

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT
OF
MEDICAL EQUIPMENT
FOR
PUNJAB MEDICAL COLLEGE, (PHASE II)
IN
THE ISLAMIC REPUBLIC OF PAKISTAN**

JUNE 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to a request from the Government of the Islamic Republic of Pakistan, the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Medical Equipment for Punjab Medical College (Phase II) and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Pakistan a Study team headed by Dr. Koichi Nobutomo, Chief of Health Policy, National Institute of Health Services Management, from 12th, Novembre to 16th, December 1990.

The team held discussions with the officials concerned of the Government of Pakistan, and conducted a field survey at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Pakistan in order to discuss a draft final report and the present report was prepared.

I hope that this report will contribute to the promotion of the Project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Islamic Republic of Pakistan for their close cooperation extended to the teams.

June, 1991

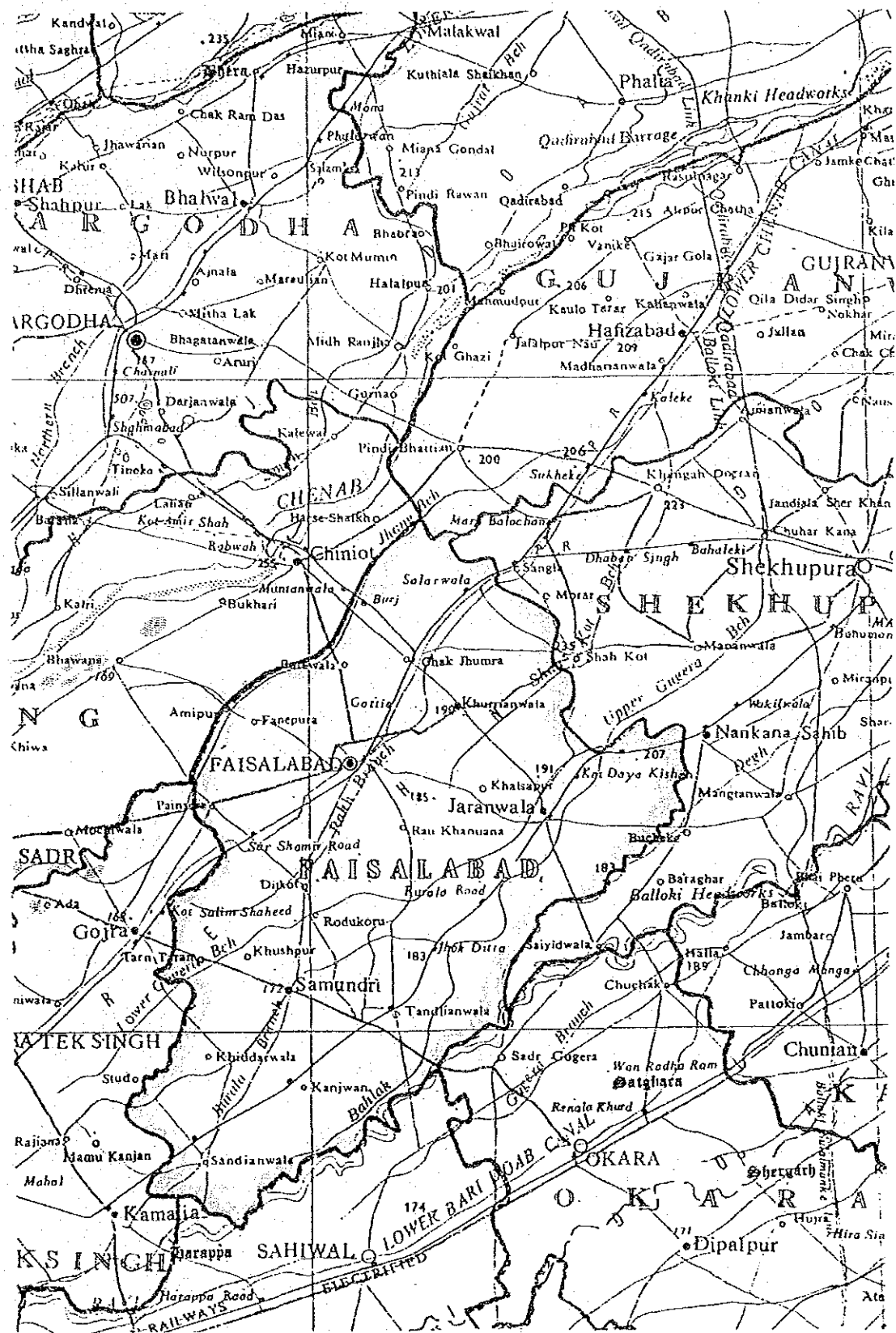
A handwritten signature in cursive script, reading "Kensuke Yanagiya".

Kensuke Yanagiya

President

Japan International Cooperation Agency

Location Map



Scale 1:1,000,000

Kilometres 10 5 0 10 20 30 40 50 60 70 80 90 100 110 Kilometres
Miles 10 0 10 20 30 40 50 60 Miles

SUMMARY

SUMMARY

It is a common wish of all countries to increase the welfare of their people through improvement of their level of health and medical care and thereby contribute to the stability of the people's lives. In the Islamic Republic of Pakistan, the central government has elaborated a "Programme for Developing a Nationwide Health Care System" and has implemented this programme in the course of several phases of its National Development Plan under the motto "Health for all by the year 2000" as proposed by the World Health Organization (WHO) and is making efforts for its realization. However, there are certain limits to the efforts which can be made toward self help under the nation's present socio-economic conditions, and the actual condition of health and medical care in Pakistan is far from being satisfactory either in quality or quantity.

For example, the medical equipment distributed in various health and medical facilities throughout the country is in short quantity and rather old on the whole, leading to a general drop in the level of medical services.

Under such circumstances, the Government of Pakistan established a "Project for Improvement of Medical Equipment for the Punjab Medical College, Phase II" aiming at radical qualitative improvement of the medical operations of the hospital and improvement of medical services to the inhabitants of Faisalabad and the surrounding areas in the province of Punjab for the purpose of preventing diseases and injuries among the people, and requested Japan to supply Grant Aid for the realization of that programme.

In response to this request, the Japanese Government decided to implement a Basic Design Study and the Japan International Cooperation Agency dispatched to Pakistan a Basic Design Study Team for the Project for Improvement of Medical Equipment for 35 days from 12th November, 1990. The Study Team had discussions with the people concerned of the Government of the Islamic Republic of Pakistan, collected data and performed a survey of the medical situation, etc., so as to confirm the contents of the request and clarify the background and the contents of the Project, etc.

After returning to Japan, the Study Team analyzed the data and the information obtained from the field survey and elaborated a basic design for this Project. The contents of the Basic Design were made up into a Draft Final Report, and this report was explained to the Pakistani side by the Basic Design Study Team which visited the country from 7 April until 21 April, 1991, and was basically approved by the Government of Pakistan.

This Project is intended to improve the medical equipment and facilities in the Outpatient Dept. (OPD) Block, the Radiography Dept. Ward, Nursing Unit-2 (NU-2) with 400 beds, etc., of the Allied Hospital of the Punjab Medical College which is playing the key role in the field of hospital medical operations and medical education in Pakistan and is making significant contributions to the expansion of medical services to Faisalabad and the surrounding areas.

The Diagnostic Depts. of the Allied Hospital to be improved by this Project are indicated hereunder.

The equipment and materials to be supplied can be roughly classified into those used individually by each Dept. and those intended for the entire hospital. The Diagnostic Depts. can be classified into those newly improved in this Project and those which are further improved in addition to the improvement realized in the Project for Improvement of Medical Equipment for the Punjab Medical College (Phase I).

<u>Scope</u>	<u>Classification</u>	<u>Diagnostic Depts. to be improved</u>
Equipment and Materials for Diagnostic Dept.	Diagnostic Depts. to be newly improved by this Project:	1. Ear Nose Throat (ENT) Dept. 2. Ophthalmology Dept. 3. Orthopaedics Dept. 4. Dermatology Dept. 5. Neurosurgery Dept. 6. Plastic Surgery Dept. 7. Chest Surgery/ Internal Medicine Dept. 8. Oral Surgery Dept. 9. Psychiatry Dept. 10. Psychiatry Dept. (Drug Abuse Treatment Centre) 11. Wards (NU-2, Private Ward, Coronary Care Unit (CCU), Radiography Dept. Ward) 12. Radiology & Nuclear Medicine Dept. 13. CCU 14. Physiotherapy 15. Mortuary Unit 16. Maintenance Workshop 17. OPD 18. Obstetrics & Gynaecology
	Block Diagnostic Depts. to be improved in addition to Phase I	1. Radiology Dept. 2. Anaesthesiology Dept. 3. Paediatrics Dept. 4. Surgery Dept.
Equipment and materials for common use in entire hospital	1. Vehicles 2. Others	

The expenses to be borne by the Japanese side for the procurement and installation of the equipment and materials to be supplied within the framework of this Project. The amount to be borne by the Pakistani side includes expenses required for the modification work on facilities to be carried out in relation to the installation of the equipment.

