meeting room (27 m²).

(6) Meeting Room

The existing meeting room is too small to accommodate all the lecturers teaching at JLC, and a meeting room with sufficient capacity for the 35 lecturers is called for. The existing lecturer's office (54 m²) will be refurnished for this purpose.

(7) Audio/Visual Room

During the 2-year preparatory course for studying in Japan, students have to study a large number of subjects including Japanese language, Japanese affairs, natural sciences, etc. Provision of an audio/visual room is imperative for enhancing the efficiency of such studies. In view of the necessity for such facilities, an audio/visual room for 40 students will be provided in the Project.

(8) Printing Room

A vast amount of teaching materials and examination papers has to be printed for teaching the courses at JLC. The existing facilities of JLC have no printing machine, so a printing room equipped with a printing machine as well as a dry-type copy machine and wordprocessor will be provided adjoining the lecturer's office.

(9) Toilet

A toilet for students will be newly furnished to cope with the doubling of the number of students attending the course. Toilets for lecturers are also missing from the existing facilities, and a western-style lavatory for lecturers is in urgent demand, in particular.

(10) Parking Lot

There is not space for parking at the moment, so a parking lot shall be provided for lecturers and visitors and also to facilitate delivery of materials and equipment.

(11) Lecture Theatre

The existing facilities of JLC include one Lecture Theatre accommodating 300 persons and another which can hold 150 persons, both of which are being used for general classes. The request from the Malaysian side included construction of an additional lecture theatre for 150 persons for the purpose of training Malaysian lecturers for Japanese language and for implementation of short courses which include introduction to Japanese culture and way of life, for the general public. However, no specific programs have been drawn up to date either for training Japanese language lecturers or for the short course in Japanese culture. Moreover, the two existing Lecture Theatres will be able to be used for various different purposes in the future, because some classes currently held in these theaters will be carried out in the new tutorial rooms to be provided in the Project.

Consequently, it was deemed unnecessary at this time to provide an additional lecture theatre in the Project.

3-3 Educational Equipment

Based on discussions with the Malaysian and Japanese lecturers, studies on the existing facilities and reference materials obtained including the ongoing curriculum, the specifications and quantities of the required educational equipment were reviewed and the following equipment plan was drawn up.

(1) Equipment for Audio/Visual Education

The new LL system incorporating a video system, will promote more effective studies of the Japanese language, because the students can learn the language by using both their auditory and visual senses. An audio visual system (video projection system) will also be useful to enhance the contents and quality of not only Japanese language classes but science classes.

(2) Equipment for Scientific Experiments

These would be used for basic experiments for physics, chemistry and biology. Most of the equipment will be locally procured except for those of particular specifications such as microscopes. Experiments in Malaysia are carried out by groups of a small number of students (one student for chemistry and two students for physics and biology, in general).

(3) Other Equipment

The class using personal computer is given at the computer center (Bilik Komputer) of the University of Malaya. It is highly probable that the Malaysian students will be required to use computers at Japanese Universities. Moreover, personal computers are commonly used in classes at Japanese high schools.

The copy machine to be newly provided should be sufficiently durable for frequent usage.

A rotary mimeographer is requested for the printing machine, the necessity of which has also been emphasized by the Japanese lecturers.

3-4 Rehabilitation of the Existing Facilities

Sufficient investigations and discussion with the Malaysian and Japanese lecturers, as well as studies on the technical aspects, were undertaken for evaluating the convenience of the existing facilities. The main problems, their causes and countermeasures are as outlined below.

1. Improvement of the ventilation of the rooms - Improvement shall be made by installing high windows or ventilating fans
2. Improvement of the airconditioning capacity of the rooms - Airconditioners with higher cooling capacity shall be newly installed.
3. Improvement of the lighting of the Lecture Theatres - The illuminance has been measured and installation of 200-lux light fixtures in the centre of the room has been decided. Unreplaced burnt-out bulbs and dust collected on the cover of the light fixtures also cause insufficient illuminance.
4. The problem of the Lecture Theatres being too chilly when used as Tutorial Rooms because of the smaller number of students present The airconditioning can be controlled, but not by the users of the Lecture Theatres because the control panel is in the Machine Room. A system should be drawn up to facilitate the control of the airconditioning capacity from the Lecture Theatres.
5. Shortage of Lavatory for Lecturers An additional lavatory will be provided outside the existing Lecturer's Office.

CHAPTER 4 BASIC DESIGN

CHAPTER 4: BASIC DESIGN

4-1 Design Principles

(1) Basic Design Policies

The design of the facilities will be prepared in accordance with the following aims and guidelines employed for the existing facilities design:

- 1) To design facilities that satisfy the needs of the lecturers and students and are also attractive and functional.
- 2) To design facilities that are both safe and easy to use and to maintain, based on experience with the existing facilities.
- 3) To take into account local construction practices, methods and skills, and adopt a design that uses locally procurable materials and equipment wherever possible.
- 4) To choose systems, equipment and materials that will allow simple operation, energy savings and easy maintenance.
- 5) To provide adequate and sufficient educational equipment to enhance the effects of the education through lectures and experiments.
- 6) To design facilities that are adaptable to the future expansion in Malaysia.
- 7) To adopt an efficient design that exerts as little influence as possible on existing facilities in the course of the construction works.

(2) Grade of Facilities

The grade of the facilities shall basically conform to that of the existing facilities. The latest standard for buildings in Malaysia shall also be taken into account.

(3) Applicable Laws and Regulations

- 1) Considering the nature of the Project which involves extension of existing facilities, the design of the facilities should follow the same standards and regulations that were adopted for the existing facilities.

This means that the design will comply in principle with the relevant Malaysian codes and regulations. However, when there are no regulations to be applied, or it is deemed inadequate to employ them, the regulations and standards in Japan or internationally established regulations and practices shall be applied instead.

- 2) The Codes, Regulations and Specifications to be applied are as follows;

- a) Architectural Design and Works

- Uniform Building By-Laws
- Japanese Industrial Standards (JIS)

- b) Structural Design and Works

- Uniform Building By-Laws
- British Code of Practice
- British Standards

- c) Electrical, Mechanical and Educational Equipment Design and Works;

- Water Supply (Selangor) Rules
- British Standards
- Japanese Industrial Standard (JIS)

- Japanese Electrotechnical Committee's Standards (JES)
- Standards of the Japan Electrical Manufacturer's Association (JEM)
- Japanese Heating, Airconditioning and Sanitary Standard (HASS)

4-2 Basic Design

4-2-1 Site Utilization Design

- (1) The new facilities are to be located to the northeast of the existing facilities. The design principles adopted for the existing facilities should basically be applied for providing a group of extended facilities in L-shaped clusters.
- (2) The class room facilities shall be composed of several clusters instead of a single-wing building, so as to conform to the sloped foundation of the site and also to facilitate future extensions to be carried out independently by the Malaysian side.
- (3) Considering the overall environment of the site, it is possible to utilize the southeastern part of the site as a garden as conceived by the Malaysian side.
- (4) The trees along the road running in the east of the site will be left as they are.

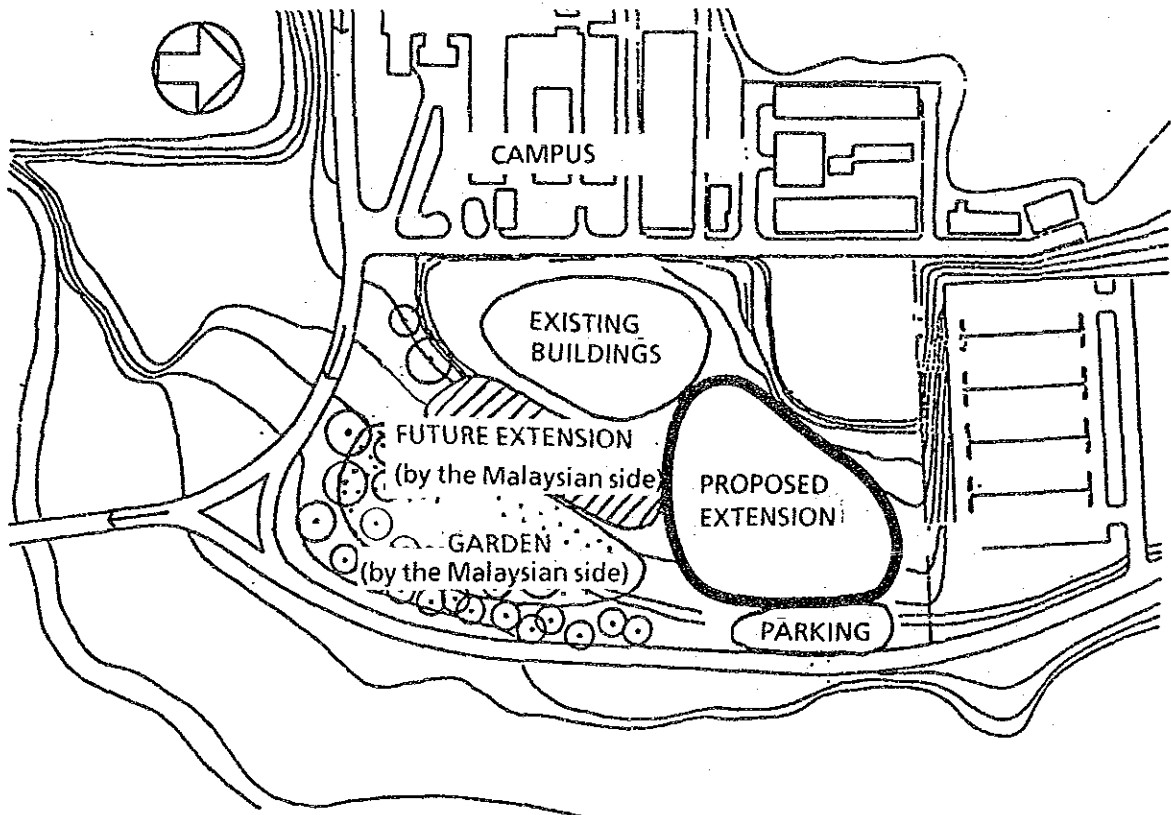


Fig. 4-1 Site Utilization Plan

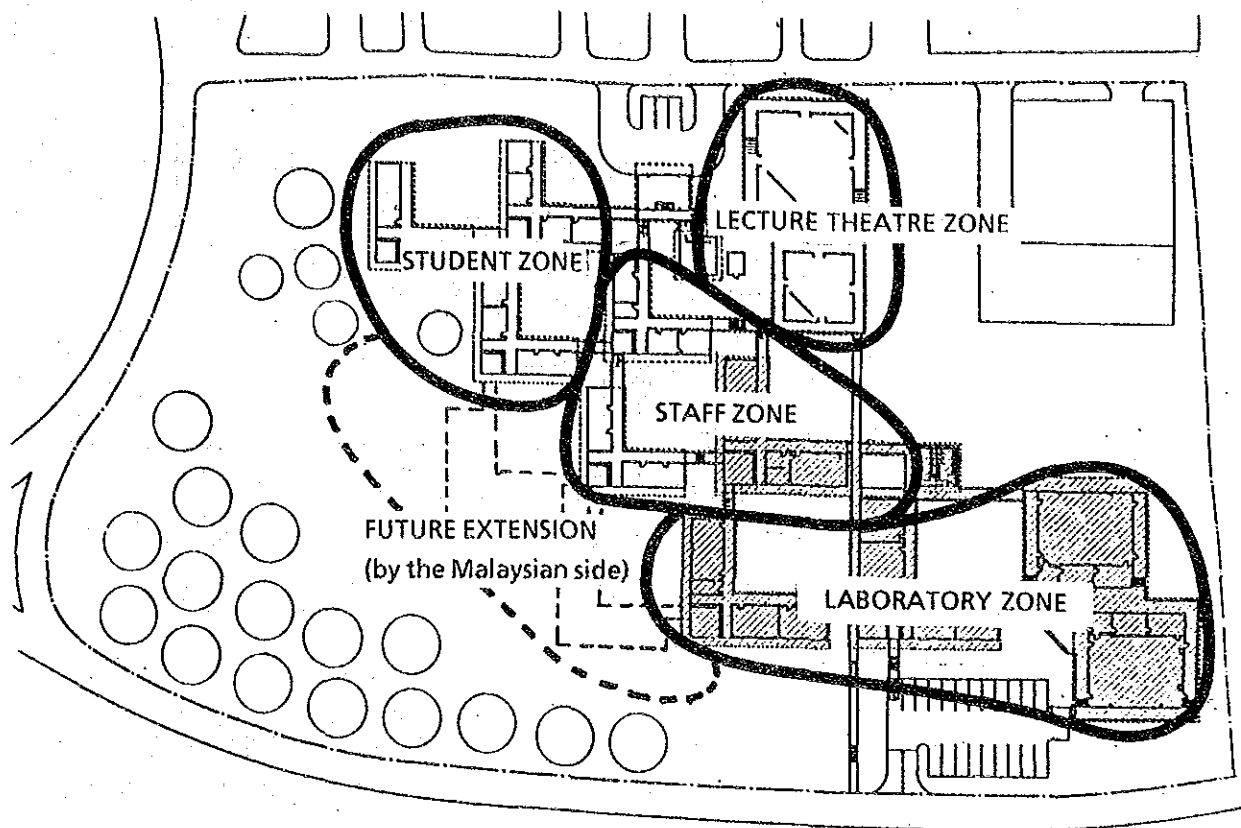


Fig. 4-2 Zoning and Future Extension Plan

(5) Possibility of Future Extension

In case it becomes necessary to provide facilities with new functions in future, such facilities can be located along the contour line to the southeast of the existing facilities.

By repeating the L-shaped cluster system, further extensions in the future will be facilitated.



4-2-2 Architectural Design

(1) Block Planning

In principle, the design policies will adhere to those adopted for the existing facilities.