The executing authority on the Pakistani side responsible for the implementation of this Project is the Dept. of Health (Health Dept.). If the Grant Aid is implemented, the period required for the realization of this Project is expected to be about 17 months in total after the Exchange of Notes from the conclusion of contracts up to the completion of the installation work.

The expenses necessary for the management, maintenance and control of this Project are estimated at approx. Rs.12,648,000/year (approx. 78,470 thousand yen/year) and those expenses are to be covered by the budget of the Health Dept. As for the maintenance and control of this Project, the Dept. of Health announced its policy of fostering personnel under a systematic education programme and assigning those people gradually in the Allied Hospital. Therefore, it is judged that there will be no serious obstacle in the field of maintenance and control of the Project.

We are convinced that the implementation of this Project will improve medical services in Faisalabad and the surrounding areas of the Punjab, where there is a shortage of medical facilities, and greatly contribute to the qualitative improvement of medical services in the Punjab.

Therefore, it is quite significant that this Project be realized with Grant Aid from Japan, and we can expect great benefits from the assistance.

List of Acronyms and Abbreviations

ADB	Asian Development Bank
AJK	Azad Jammu Kashmir
Allied Hospital	Allied Hospital, the Punjab Medical College
BHS	Basic Health Service System
BHU	Basic Health Unit
C/A	Consultant Agreement
CCU	Coronary /Cardiac Care Unit
CHW	Community Health Worker
CIDA	Canadian International Development Agency
DHQ Hospital	District Headquarters Hospital
Health Dept.	Health Dept. government of the Punjab
E/N	Exchange of Notes
ENT	Ear Nose Throat
EPI	Expanded Programme of Immunization
FATA	Federally Administred Tribal Areas
HQ Hospital	Headquarters Hospital or Tehsil/Taluka
ICT	Islamabad Capital Territory
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standard
MCH Centre	Maternity & Child Health Centre
NA	Northern Areas
NICU	Neonatal Intensive Care Unit
NU-1	Nursing Unit-1
NU-2	Nursing Unit-2
NWFP	Northwestern Frontier Province
OPD	Outpatient Dept.
Pakistan	Islamic Republic of Pakistan
Phase I	Project for Improvement of Medical Equipment for Punjab Medical College
Phase II	Project for Improvement of Medical Equipment for Punjab Medical College (Phase II)
RHC	Rural Health Centre
TB	Tuberculosis
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
United Kingdom	United Kingdom of Great Britain and Northern Ireland
UNICEF	United Nations Children Fund
United States	United States of America

USAID	United States Agency for International Development
WFP	UN/FAO World Food Programme
WHO	World Health Organization
the Sixth Plan	the Sixth Five-Year Plan
the Medical College	Punjab Medical College
the Punjab	Province of the Punjab
the Seventh Plan	the Seventh Five-Year Plan

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CHAPTER 1.

INTRODUCTION

Chapter 1 - Introduction

The Government of the Islamic Republic of Pakistan (Pakistan) has been implementing a series of development programmes aimed at improving the health and medical services in the country. This is partly because a general consciousness that the level of health and medical services in Pakistan is lower compared with neighboring nations is reflected in the government policy. And that, major causes of death in Pakistan are still helminthiasis, infectious diseases, malnutrition, etc, which means that the implementation of the said development plans has not produced very satisfactory results.

To drastically improve such situation, the Government of Pakistan elaborated a "Programme for Developing Nationwide Health Care System" within the framework of the Nation Development Plan to achieve the target of "Health for all by the year 2000" proposed by World Health Organization (WHO). As one of the concrete steps to this goal, the Government of Pakistan and the Government of the Punjab designated Faisalabad, where is most industrialized and populated, as "Most important Division to be improved" and planned to establish Punjab Medical College (the Medical College) for the purpose of improving the medical services to the inhabitants of Faisalabad and the surrounding areas.

The construction works of the facilities of the plan for establishment of the Medical College were started in 1978 by the budget of the Federal Government and the college buildings, Hostel buildings, Nursing Unit-1 (NU-1) facilitating 400 beds, diagnostic block and service block were completed by 1985. Of those facilities, Pakistan for the NU-1, diagnostic block and service block, the Government of completed and the installation of equipment completed in those 3 facilities in 1986.

After the implementation of this Project for Improvement of Medical Equipment for the Medical College (Phase I), several facilities of the College were constructed one after another by the Federal Government, and the Government of Pakistan established a "Project for Improvement of Medical Equipment for the Medical College, Phase II" (Phase II) to procure equipment to the NU-2 facilitating 400 beds, the Radiotherapy dept. Ward, the OPD Block, etc. and requested the Government of Japan for a Grant Aid.

In response to and as result of examination of this request, the Government of Japan decided to implement a basic design study regarding this Project and the Japan International Cooperation Agency (JICA) conducted a survey.

JICA dispatched a Basic Design Study Team Headed by MD, MS. Nobutomo, Chief of Health Policy, National Institute of Health Services Management for 35 days from 12th November, 1990 for the purpose of confirming the content of the request and performing a survey on the necessity and the appropriateness, etc. of the cooperation.

In the field survey, the Study Team surveyed the background, purpose and positioning of the Project of the Pakistan to clarify the content of the request, etc, had discussions regarding the orientation of this Project and reached a general agreement on major points.

The content of the discussions was made up into a Minutes of Discussions between Mr. Muhammad Ashraf, former Secretary of Health, the Punjab, Mr. Akhtar Iqbal, Deputy Secretary, Economic Affairs Division and Dr. Anis Mahju, former Principal of the Medical College on the Pakistani side and Dr. Nobutomo on the Japanese side and was signed by the parties.

The Study Team analyzed results of the discussions with the Pakistani side as well as the data and the information obtained from the field survey and elaborated a basic design relating to this Project.

The content of the basic design was made up into a Draft Final Report, and this report was explained to the Pakistani side by the Basic Design Study Team (for Explanation of the Draft Final Report and the Survey) which visited the country for 13 days from 7th April, 1991. The Team confirmed the content of the basic design with the people concerned on the Pakistani side, and a Minutes of Discussions was made up on the draft final report of the basic design between Mr. Fariduddin Ahmed, Secretary of Health the said Mr. Akhtar Iqbal, and Dr. Muhammad Zafar Chaudhry, Principal of the Medical College, on the Pakistani side and Dr. Nobutomo on the Japanese side and signed by both parties.

The present report has been prepared to cover the results of those study and discussions. The list of study team member, schedule of field survey, list of attendants and copies of the Minutes of Discussions are attached in the Data 1, 2, 3 & 4.

CHAPTER 2.

BACKGROUND OF THE PROJECT

Chapter 2 - Background of the Project

2-1. Outline of the Province of the Punjab

Pakistan is located in the southwestern part of Asia and surrounded by India, Afghanistan and Iran at an important position from the geopolitical viewpoint. The Himalayas stretch in the northern part of the country and the Indus runs from north to south through the fertile plain in the central part to finally flow into the Arabian Sea. The climate is hot and dry with a barren desert stretching in the southern and western parts of the country.

The province of the Punjab is situated in the plain area stretching over 5 rivers (the Indus, the Jhelum, the Chenab, the Ravi, and the Bias) and constitutes the largest granary in Pakistan producing cereals and pulse crops thanks to abundant water supplies from those rivers. This rich volume of water is used for dams in the upstream and for irrigation in the midstream and the downstream. The dams are important not only as stable sources of water supply but also as supply sources of electric energy to the industrial facilities in this region, and have been constructed as part of the National Development Programme. The industries in the area are mainly represented by traditional cotton & wool industry and light machine industry with some chemical industries such as fertilizer, cement, etc.

The following Table 2-1. gives some basic indications such as area, population, etc. of the Punjab:

Table 2-1 General Situation of the Punjab:

Area	205,345km ²
Population (1990 est.)	61,729,000
Administrative Structure	One of the provincial governments constituting the Federal Republic based on Islamism.
Capital	Lahore
Racial composition	Predominantly Punjabi with some Sindhi, Baluchi, etc.
Languages	Official languages are Urdu and English but it is Punjabi that is generally spoken.
Religions	The majority are Muslims with small numbers of Christians and Hindus, etc.
Education	No compulsory education system is established. Literacy under 30%.
Accounting year	From July to June the following year.

The general election of the members of the National Assembly of Pakistan was held on 24th October, 1990 and the party in power, Islamic Democratic Federation, won an overwhelming victory. Moreover, in the election of the members of the provincial assembly held immediately after the general election, the party in power secured 206 seats of the total number of 234 seats in the Punjab. This overwhelming victory of the party in power on both the federal and provincial levels further strengthened the influence of Islam in the politics of Pakistan and the tendency for conservatism is expected to get stronger also in the Punjab.

The country Data of Pakistan is attached in data 8-1 at the end of this report.

2-2. Present Situation of Medical Care in the Punjab

2-2-1. Situation of Health and Medical Care

- (1) The Government of Pakistan has been implementing a series of health and medical plans for the promotion of health of its people by Five-Year Plans. At present, the Seventh Five-Year Plan (1988-1992) (the Seventh Plan) is under progress and the Government is making the greatest efforts to achieve the target of "Health for All by the year 2000" with this plan.

However, the Government of Pakistan is facing a lot of problems such as economic restrictions, shortage of leaders, domestic opposition to decentralization, difficulty of securing doctors to be dispatched to rural medical facilities, etc. And the effects of implementation of the plans are far from being satisfactory. We will describe hereunder the current situation of health and medical care in Pakistan while introducing some concrete health indicators.

(2) Comparison of Health Indicators between Pakistan and Neighbouring Countries

Table 2-2. Quality of Life Indicator (1985)

	<u>Per Capital</u> <u>Income</u> <u>(\$ per annum)</u>	<u>Life Expec-</u> <u>tancy at</u> <u>Birth, Year</u>	<u>Infant</u> <u>Mortality</u> <u>Rate</u>	<u>Child</u> <u>Death</u> <u>Rate</u>	<u>Literacy</u>
<u>Rate(%)</u>					
Pakistan	380	51	115	16	24
Sri Lanka	380	70	36	2	86
Thailand	800	64	43	3	86
China	310	69	34	1	69
India	270	56	89	11	36
Malaysia	2,000	68	28	2	60
Philippines	580	63	48	4	83
Indonesia	530	55	96	12	62
Bangladesh	150	51	123	18	26
Bhutan	160	44	133	20	10

Source : World Development Report, 1987.

Notes : The Infant Mortality Rate is the Number of Infants who die before reaching one year of age, per thousand live births in a given year.

The Child Death Rate is the number of deaths of children aged 1-4 per thousand children in the same age group in a given year.

Table 2-2. lists up average life expectancy, infant mortality, child death rate and percentage of literacy as life indicators. From those indicators, we can analogize the conditions of educational standard and health & medical care. Compared with other developing countries, Pakistan seems to be rather low in the general living standard of people including health & medical care and environmental hygiene, although the average annual income of its people is improved in recent years.

(3) Trend of Diseases in Pakistan

Table 2-3. Health Indices in Pakistan

<u>Health Indices</u>	<u>1978</u>	<u>1983</u>	<u>1987</u>	<u>1988</u>
Life expectancy	54	55	-	61
Infant mortality rate per 1000 births	105	100	104	80
Child death rate per 1000 children	-	10	-	-
Crude death rate per 1000 persons	14	12	-	11

Source : the Seventh Plan

Note : Though small difference of figure is found in Tables. 2-2 and 2-3, it is considered that it occurred because of the difference of survey method.

The crude death rate in Pakistan in the beginning of this century was 40 persons per 1,000 inhabitants. This figure dropped to 30 persons per 1,000 inhabitants in the 1950's and further decreased to 16 persons per 1,000 inhabitants in the middle of the 1960's. Since the later part of the 1960's, this rate dropped to the current level of 11 persons. The infant mortality, which was 178 infants per 1,000 in the 1950's, is reported to have dropped to an average number of 136 infants and this rate is current about 80 infants per 1,000. (Refer to Table 2-3.)

The main cause of death is diarrhea and tuberculosis (TB) of children under school age. Accident, TB, trouble of circulatory organ, malign tumor, etc. are counted for people of older ages. A striking characteristic about diseases is a high morbidity of infectious diseases and the most common diseases among infants are measles, whooping cough, tetanus and diarrhea. As for TB, approx. 1.6 million people are positive to TB according to radiographic diagnosis and among them no less than 250,000 people are suffering from open TB. Protein-energy malnutrition (PEM) is still fundamental problem in the diet, and 7% of children under 6 years of age are suffering from malnutrition of third degree. Other diseases due to malnutrition include anaemia and thyroopathy.

Troubles of circulatory organs are appearing in the people of adulthood who bear the heaviest responsibility both socially and in the family. Cancer is becoming a major cause which sharply increases the morbidity and the mortality rate. The appearance ratio of cancer is about 40 - 50 persons against 100,000 even at the lowest estimation. About 1% of the population is mentally handicapped and approx. 10% of them have a high possibility of getting into a serious mental trouble in the prime time of their life as full-fledged members of the society. Diseases of teeth of infants are known to have a stronger influence compared with other ages especially because of a cavitation of their teeth, and parodontitis spreads to 7 - 9% of infants and the greater part of adults.

(4) Health Facilities in Pakistan

Table 2-4. Health Facilities in Pakistan

<u>Facilities</u>	<u>Year</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Hospitals		633	652	670	682	710
Dispensaries		3,386	3,445	3,441	3,498	3,616
Maternity and Child		767	778	773	798	998
Health Centres						
Beds in Hospitals		53,603	55,886	57,709	60,093	64,471
and Dispensaries						

Source : 1. Health Division
2. Planning & Development Division
3. Economic Adviser's Wing

Table 2-4. indicates the progress in the number of Health facilities in Pakistan.

According to the number of Health facilities by Province of Table 2-6 appearing later, the primary Health facilities as of June 1988 accounted for 3,496 Basic Health Unit (BHU), 492 Rural Health Centre (RHC) and 6,050 other medical units such as Dispensaries, Maternity & Child Health Centres (MCH Centres), Sub Centres, etc. all over the country.

Fig. 2-1. indicates the Integrated Primary Health Care Complex. Those Health facilities will be described in paragraph 2-2-3 "Health & Medical Care Services".

Note 1) BHUs meet various demands in health and hygiene of the inhabitants of the area as simple clinics in each area.

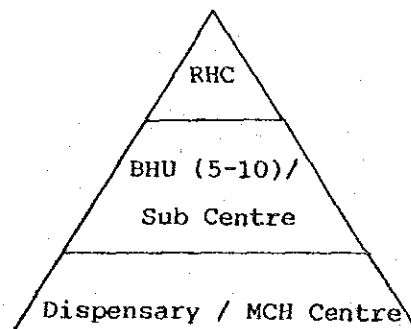
2) RHCs provide medical cares as hospitals equipped with basic medical equipment.

3) Dispensaries provide medical cares centering on medication by resident pharmacists.

4) MCH Centres provide assistance to childbirth and education on the art of rearing infants by resident lady health visitors (LHV).

5) Sub Centres are branch offices which serve as base for doctors on patrol as sub organizations of BHU.

Fig. 2-1. Integrated Primary Health Care Complex



(5) Personnel Engaged in Medical Care in Pakistan

Table 2-5. Health Man Power in Pakistan

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Registered Doctors	33,584	38,322	42,501	46,494	51,020
Registered Dentists	-	-	-	-	1,690
Registered Nurses	11,070	12,000	14,249	15,734	16,722
Registered Lady	2,562	2,795	2,992	3,688	3,928
Health Visitor					
Population per	1,708	1,714	1,695	1,692	1,678
Hospital Beds					
Population per	2,654	2,398	2,229	2,100	1,973
Doctors					

Source: Health Division/Planning & Development Division

Table 2-5. indicates the progress of the number of people engaged in medical care in Pakistan. According to the statistics as of June 1987, the country had one doctor for 2,920 inhabitants, one dentist for 61,760 inhabitants and one bed for 1,650 inhabitants only.

(6) Situation of Health and Medical Care in Pakistan

Looking at the diseases structure in Pakistan, We soon notice that diseases which already disappeared or almost disappeared in advanced countries such as Japan i.e. such diseases as measles, TB, malaria, dysentery, etc. are still furious in this country. The fact that many people are suffering from those diseases means that the infrastructures including water supply and sewage systems, health and hygienical facilities, educational facilities, etc. are not satisfactorily established.

Table 2-7. indicates the progress of the number of patients by disease in the Punjab.

The number of beds for patients calculated by using the number of Health Facilities by Province in Table 2-6. and the population of the Punjab and of the entire nation [national population 105,402 (thousand) and population of the province 57,687 (thousand), 1988] is one bed for 2,027 inhabitants while it is one bed for 1,657 inhabitants in the national average. This shows that the number of other Health Facilities such as RHC, BHU, etc. is also at a lower level com-

pared with the national average. From this fact a further expansion of those Health Facilities in the Punjab is much desired also considering the large population of the province exceeding one half of the total population of the country.