1) Harmony with the existing facilities

a) Lecturer's Wing, Tutorial Room

- The L-shaped cluster component adopted for the existing facilities will be extended so as to minimize the discrepancy in scale of the existing facilities and the expanded area.

b) Science Laboratory Wing

Laboratories will have the same square hipped roofs as those used for the existing Lecture theatres, maintaining harmony in appearance with the existing facilities.

2) Progressive Cluster Composition

By adopting cluster components adjoining a connecting corridor, the next future extension will be facilitated.

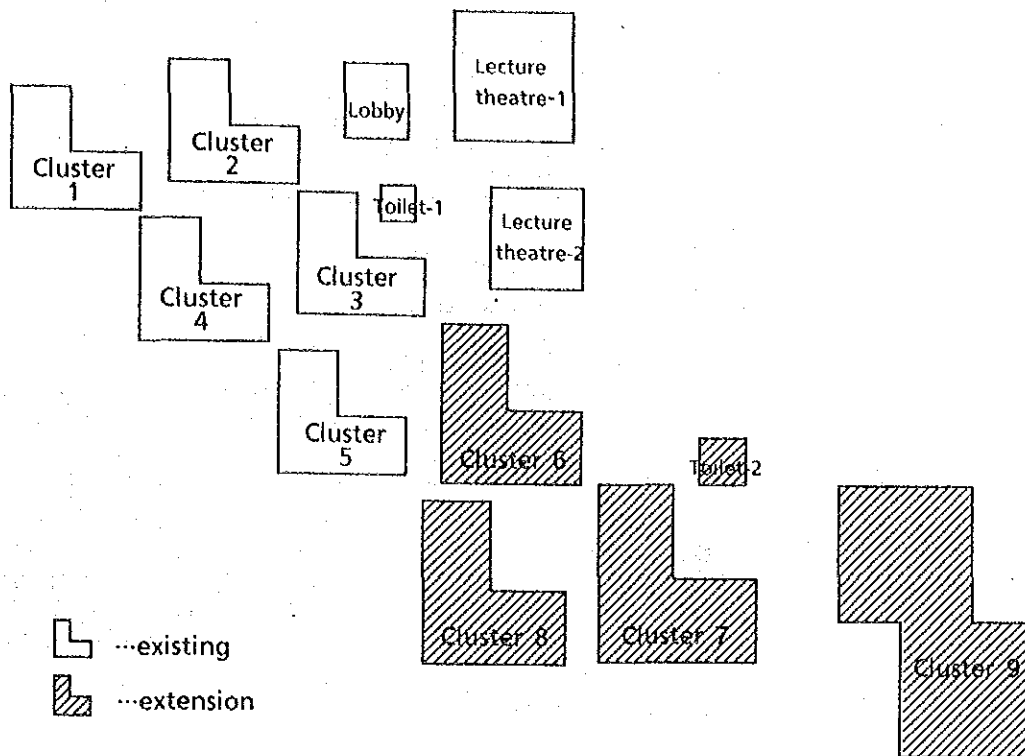


Fig. 4-3 Plot Plan of Clusters

(2) Facilities Plan

The scale of each room and its location in the clusters of the extension facilities is discussed here and the floor area of all the rooms of JLC (existing and extension) is scheduled in Table 4-1, Floor Area.

1) Cluster 6:

Lecturer's Office, Printing Room, Toilet for Lecturers

A new and larger Lecturer's Office will be provided adjacent to the existing Lecturer's Offices, and a Printing Room and a Toilet for exclusive use by the lecturers (Toilet-2) will be located in the middle of this cluster. Consequently, the Printing Room will be conveniently positioned at the centre of all the Lecturer's Offices, existing and new.

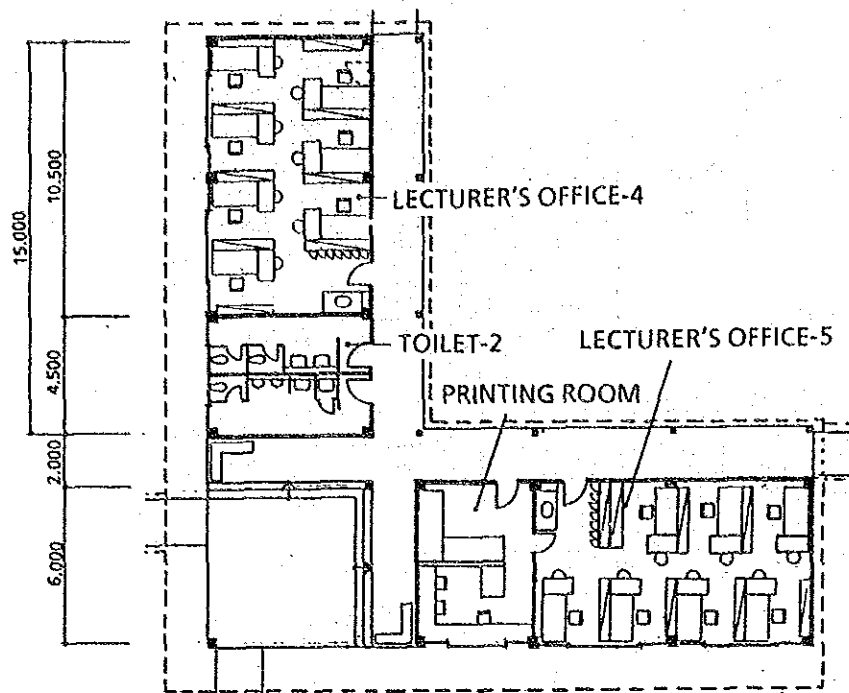


Fig. 4-4 Cluster 6

a) Lecturer's Office-4

Responding to the lecturers' request, two Lecturer's Offices with floor area of 63m² (slightly larger than the existing Lecturer's Office with a floor area of 54m² for eight lecturers) will be provided. This is because of considerations for installing a washing stand and bookshelves in the offices, as requested by the Japanese lecturers.

b) Printing Room

The space shown below is required to accommodate the equipment to be installed in the Printing Room: 1 Large copying machine, 1 printing machine and 3 wordprocessors (2 existing and 1 new).