Table 2-6. Health Facilities by Provinces (June 1988)

	<u>PUNJAB</u>	<u>SIND</u>	<u>NWFP</u>	<u>BALUCHI-</u>	<u>ICT</u>	<u>AJK</u>	<u>FATA</u>	<u>NA</u>	<u>TOTAL</u>
		<u>STAN</u>							
1.BHUs	<u>1,738</u>	350	630	326	12	264	100	76	3,496
2.RHCs	<u>260</u>	69	67	35	3	30	5	23	492
3.MCH Centres/ Dispensaries/ Subcentres	<u>2,534</u>	1,734	973	376	-	47	183	203	6,050
4.Hospital Beds	<u>29,244</u>	17,200	8,838	3,017	1,320	2,000	1,200	800	63,619

Source : the Seventh Plan

Note : 1. The Facilities of Federal Government (Health Division) are included in various geographical areas.

2. These figures include facilities of the private sector but do not include those of Defense.

3. ICT : Islamabad Capital Territory

AJK : Azad Jammu Kashmir

FATA : Federally Administered Tribal Areas

NA : Northern Areas

Table 2-7. STATEMENT OF INDOOR, OUT DOOR PATIENTS, PUNJAB PROVINCE.

Sr. Name of Diseases. No.	1936			1937			1938			1939		
	Out-Door	In-Door	Deaths.	Out-Door	In-Door	Deaths.	Out-Door	In-Door	Deaths.	Out-Door	In-Door	Deaths.
1. Plague.	256	293	107	-	-	-	103	267	82	6	2	-
2. Measles.	25370	902	40	18853	308	15	18681	334	15	4003	522	60
3. Chicken Pox.	4815	211	-	5558	103	-	8561	167	-	5590	2	-
4. Diphtheria.	1176	40	5	2212	67	-	1374	33	5	1320	48	11
5. T.B. of Glands.	343594	20169	966	357383	13072	528	403277	22058	827	302784	21098	902
i) T.B. of Glands.	26343	624	15	29917	1263	15	29443	651	37	29136	572	13
ii) Ortho Articular T.B.	2482	256	10	2139	315	5	3847	385	11	4590	221	5
iii) T.B. Meningese.	1131	678	104	1281	795	134	1424	455	99	2551	619	118
iv) Gastroenteritis.	8668	940	74	9099	871	21	9337	752	25	7249	640	34
v) T.B. Intestine.	1980	163	-	6374	234	1	1987	400	22	3496	214	-
vi) T.B. Spines.	2315	346	6	1387	361	4	1161	263	3	1615	201	10
vii) Genito Urinary T.B.	939	30	2	1160	270	15	1209	27	-	1343	131	7
viii) Malaria.	26924	366	14	27095	445	27	33956	3284	140	58895	4540	64
6. Scarlet Fever.	99	-	-	350	-	-	-	-	-	24	-	-
7. A) Thread Worms.	-66	-	-	61	-	-	3	-	-	51	-	-
B) Teanea.	714	-	-	374	-	-	12725	88	9	96	-	-
C) Hook Worms.	770	101	-	3075	118	-	728	16	-	99	14	-
8. Enteric Fever.	104859	3433	75	111283	4638	85	115373	5089	116	112427	5979	128
9. Erysiples.	549	-	-	14	-	-	942	4	-	501	5	-
10. Relapsing Fever.	13265	114	1	5545	1653	194	8133	275	-	8143	398	7
11. Influenza.	102248	92	-	121357	72	-	103025	330	-	95380	464	2
12. A) Amoebic Dysentry.	206877	4566	34	270019	5209	65	301803	7151	89	252028	13555	113
B) Bacillary Dysentry.	404329	3490	49	455388	5119	127	563621	6714	106	451993	9829	81
13. Leprosy.	872	241	5	881	229	10	667	313	10	7627	309	7
14. Mumps.	24520	389	-	47808	1606	-	33480	511	-	25068	611	-
15. Whooping Cough.	40405	461	9	28061	1018	225	21475	143	1	28849	939	2
16. Sprue.	829	4	-	1687	95	4	1911	122	4	195362	4631	307
17. Polio.	1447	261	17	24527	467	19	1173	145	1	14000	220	10
18. Yellow Fever.	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1347586	37877	1426	1534311	38553	1494	1680419	49882	1602	1613326	65617	1874

2-2-2. Administrative System for Health and Medical Care

The federal government takes charge of elaboration of health & medical plans for the entire country, formation of specialized staff in medical field, liaison and adjustment with international medical organizations and problems relating to health and medical care among provincial governments. In the Punjab, the public health and medical services are placed under the control of Health Dept. and those services are organized on 2 administrative levels, elaboration of general plan for entire health & medical services, establishment of training plan, control of health and medical administration and direct management of specialized hospitals and medical schools by the management of specialized hospitals and medical schools by the Dept. of Health (DOH) on one hand, and coordination and control of the entire public health organizations by the Regional Medical Dept. of the Punjab, which is a substructure of DOH, through the Secretary on the Division level and the Health Controller on the District level.

Table 2-8. indicates the Organization Chart of DOH, Government of the Punjab while Table 2-9. shows the organization chart of the Regional Medical Dept. of the Punjab (substructure of DOH).

Table 2-8. Organization Chart of Health dept. in the Punjab.

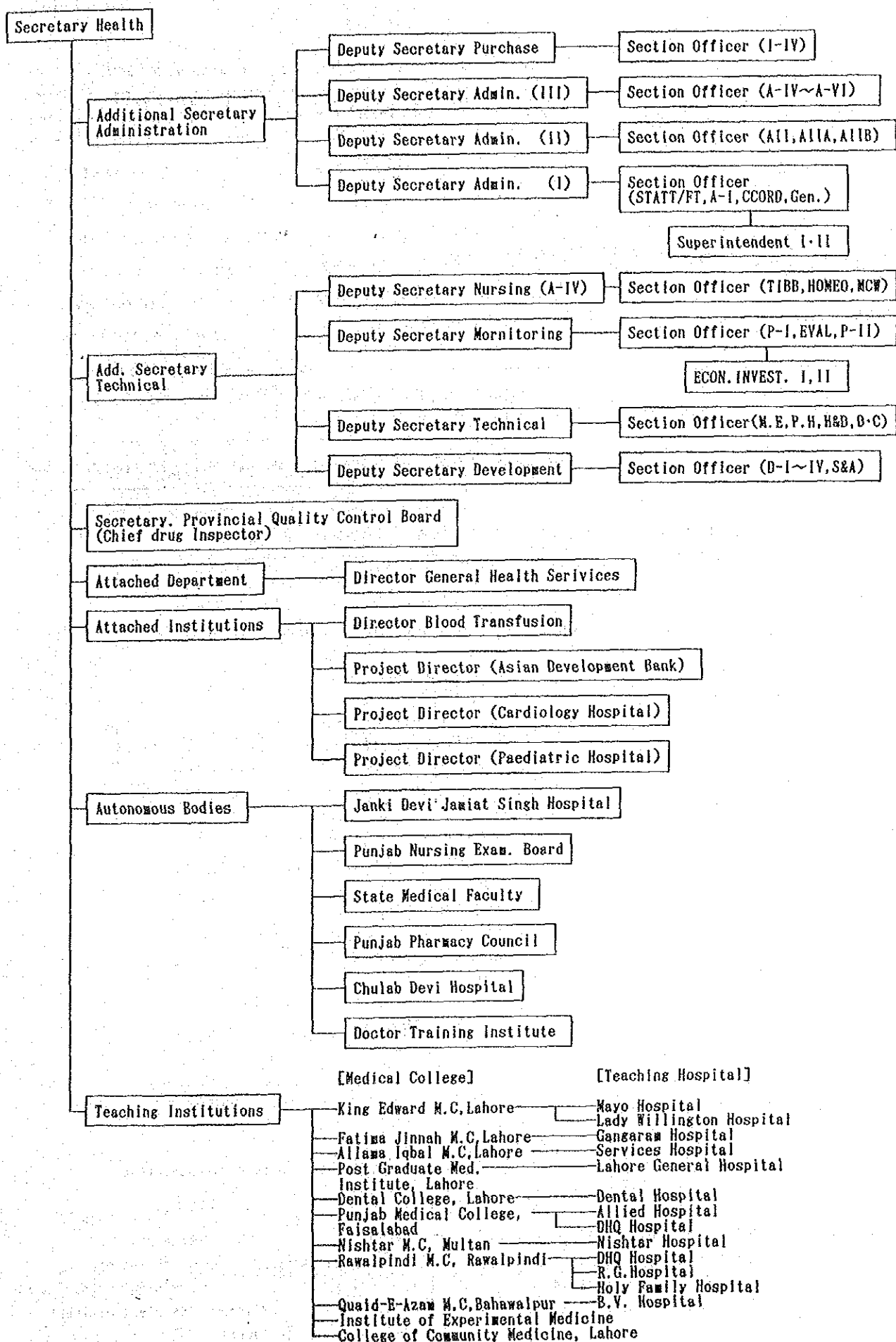
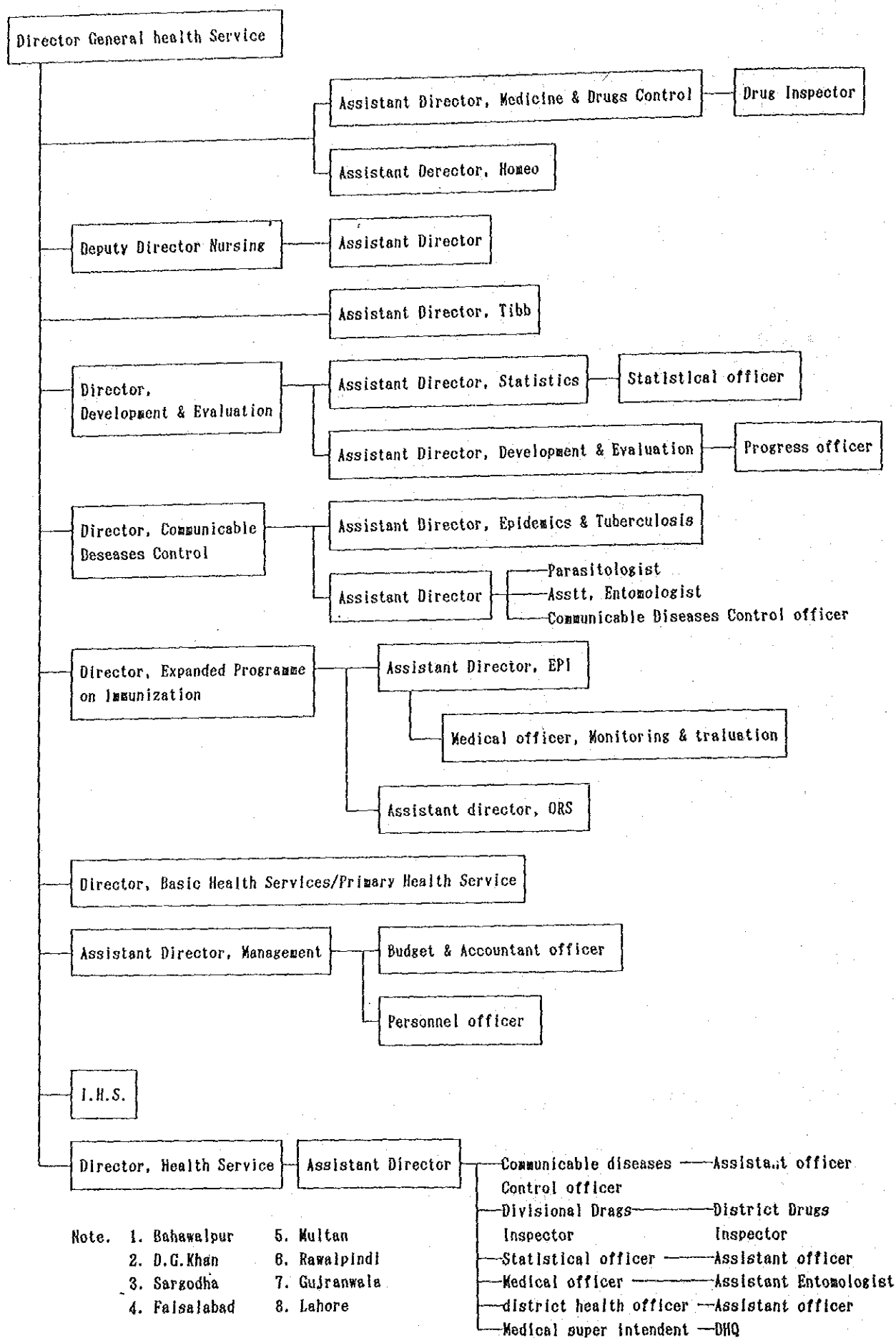