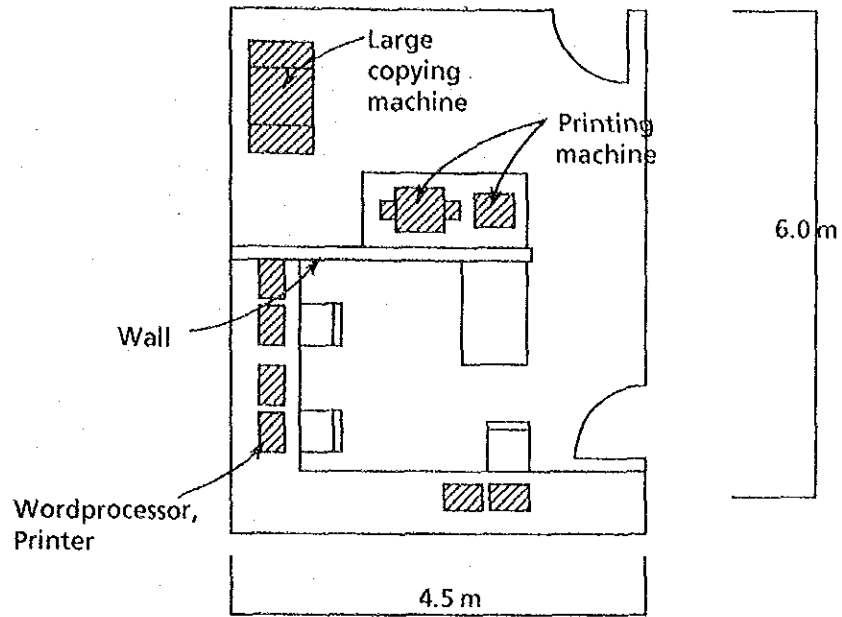


Fig. 4-5 Printing Room

c) Toilet-2 (Toilet for Lecturers)

A toilet to be exclusively used by lecturers, which had been missing from the existing facilities, will be provided. Utilization of the toilet by lecturers will not be concentrated to any particular time zone, so the minimum required number of water closets etc. will be provided for the total of 35 lecturers to teach at JLC after the extension of the facilities.

For men 1 water closet
2 urinals
1 lavatory stand

For women 2 water closets
2 lavatory stands

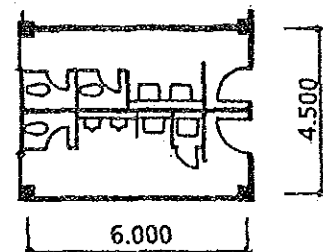


Fig.4-6 Toilet 2

(1 service sink to be installed in the Men's Toilet)

2) Cluster 7:

Lecturer's Office -1, Tutorial Room -8, -9, -10

Cluster 7 adjoins the northeastern corner of Cluster 6 which is a zone for Lecturers.

Cluster 7 consists of one Lecturer's Office located next to the Lecturers' zone and three Tutorial Rooms provided adjacent to the Laboratories Wing.

Desks for science teachers will be provided in Lecturer's Office -1. Consequently, Cluster 7 will be utilized for education in sciences when Tutorial rooms - 8, -9 and -10 are used for lectures in sciences.

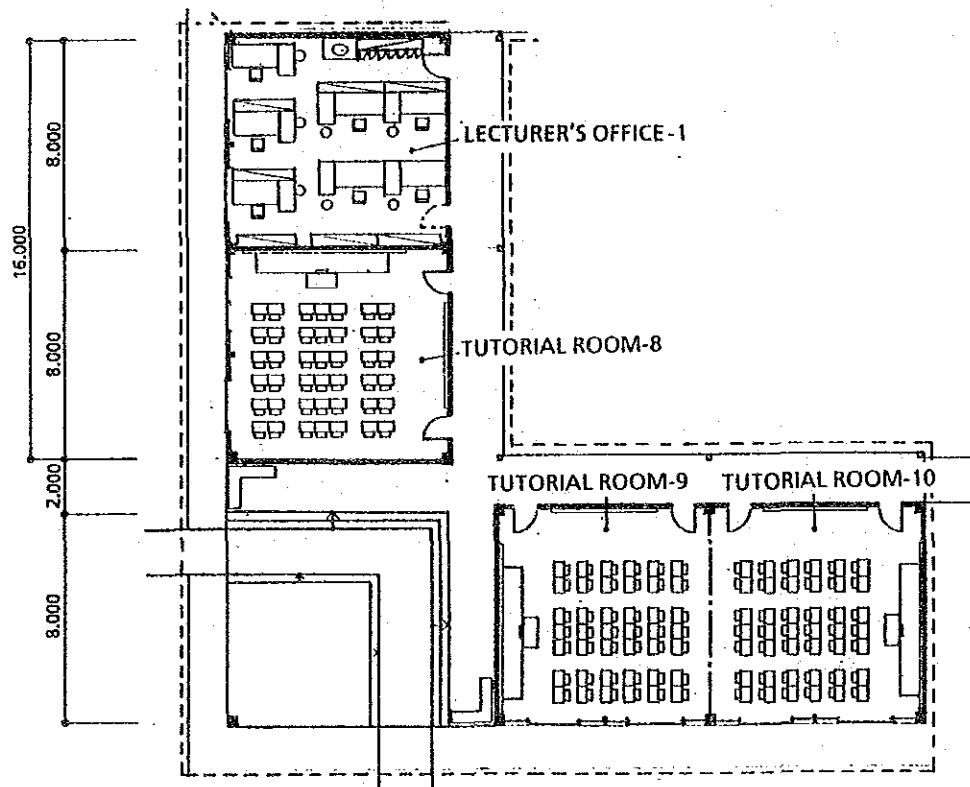


Fig. 4-7 Cluster 7

a) Lecturer's Office -1

Lecturer's Office -1 is located next to the other Lecturer's Office and also near the Tutorial Rooms of the science laboratory zone (Tutorial rooms -8,

-9 and -10), on the assumption that it will accommodate mainly science lecturers. This is an ideal location for those lecturers when science lectures are given in the adjacent Tutorial Rooms.

b) Tutorial Room -8, -9, -10

Two Tutorial Rooms out of the three will be located next to each other with the teacher's platform placed symmetrically at the far end of each room. the wall separating the two rooms will be a movable partition so that they can be converted into a single classroom accommodating 40 students.

For the size of the desks, the existing standard (600mm long $\times$ 400mm wide) is to be followed, and the standard width of 600mm commonly applied to tutorial rooms in Japan will be adopted. The distance between the desks of students in terms of a vertical row will be increased by approximately 10% from the current 800mm to 900mm to allow a more spacious layout.

Responding to the request of the Japanese lecturers, a 2 meter-wide space is to be provided on the west side of the room where two blackboards will be installed to enhance the efficiency of the lessons.

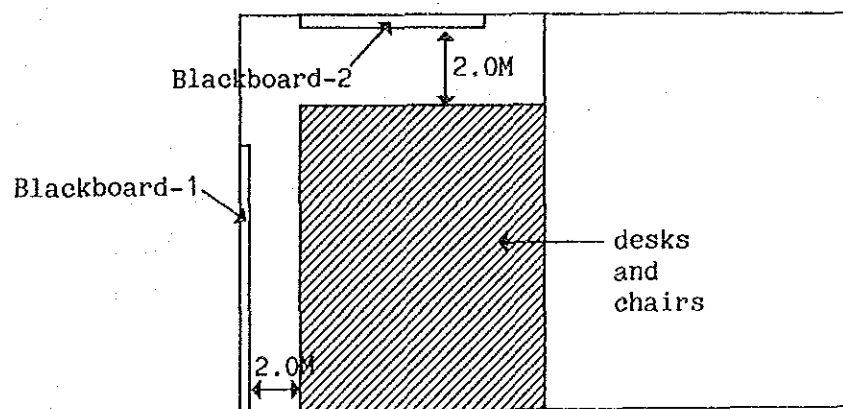


Fig. 4-8 Tutorial Room

3) Cluster 8

Audio/Visual Room, Language Laboratory -1,
Language Laboratory -2, Editing Room

The audio/visual related facilities (Language Laboratories and Audio/Visual Room) are brought together in Cluster 8 so as to enhance the performance of the audio/visual equipment and increase the effects of the audio/visual education.