Table 2-9. Organization Chart of General Health Services Dept., in the Punjab.



2-2-3. Health & Medical Services

The Government of Pakistan started the Basic Health Service System (BHS) in 1977 with a financial assistance and a technical cooperation of the United States of America and is making efforts to offer health and medical services to its people. The purpose of BHS is to provide regional societies with inclusive and preventive health and medical services to combine modern hospitals located in urban areas with the regional societies. BHS consists of 3 Components. They are, First Component: Community Health Worker (CHW), Second Component: BHU, and Third Component: RHC.

Table 2-10. describes the medical units providing the above-mentioned health & medical services as well as their content.

Table 2-10. Explanation of each Health Facility and Unit.

CHW	one male and/or one female CHW in each village; trained by BHU staff for three to six months; provides preventive services and cures of simple diseases; screens patients and refers more difficult cases to BHU.
BHU	originally intended to serve average population of 10,000 people (25 square miles), the Sixth Plan has now increased coverage to one BHU/union council; staffed by one physician and four to six paramedics/technicians (previously BHUs were not staffed by physicians - refer to section 3); some LHVs also work out of BHU; provides preventive and simple curative services; trains and supervises CHWs; referral centre for CHW; provides medicine and equipment to CHW.
RHC	Centre for planning, management and supervisory support for rural health services; referral centre for 4 to 10 affiliated BHUs (coverage 100,000 people); staffed by 2 male and 1 female physicians, 8 auxiliaries (medical technicians, medical technologists); 10 to 25 beds;

under managerial and supervisory control of DHQ;
refers patients to HQ and DHQ hospitals;
provides medical supplies to BHU.

HQ referral centre for affiliated RHC;
HOSPITAL covers 350,000 to 400,000 people;
(Head- surgical, medical, laboratory and X-ray facilities;
Quarters supports RHC activities of RHC/BHU with education,
Hospital) supervision, referral, supply physicians and other health
professionals to RHC;
refers patients to DHQ Hospital.

DHQ Support RHCs linked to DHQ Hospital through HQ Hospital;
HOSPITAL covering approx. 1,600,000 people;
30 to 300 beds;
all main specialties.

There are 17 medical colleges in Pakistan today and each teaching hospital of Medical Colleges owns between 300 and 1600 beds and necessary specialized diagnostic depts.

In addition, people can receive medical services from medical units such as Dispensaries, MCW Centres, Sub Centres, etc. where health nurses are stationed.

Also in the province of the Punjab, health and medical services of the system and the content as mentioned above all provided to the inhabitants. Table 2-11. and Table 2-12. indicate the progress of the number of health facilities and the number of beds in the Punjab and the number of patients who were treated by those health facilities respectively. As shown in those Tables, the inhabitants' needs for medical services are growing year by year and both the number of health facilities and the number of patients are on the rise.

However, according to reports of the United States and the World Bank, the rate of utilization of the said public medical services is as low as about 1/3 of that of BHU and RHC is only about one half of the capacity of those facilities and the rate of occupation of beds is under 40% as it is reported. Therefore, the function of BHU and RHC to introduce patients to hospitals is believed not to work well.

The causes of such low rate of utilization may be attributed to the fact that about 1/3 of the public health facilities are closed during the consultation hours and that the number of patients received is

rather low compared with the number of facilities and the capacity of the staff. Moreover, a shortage of medical supplies to and an insufficiency of medical equipment in those facilities are also believed to be important causes of such situation.

Table 2-11. Health Facilities, The Punjab: 1985 to 1989

(as on 1st January)

(Number)

<u>Item</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
1. Hospitals					
i) Number	253	261	271	281	281
ii) Beds	22,568	23,154	23,854	25,530	25,808
2. Dispensaries					
i) Number	1,250	1,228	1,242	1,309	1,319
ii) Beds	2,195	2,054	1,972	1,962	1,940
3. RHCs					
i) Number	177	193	221	241	269
ii) Beds	1,333	1,457	1,720	1,926	2,342
4. TB Clinics					
i) Number	52	51	51	50	50
ii) Beds	10	-	-	-	-
5. BHUs					
i) Number	1176	1341	1396	1544	1825
ii) Beds	-	-	-	-	332
6. Sub Centres					
Number	510	531	615	635	578

Source : Statistical Section, DOH, the Punjab

Table 2-12. Patients Treated by Health Facilities,
The Punjab : 1985 to 1989 (Thousand in Number)

<u>Facility</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Hospitals	11,337	11,887	13,770	14,023	16,149
Dispensaries	4,487	5,477	5,639	5,829	6,038
RHCs	7,334	7,791	9,135	10,210	11,213

Source : Statistical Section, Health Dept. the Punjab

2-2-4. Doctors and Medical Staff

Table 2-13. indicates the number of people engaged in medical services by province in Pakistan.

To calculate by using this Table and the figures of the country's population of 154,020 thousand and that of the Punjab of 57,687 thousand (1988), the ratio of the number of doctors to that of inhabitants in the Punjab is one to 3,879 which is much lower than the average number of one to 1,973 in the entire country. As for nurses, the ratio of the number of nurses to that of inhabitants in the Punjab is one to 12,406 against the national average of one to 10,540. The number of inhabitants per medical assistant in the Punjab is 1,955 against the national average of 1,622 inhabitants/medical assistant.