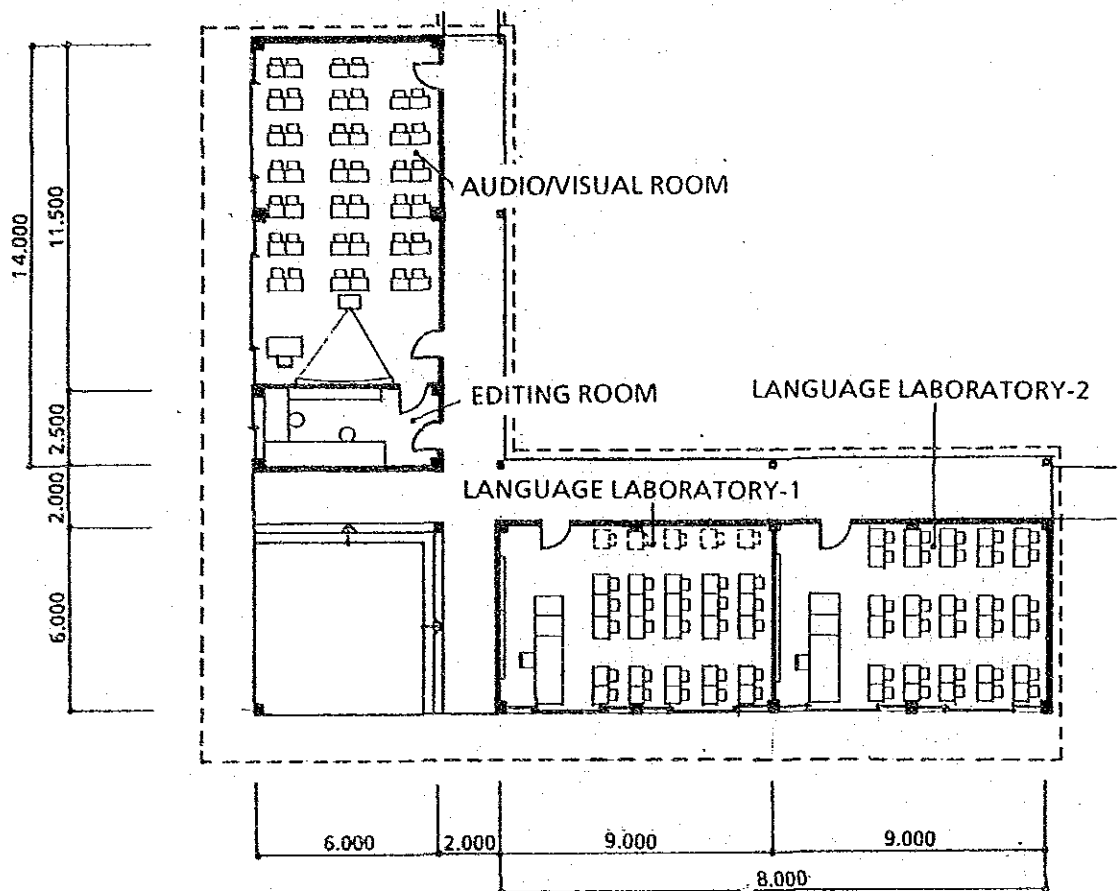


Fig. 4-9 Cluster 8

a) Audio/Visual Room

Desks of the same size as the existing ones (400mm wide × 600mm long) will be provided. The distance between desks in terms of vertical rows will be 1,200mm. A 900mm-wide passage will be provided to enable two students to pass without getting in each other's way.

b) Language Laboratory -1, -2

In the new Language Laboratory -2, the existing booth console for three persons will be replaced by two-person consoles separated by two 600mm aisles.

In Language Laboratory -1, the existing booth console is to be installed.

In both cases, the same booth consoles as the existing ones (designed to allow width of 700mm and length of 500mm per person) are to be used. The distance between the desks in terms of vertical rows will be 1,200mm, the same standard that is adopted for the existing facilities.

4) Cluster -9

Physics Laboratory, Chemistry & Biology Laboratory, Preparatory Rooms

Cluster 9 is located in the northeastern end of the site so as to prevent the smells and noises generated from the Science Laboratories from disturbing the lessons carried out in the other facilities. Moreover, the cluster faces a road running south to north at the eastern end of the site which facilitates the delivery of experimental equipment and chemicals.

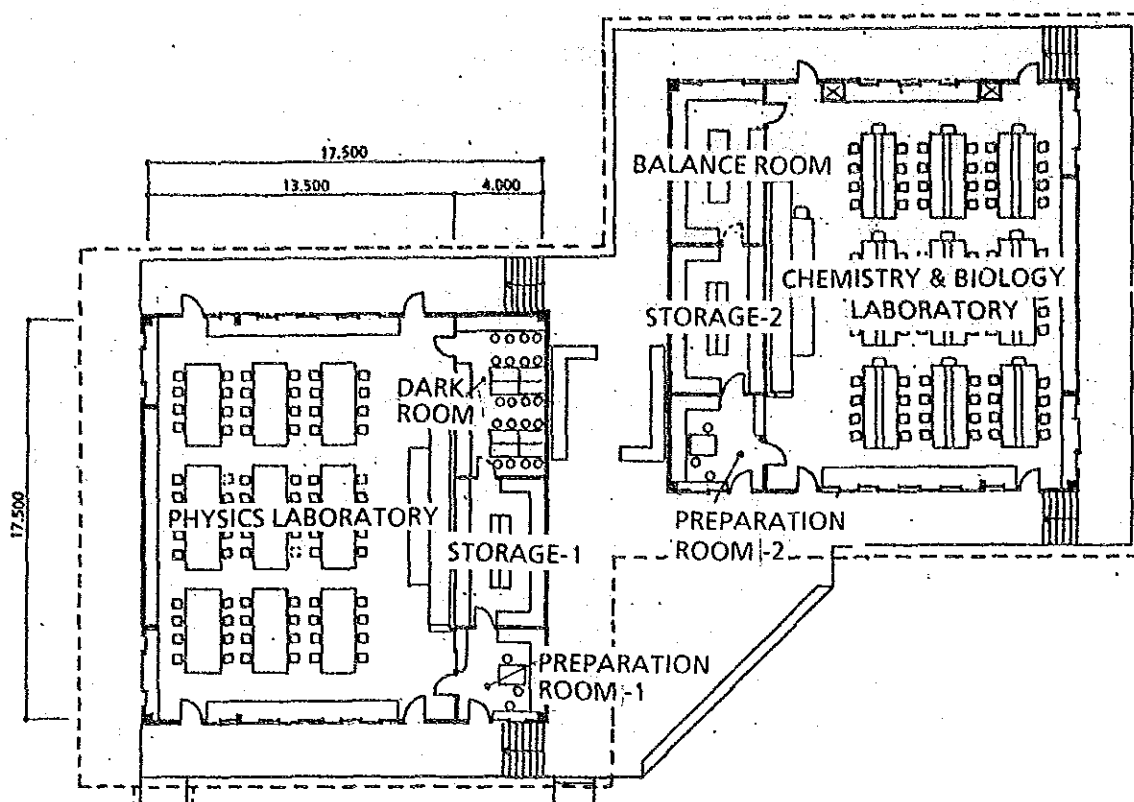


Fig. 4-10 Physics Laboratory, Chemistry & Biology Laboratory

a) Physics Laboratory, Chemistry & Biology Laboratory

Based on the current situation of the Science Laboratories within the University of Malaya, the width of the experiment table per student has been set at 900mm. The size and distance between the tables will be the same as in the existing science laboratories in the University of Malaya.

- b) Dark Room, Balance Room, Preparation room -1, -2,
Storage -1, -2

The size of the above rooms, which will be used as preparatory rooms for the science laboratories, will be determined to suitably correspond to the number of students who use them, with reference to the existing laboratories of the University of Malaya.

5) Toilet -3

Additional toilets for students are to be provided at the southern side of the science laboratories so that they will be situated at the center of the expanded facilities. Since the number of students has doubled from 100 to 200 from the time the plans for the existing facilities were drawn up, Toilet -3 should adopt the same scale and same number of water closets, etc. as the existing Toilet -1.

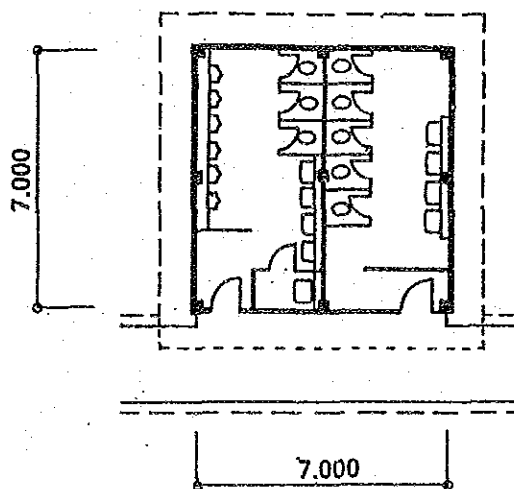


Fig. 4-11 Toilet - 3

Table 4-1 Floor Area

Rooms	Rm No.	Existing		Extension		Total		Remarks
		Area (m ²)	Person	Area (m ²)	Person	Area (m ²)	Person	
Lecture Theaters	1	324	314			324	314	
	2	169	152			169	152	
Sub-total		493				<493>		
Tutorial Rooms	1	27	20			27	20	
	2	27	20			27	20	
	3	27	20			27	20	
	4	27	20			27	20	
	5	27	20			27	20	
	6	27	20			27	20	
	7			(54) *	40	54	40	
	8			64	40	64	40	
	9			64	40	64	40	
	10			64	40	64	40	
Sub-total		162		192 <246>		<408>		
Language Lab.	1	40 *1	25			<0>		Reformed to Tutorial Room-7
	2			54	30	54	30	
Editorial Rm.	3			15		15		
Audio Visual Rm	4			69	40	69	40	
Sub-total		40 <0>		192		<192>		
Lecturer's Office	1	54 *2	8			<0>		Converted into Meeting Room
				64		64		
	2	54	10			54		
	3	54	9			54		
	4			63		63		
	5			63		63		
Sub-total		162 <108>		190		<298>		

Rooms	Existing		Extension		Total		Remarks
	Area (m ²)	Person	Area (m ²)	Person	Area (m ²)	Person	
Science Laboratory							
1. Physics Labo.			306	75	306	75	w/Preparation Rm.
2. Chemical & Biology Labo.			306	75	306	75	w/Preparation Rm.
Sub-total			612		<612>		
Meeting Room	27 *3		(54) *2		<0>		Converted into Lecturer's Office-1
Study Rm. w/ Library			(27) *3		27		Converted into Meeting Room
W. P. Rm.	14 *1				<0>		Reformed to Tutorial Room-7
Printing Rm.			27		27	8	
Administration Office	41	8			41	4	
Deputy Director's Rm.	14	4			14	6	
Coordinator's Office	27	6			27	13	
Counseling Rm.	27	13			27		
Common Rm.	27				27		
Sub-total	177 <136>		27 <108>		<244>		
Entrance Lobby	48				48		
Toilet	1	49			49		
	2		27		27		
	3		49		49		
Corridor	910		841		1,751		
Sub-total	1,007		917		<1,924>		
Total Floor Area for Existing and Extension	2,041		2,130		4,171		
Total Floor Area Reformed or Converted	- 135		135		0		
Total Floor Area after Completion	<1,906>		<2,265>		<4,782>		

Note 1: Figures in () represent the floor area required to be refurnished for the purpose of changing the function of existing facilities. Consequently, these floor areas are not included in the sub-total or total for the floor area of the expanded facilities.

Note 2: Figures in < > represent the sub-total of floor area after the completion of expansion and conversion of the facilities.

Note 3: *1, *2 and *3 indicate the change of function of each room.

(3) Sectional Planning

The same sloping roof and eaves as those adopted for the existing facilities will be used.

- 1) The sloping roof will protect the buildings from rain and the eaves will provide effective sun control.
- 2) Providing side corridors will help create a favorable educational environment in terms of ventilation, lighting and noise control.