From the fact that the number of doctors and other people engaged in the medical services in the Punjab is much smaller than the national average and that the population of the Punjab represents more than one half of the total population of the country, it is believed that the demands for medical staff in the Punjab is probably the highest in Pakistan. Therefore, it seems quite reasonable to give first priority to the Punjab for the training and education of doctors as it is also stated in the Seventh Plan.

Table 2-13. Health Manpowers by Province (June 1988)

	<u>PUNJAB</u>	<u>SIND</u>	<u>NWFP</u>	<u>BALUCHI-</u> <u>STAN</u>	<u>ICT</u>	<u>AJK</u>	<u>FATA</u>	<u>NA</u>	<u>TOTAL</u>
1. Doctors (including Dentists)	<u>14,870</u>	14,200	3,900	1,200	750	500	500	80	36,000
2. Nurses	<u>4,650</u>	3,500	1,000	300	500	50	-	-	10,000
3. Paramedicals	<u>29,500</u>	16,400	8,500	3,000	2,000	2,000	2,000	1,600	65,000

Source : The Seventh Plan

Note : The Numbers of Doctors and Dentists shown above are not inclusive of those of private and military hospitals.

2-2-5. Education System and System of Medical Education

The educational system of Pakistan follows that of the United Kingdom and consists of primary school (5 years), secondary school (5 years), higher secondary school and other institutions of higher education such as college, university, post-graduate school, etc. However, the facilities related to education are not prepared so well and the facilities of primary schools can accommodate only 60% of the children, for example. The compulsory education system is also incomplete. The rate of illiteracy amounts to as high as 75% for such reasons as a very small percentage of school attendance of girls, difficulty of securing teachers, etc. In Pakistan, investments in education are going on in the belief that education is indispensable to form human resources which are the most important property of the nation and to construct a productive society, but it is believed to take several years more to improve the above-mentioned situation. Table 2-14. indicates the number of educational institutions and the number of schoolchildren and students in Pakistan.

Table 2-14. Number of Education Institutions and Number of Schoolchildren and Students in Pakistan (Thousand in Number)

	Number of Educational Institutions	Number of Schoolchildren & Students
Primary School	84,307	7,687
Secondary School	6,584	2,096
Higher Secondary School	4,777	713
Middle Vocational School	299	63
Technical & Scientific College	581	425
College	101	77
University	23	65

Source: Pakistan Economic Survey 1987/1988

Medical college is classified in the category of college together with colleges of pharmacy, dentistry, engineering, agriculture, etc. There are 17 medical colleges in the country. As for the standards relating to the education facilities of medical colleges, the Medical & Dental Council of Pakistan prepared standards stipulating the scale of the educational staff and the number of beds. According to the stand-

ards, the basic educational courses to be provided by a medical college include Anatomy, Physiology, Biochemistry, Pharmacology, Pathology, Legal Medicine, Science of Infectious Diseases, Medicine, Surgery, Obstetrics & Gynaecology, Ophthalmology and ENT. In addition, optional specialized courses include Paediatrics, Anaesthesiology, Psychiatry, Radiology(diagnosis, treatment), Chest Surgery/Medicine, Dermatology, Dentistry, Orthopaedics, Neurology, Urology, Cardiology, Plastic Surgery, Neurosurgery and Venereology.

Each of those specialized subjects is to be included in one unit of the respective basic courses. For the respective basic courses, the numbers of professors, associate professors, assistant professors and lecturers are specified. The number of beds in an teaching hospital is stipulated according to the number of students, and medical college with a capacity of 201 - 250 students as in the case of the Medical College of this Project requires 995 beds at least.

Since the number of students was sharply increased in recent years for the purpose of coping with the serious shortage of doctors in Pakistan, there are many medical colleges which don't possess many numbers of beds and sufficient teaching facilities enough to conduct clinical education.

To make up for such insufficiency of educational facilities, the number of students admitted each year is planned to be maintained at no more than 100 during the period of the Seventh Plan. However, in the Punjab and in NWFP where the shortage of doctors is a serious problem, investments for development are being made in the belief that the standard of education should be raised by expanding the facilities while keeping the number of newly admitted students at the present level.

2-3. History and Organization of the Punjab Medical College and Allied Hospital

2-3-1. History and Organization of Medical College and Allied Hospital

- (1) Although the Punjab represents more than one half of the country's total population, the ratio of the number of doctors to that of inhabitants in the Punjab is one to 3,879 which is under 60% of the average number of one to 1,973 in the entire country. In spite of the fact that the Punjab is an industrial centre where the population is sharply increasing, there are a lot of insufficiencies in the matter of medical services. Especially, in the City of Faisalabad and the sur-

rounding areas, concentration of population has proceeded very rapidly even in the peripheral parts such as Faisalabad Division and Sargodha Division in addition to the densely populated urban areas and it is very difficult to meet the growing demands for medical services with the existing medical facilities and number of doctors.

Under such circumstances before the Allied Hospital was constructed, the inhabitants in those areas were obliged to go all the way to the City of Lahore or the City of Multan (both of which are located as far as approx. 170 km from the city of Faisalabad) when they needed medical services of high level. For that reason, the Government of the Punjab came to a conclusion that a medical centre providing basic medical services in Medicine, Surgery, Obstetrics & Gynaecology, Paediatrics, etc. should be established in this area.

When the Government of the Punjab decided to establish a new medical college in 1973 under the circumstances as mentioned above, Faisalabad was nominated as the candidate of top priority for it.

The City of Faisalabad is inhabited by a lot of independent industrial operators, businessmen and factory workers while in the surrounding areas the majority of the inhabitants are farm workers. Therefore, the establishment of this medical institution was expected to provide medical services to people working in all kinds of fields.

The Teaching hospitals attached to this Medical College include the Allied Hospital of the Medical College (Allied Hospital) and existing District Headquarters Hospital (DHQ Hospital). The DHQ Hospital functioned as the only teaching hospital from the beginning of the establishment of the Medical College and the number of beds of this hospital had been continuously increased to improve medical services and smaller number of beds compared with the number of students for clinical education. Of the establishment motives of the Allied Hospital, some were the geographical inconvenience of a long distance between the Medical College and the DHQ Hospital and an impossibility of further expansion of the number of beds of the DHQ Hospital because of a restriction of land area.

(2) History of the Medical College and Allied Hospital

Faisalabad, where this Medical College is located is the 3rd largest city in Pakistan with a population of over one million. It is situated in about the centre of the Punjab and is a Divisional Headquarters. The campus of this Medical College is located in the new town in the north-eastern part of the city and has large area of 158 acres (63.9ha) facing

the Sargodha Highway. The history of the Project for construction of the Medical College including the Allied Hospital since the Government of the Punjab decided to establish the Medical College in 1973 up to today is as follows:

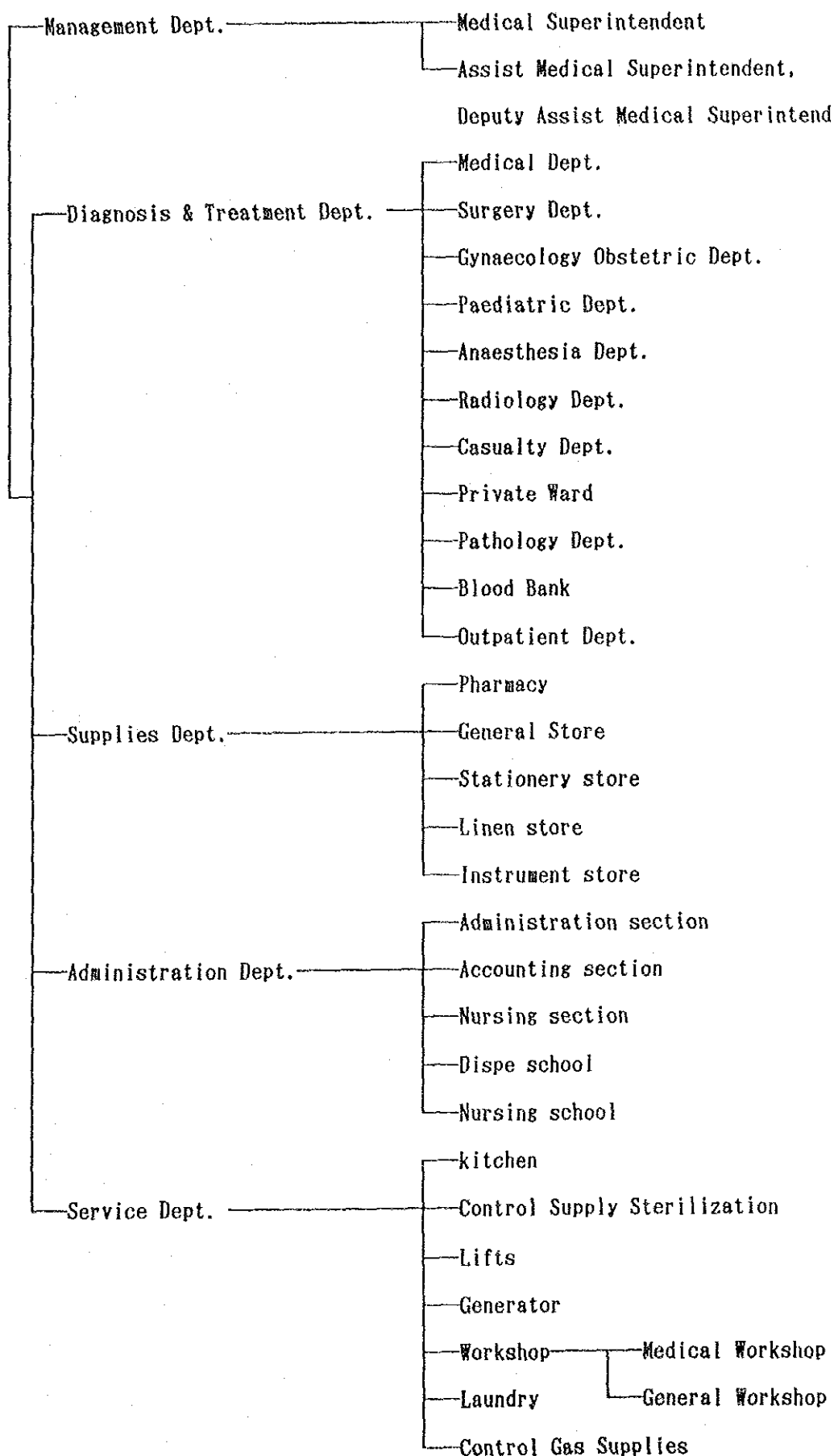
- 1973 : Decision made by the Government of the Punjab to establish a new medical college in Faisalabad.
- 1973/74 : Medical College established (by borrowing the buildings of the University of Agriculture).
- March, 1974 : Admission of students started.
- March, 1978 : Construction works of new campus started in the current site.
- March, 1981 : Medical College shifted to the new campus.
- February, 1982: Construction works of Allied Hospital started.
- April, 1984 : NU-1 completed.
- March, 1985 : Diagnostic Block completed.
- November, 1986: Delivery of medical equipment by a grant aid of Government of Japan completed.
Project name: "Project for Improvement of Medical Equipment for Punjab Medical College, the Islamic Republic of Pakistan".
- March, 1987 : Operation of Allied Hospital started.
- 1991 : The above state of things has continued to date.

The conception of establishment of the new campus was to establish a hospital of 750 beds accommodating 1,250 students. The construction project was started in 1978 with DOH, as owner and the Design Cell, University of Engineering and Technology, Lahore as consultant and under the supervision & maintenance of works of Medical College Construction Division, Faisalabad, Building Dept. Communication & Works Dept. Government of the Punjab. The Project, which was initially planned for a construction period of 96 months (8 years) and expected to be completed in 1985, was revised in 1986/1987 for such reasons as increase of works cost, expansion of scale of facilities, etc. and the planned time of completion was extended to 1991.

(3) Organization of the Allied Hospital

Table 2-15. indicates the operational organization of the Allied Hospital while Table 2-16. shows the assignment of personnel in the Hospital. The more details of personnel is shown as Data 8-2.

Table 2-15. Organization Chart of the Allied Hospital

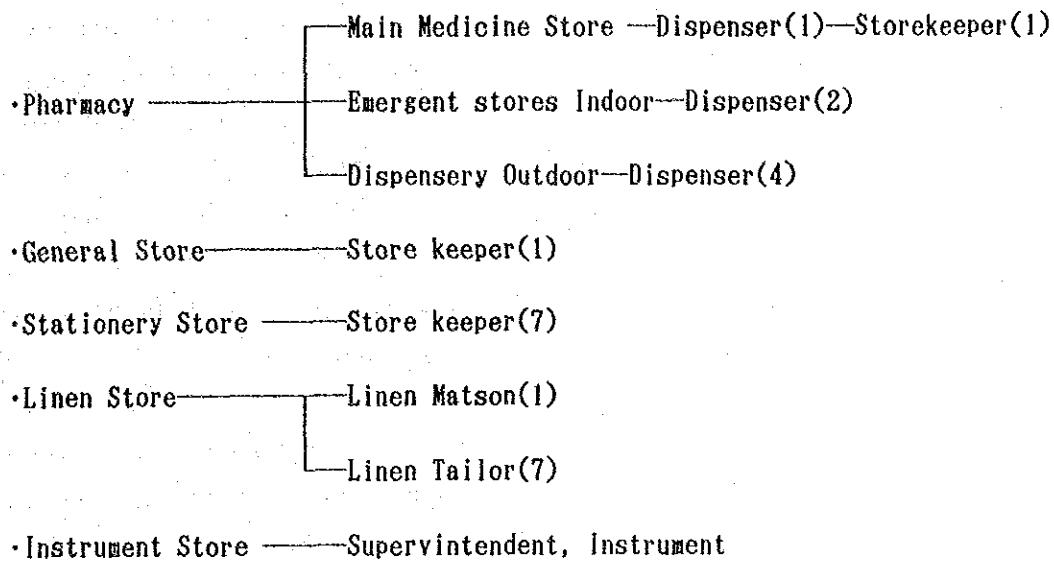


[1] Diagnosis & Treatment Dept.

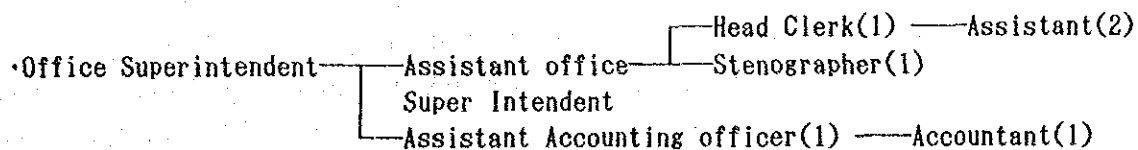
Post	Medicine		Surgery		Gynaecology		Paediatric		Anesthesiology		Radiology		Casualty		Private Ward		Pathology		Blood Bank		Out Patient	
	Dept.		Dept.		Dept.		Dept.		Dept.		Dept.		Dept.		Dept.		Dept.		Dept.		Dept.	
1. Professor	3		3		1		1		1		0		0		0		0		0		0	
2. Associate Professor	3		3		1		1		1		1		0		0		0		0		0	
3. Assistant Professor	3		3		1		1		1		0		0		0		0		0		0	
4. Specialist	1		0		0		0		6		1		0		0		1		0		0	
5. Registrar	7		7		2		4		4		0		0		1		3		0		7	
6. Medical Officer	8		9		1		2		4		0		7		3		0		0		11	
7. House Surgeon	42		42		16		12		0		1		5		0		2		0		3	
Doctors Sub Total	67		67		22		21		17		3		12		4		6		0		21	
8. Nurses	29		29		9		10		18		0		0		7		2		1		0	
9. Paramedicals	3		0		4		0		40		30		19		0		19		5		18	
10. Helpers	24		24		24		24		24		24		24		24		0		0		20	
11. Assistants	4		7		10		1		4		2		6		1		0		4		19	
12. Total	127		127		69		56		103		59		61		36		27		10		78	