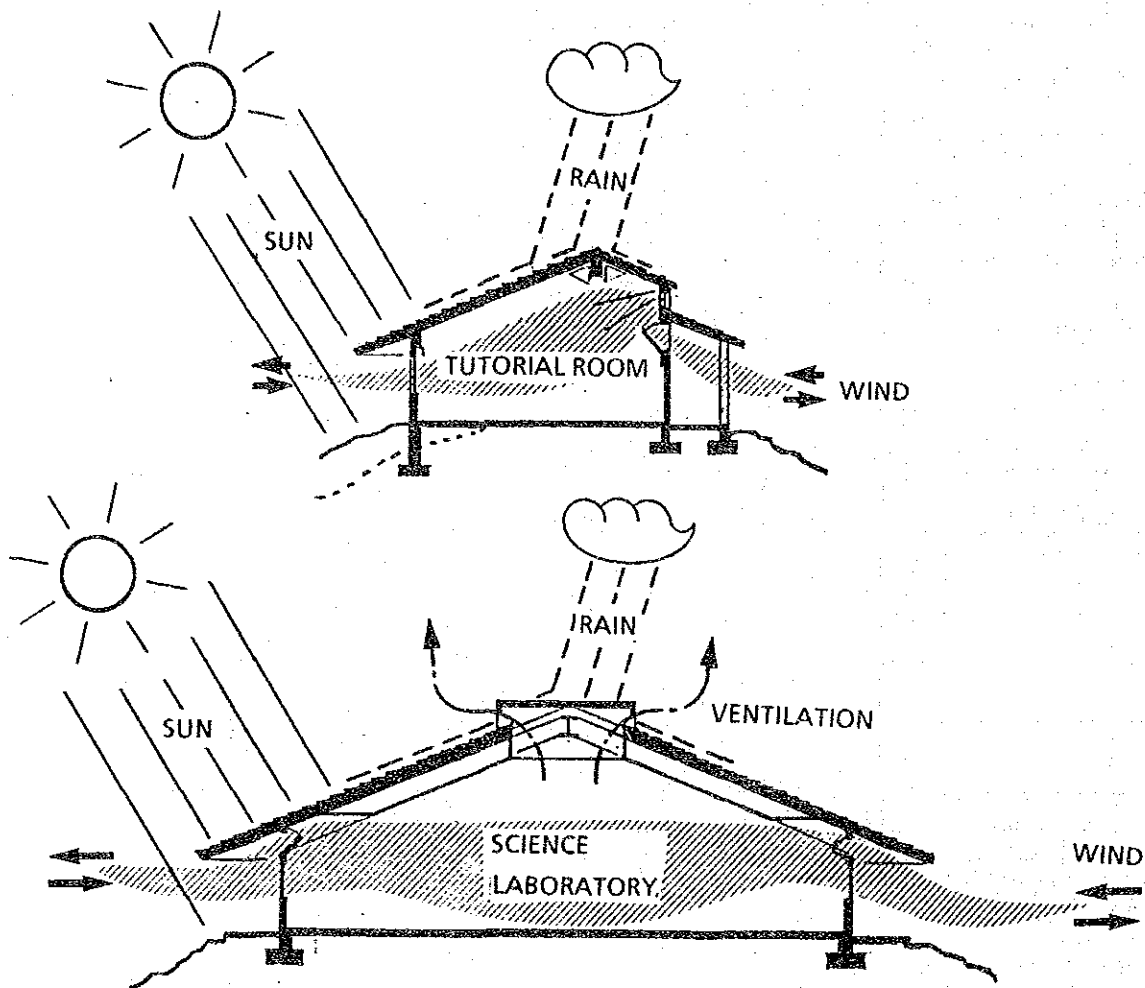


Fig. 4-12 Sectional Planning

(4) General Finishing Materials

1) Exterior Finishes

The following exterior finishes will be adopted, to match those of the existing facilities;

Roof: roof tile
Wall: cement mortar, painted
Eaves ceiling: wood board
Fixtures: aluminium
Grilles shall be installed over the windows of Language Laboratories, Audio-Visual Room, Editorial Room and Science Laboratories to ensure security.

Others (Connecting Corridor)

Roof: asbestos cement corrugated sheet
Eaves Ceiling: wood board

2) Interior Finishes

(a) Tutorial Room -7 (Refurnished), -8, -9, -10

Floor: vinyl tile
Wall: cement mortar, painted
Ceiling: acoustic board, painted

(b) Language Laboratory -1, -2

Floor: carpet
Wall: cement mortar, painted
Ceiling: acoustic board, painted

(c) Tutorial Room -1, -4, -5

Floor: carpet
Wall: cement mortar, painted
Ceiling: acoustic board, painted

(d) Science Laboratory

Floor: vinyl sheet
Wall: cement mortar, painted
Ceiling: acoustic board, painted

(e) Study Room (Refurnished)

Floor: carpet
Wall: oil stained wood board,
clear lacquer coated
Ceiling: acoustic board, painted

(f) Editing Room

Floor: carpet
Wall: acoustic board, painted
Ceiling: acoustic board, painted

(g) Printing Room

Floor: carpet
Wall: acoustic board, painted
Ceiling: acoustic board, painted

(h) Toilet Room

Floor: mosaic tile
Wall: tile
Ceiling: wood board

4-2-3 Structural Design

(1) Basic Policy

- 1) The structural system should conform to the size, layout and mode of use of the building facilities.

- 2) The structural system should conform to the locally available materials, construction techniques and labor quality in Malaysia.

(2) Design of Structures: The same principles adopted for the existing facilities will be applied.

- 1) Walls will be of reinforced concrete and/or concrete block. Roofs will be framed by wood or steel.
- 2) Foundations will be of reinforced concrete with connecting beams and will be placed without piling, because the buildings are single-story with light-weight roofs.
- 3) Design standards to be applied;

The structural design of this Project will conform to the Uniform Building By-laws, British Code of Practice and British Standards.

(3) Establishment of Design Loads

- 1) Live Loads

Distributed Load Concentrated Load

a) Roof	25.5 kgf/m ²	91.8 kgf
b) Tutorial Rooms	306 kgf/m ²	275 kgf
c) Science Laboratory	400 kgf/m ²	600 kgf

- 2) Seismic Force

No seismic consideration will be given in the design, since Kuala Lumpur has never experienced any strong earthquake.

- 3) Wind Force

The values given by the "Uniform Building Bylaws" are to be applied.

4-2-4 Electrical System Design

(1) Electrical System

1) Power Supply System

Since the transformer in the existing substation has sufficient capacity to supply power to the expanded area, the existing substation will be utilized by exchanging the main circuit breaker.

The supply voltage will be single phase 240V and 3 phase 415V. The frequency will be 50Hz.

System design loads for the expanded area are estimated as follows, totaling approximately 190KVA.

- a) Lighting and service outlet: 70 KVA
- b) Air-conditioning and 100 KVA
ventilation:
- c) Language Laboratory and 5 KVA
Audio/Visual Equipment:
- d) Science Laboratory 15 KVA
Equipment:
- Total; 190 KVA

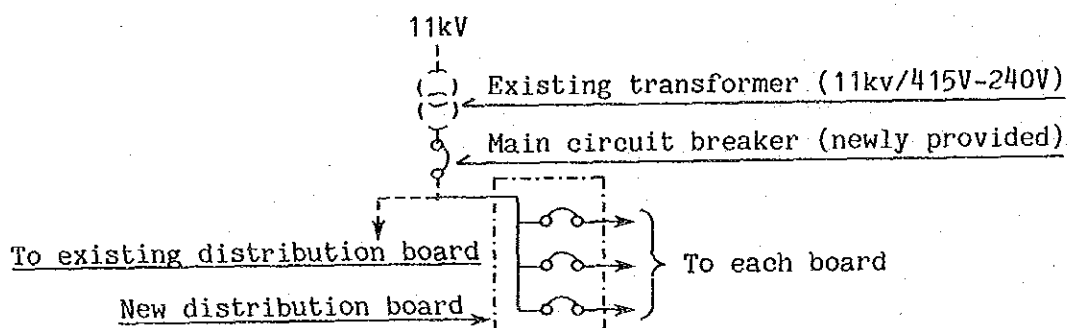


Fig.4-13 Power Supply System

2) Power Mains

The power mains will be extended from the new distribution board in the existing Electrical Room in the expanded area to as far as the power control panels and panel boards through conduit pipes and cable troughs.

The supply voltage will be 3 phase 4 wire 415V - 240V.

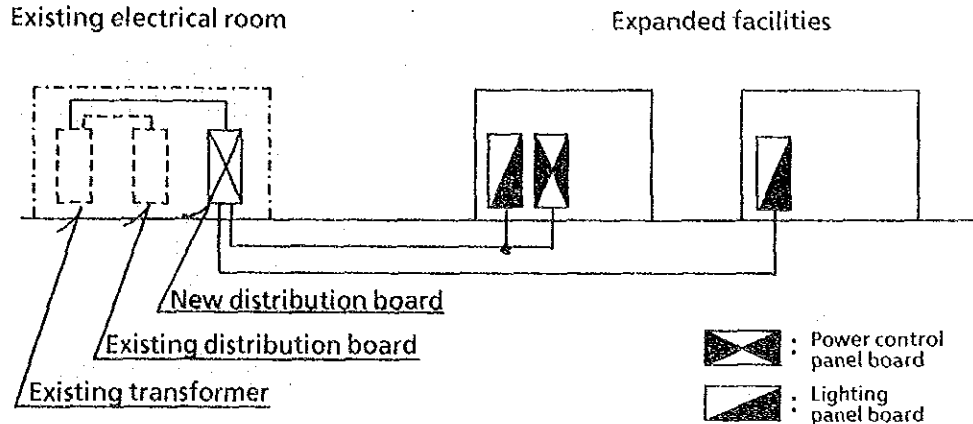


Fig. 4-14 Power Main Diagram

3) Lighting

Fluorescent lamps will be used in most places to prevent glare. The illuminance of the main rooms shall be established at 500 lux or more, an upgrade from the existing facilities. The illuminance for the toilets and storage shall be 100-200 lux.

4) Service Outlets

240V outlets will be installed where necessary. For the Science Laboratories, however, 100V outlets shall be installed for small experimental devices.

5) Telephone System

The existing telephone exchange will be used, and the lines are to be extended to the new terminal board in the expanded area by the Malaysian side. From the terminal board, connection will be made by cable to the

Lecturer's Rooms and Science Laboratory (Preparatory Room).

6) TV System

TV outlets will be provided in the Language Laboratories and Audio-Visual Room from the existing antenna by cable extension.

7) Alarm System

A burgular alarm system consisting of a key switch and buzzer will be installed in the Language Laboratories and Audio-Visual Room.

4-2-5 Mechanical System Design

(1) Airconditioning and Ventilation System

1) Airconditioning System

Electricity is used for refrigeration. Small unit-type airconditioners will be provided in all the rooms that require airconditioning.

The interior and exterior design conditions for airconditioning are established as follows:

- 1) Indoor temperature: $24 \pm 2^{\circ}\text{C}$
- 2) Indoor relative humidity: $55 \pm 10\%$
- 3) Outdoor temperature: 35°C
- 4) Outdoor relative humidity: 70%

2) Ventilation System

Ventilating fans will be installed in rooms where no airconditioning system is provided. Draft chambers shall be provided for Chemistry & Biology experiments.

The airconditioning and ventilating systems in each room are as follows.

Table 4-2 Airconditioning and Ventilation

Room	Unit A/C	Ventilating Fan	Ceiling Fan
Tutorial Rooms	○		
Lecturer's Rooms	○		
Printing Room	○		
Preparatory Room	○	○	
Science Laboratories		○	○
Audio/Visual Room	○		
LL Room	○		
Toilets		○	

(2) Plumbing System

1) Water Supply

Water will be supplied from the existing water pipe and a new water tank will be provided. From the water tank, water will be directly supplied to necessary locations in the expanded area.

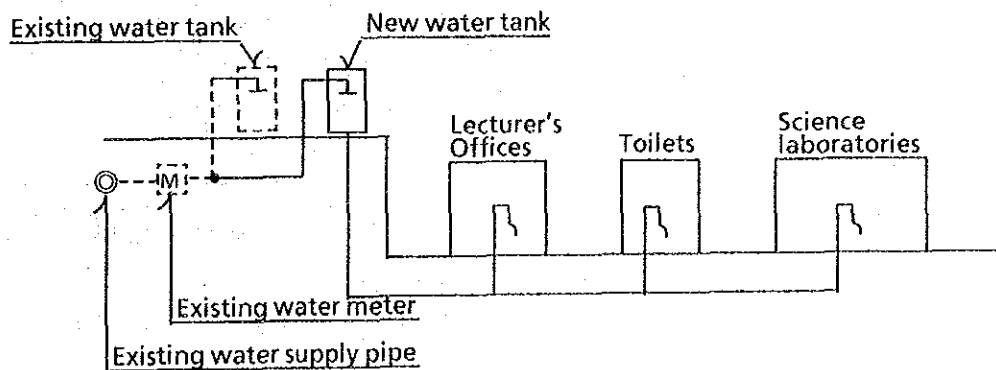


Fig. 4-15 Water Supply System

2) Drainage and Sewage System

Waste water and sanitary sewage from the buildings will be discharged separately.

The waste water will be drained by gravity to the gathering basin to be provided outside the building. The Malaysian side will undertake to connect the new waste water line from the basin to the existing ditches around the site.

The new sanitary sewage line will be laid and connected to the new septic tank to be provided for biological treatment. The Malaysian side will undertake to discharge the sewage water from the new septic tank into the city pipe. As to treatment of sewage from chemicals, heavy metals will be separately disposed of by the Malaysian side after they are collected in the sewage water tank. The remaining chemical disposals will be discharged into the ditches after undergoing neutralization and dilution processes.

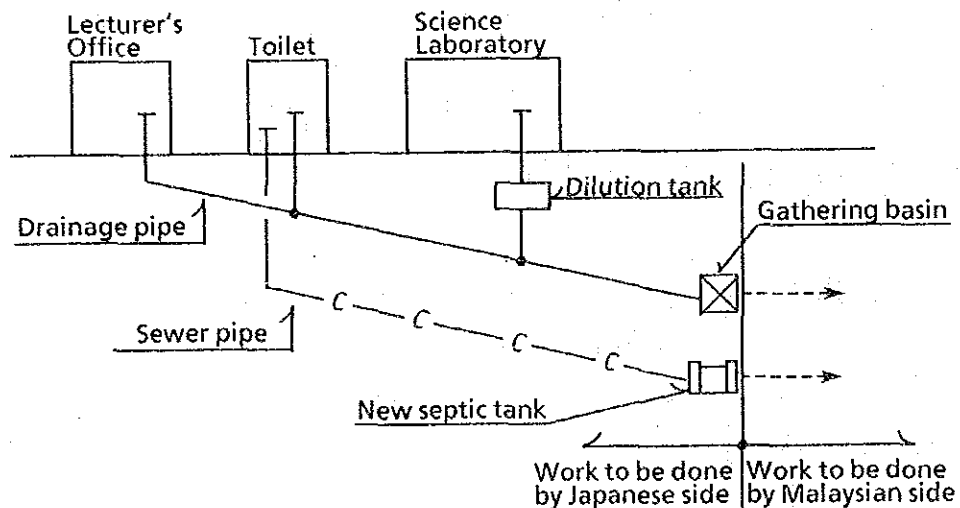


Fig. 4-16 Drainage and Sewage System