Table 2-16. Present Manpower Allocation

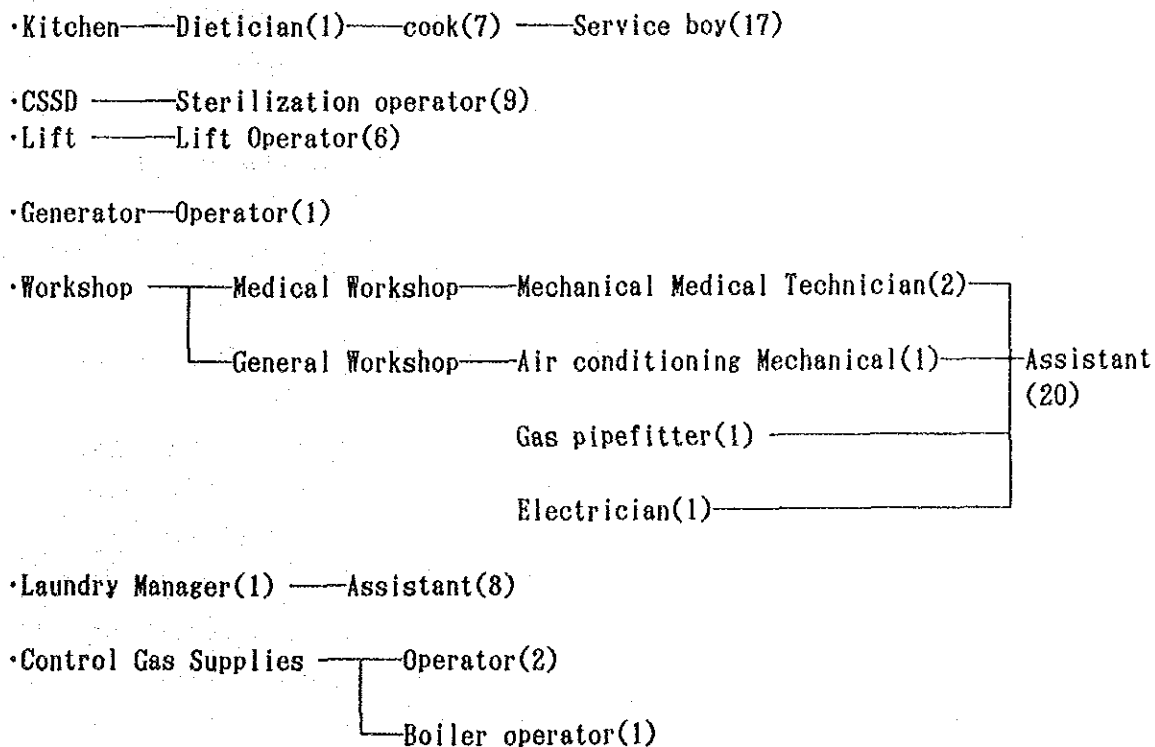
[2] Supplies Dept.



[3] Administration Dept.



[4] Services Dept.



2-3-2. Diagnostic Function and Teaching Function of the Medical College and the Allied Hospital

(1) Diagnostic Function of the Medical College and the Allied Hospital

The Medical College has under its control both the Allied Hospital and the DHQ Hospital as its allied diagnostic facilities. In Phase I, the Allied Hospital prepared the basic diagnostic depts. such as Medicine, Surgery, Obstetrics & Gynaecology, Paediatrics, Radiology, etc.

However, as regards such specialized diagnostic depts. as ENT, Ophthalmology, Orthopedic Surgery, Dermatology, etc. which are inevitable in a teaching hospital of medical college, inpatients are still facilitated in DHQ Hospital, since the facilities for inpatients are not established yet in the Allied Hospital. For that reason, the patients of those depts. are still treated in the DHQ Hospital as before. Moreover, the professors, associate professors and assistant professors of the Medical College are controlling the diagnostic depts. of both the Allied Hospital and the DHQ Hospital. It means that the diagnostic function of this Medical College is playing an important role not only for the Allied Hospital but also for the DHQ Hospital.

The diagnostic function of the Medical College will be described hereafter by analyzing the current situation of diagnostics in the Allied Hospital and the DHQ Hospital.

Table 2-17. indicates indices showing the scale of the Allied Hospital and the DHQ Hospital and Table 2-18. the diagnostic depts. owned by these two hospitals.

Table 2-17. Scale of the Allied Hospital and the DHQ Hospital

<u>Indices</u>	<u>Present Number</u>	
	<u>Allied Hospital</u>	<u>DHQ Hospital</u>
Beds	502	551
Personnel	899	517
Outpatients(1989)	169,439	221,522
Inpatients (1989)	29,277	21,452

Table 2-18, Comparison of Depts. for Diagnostic & Treatment
which Allied Hospital and DHQ Hospital possess

<u>Depts.</u>	<u>Allied Hospital</u>		<u>DHQ Hospital</u>	
	<u>Outpatient</u>	<u>Inpatient</u>	<u>Outpatient</u>	<u>Inpatient</u>
Medicine	E	E	E	E
Surgery	E	E	E	E
Paediatrics	E	E	E	E
Obstetrics &	E	E	E	E
Gynaecology				
Chest Surgery	E	N/E	E	E
Dermatology	E	N/E	E	E
Psychiatry	E	N/E	E	E
Dental	E	N/E	E	E
ENT	E	N/E	E	E
Ophthalmology	E	N/E	E	E
Radiotherapy	E	N/E	E	E
Orthopaedics	E	N/E	E	N/E
Plastic Surgery	E	N/E	E	E
Physiotherapy	E	N/E	N/E	N/E
Oral Surgery	N/E	N/E	E	E
Casualty	E		E	
Radiology	E		E	
Physiotherapy	N/E		N/E	
Blood Bank	E		E	
Pathology	E		E	
Anaesthesia	E		E	

Note. E ; Existing

N/E ; Not Existing

[1] Allied Hospital

The Allied Hospital is expected to function as a referral hospital for the primary and secondary medical facilities existing in the districts of Sargodha, Faisalabad and Lahore in addition to its function of a teaching hospital. However, in those districts, patients generally prefer to be treated in a hospital close to the place of their residences for the reasons of poor traffic conditions, etc. The Allied Hospital also accepts patients from time to time regardless of the presence or not of an introduction from other medical facilities. The current number of beds in the Allied Hospital is indicated in Table 2-19.

Fig 2-19. Present Bed-strength of Allied Hospital

		P.H.F	
NU-1 403 beds	Medical Unit-II	3.F	Medical Unit-II
	Medical Unit-I	2.F	Surgical Unit-II
	Paediatrics	1.F	Surgical Unit-I
	Gynae; Unit-I	G.F.	Labour
Diagnostic Block IF		Administration	
G.F	Surgical Unit-III ICU	40 + 8	Private Ward 1F
		48 beds	17 beds

The characteristics of the tendency of disease of the patients treated in the Outpatient Dept. and the Inpatient Dept. of this Allied Hospital are the following:

* Outpatient Dept.

(a) Medicine Dept.

In the Medicine Dept, there are many patients who are diagnosed as suffering from infectious disease of mesentery, pneumonia /bronchitis, and many others complain of muscular pain, fever due to infection of malaria, gastritis, anaemia, etc.

(b) Surgery Dept.

In the Surgery Dept, there are many cases are of appendicitis, hernia, rectal fistula and particularly a large number of cases of urinary calculus.

(c) Paediatrics Dept.

Many patients are suffering from diseases of upper and lower respiratory organs. Cardiomorphia and rheumatic cardiac disease also characterize the patients visiting this Dept.

(d) Obstetrics & Gynaecology Dept.

There are many cases of inspection of embryo (by ultrasonic diagnosis, etc.). A particularly large number of patients complain of an abnormality of discharge and other frequent cases are those of primary amenorrhea, imminent abortion, etc.

(e) Casualty Dept.

There are equal parts of intestinal obstruction, multiple injury, colic pain of kidney, high fever of unknown cause, traffic accidents. There are also many patients who are carried in Casualty Dept. with intestinal inflammation, acute abdominal inflammation and labour pains.

(f) Dermatology Dept.

The most frequent diseases are scabies, eczema and infectious diseases by virus.

(g) Psychiatry Dept.

There are about equal number of cases of anxiety neurosis, phobia, depression, manic-depressive psychosis, epilepsy, etc. but the number of cases of schizoid is comparatively small at about one half of each of the above diseases.

(h) ENT Dept.

The most common of the diseases are acute/chronic tonsillitis, acute/chronic otitis media, otorrhea, allergic rhinitis, etc.

(i) Ophthalmology Dept.

The most frequent diseases are sty, conjunctivitis, unripe cataract, etc. These are bacterial diseases and indicate low sanitary conditions.

(j) Radiology Dept.

In this Dept. the number of cases of angiography is extremely small as against the number of cases of embedding of pacemaker.

(k) Pathology Dept.

As mentioned before, the number of cases of the inspection item "Selection of antibiotics" (Culture/Sensitivity) is small in spite of the fact that bacterial diseases are frequently seen in each diagnostic dept.

(l) Anaesthesiology Dept.

There is no striking point in this Dept.

(m) Physiotherapy Dept.

Mainly low-frequency & infrared ray treatments are practiced but no statistical data of treatments is available.

(n) Oral Surgery Dept.

Currently diagnoses and treatments similar to those at dental offices are practiced. As for diseases, there are about equal numbers of cases of impacted wisdom-tooth, trigeminal neuralgia, injury, inflammation of gums due to dental calculus or inflammation of oral mucosa, and pulpitis (caries/pyorrhea alveolaris).

(o) Endoscopy Dept.

Of the endoscopes, the far greatest number is represented by gastroscope followed by esophagoscope for treatment of venosclerosis, endoscope for large intestines, bronchoscope, recto-romanoscope.

* Inpatient Dept.

(a) Medicine Dept.

Many of the patients are treated or operated here for such diseases as peptic tumor, infectious disease of mesentery, pneumonia, hepatocirrhosis, etc.

(b) Surgery Dept.

In the Surgery Dept, a large percentage of patients have been operated for such diseases as acute appendicitis, acute abdominal inflammation (peritonitis), injury of head, rectal fistula, etc.

(c) Paediatrics Dept.

The far commonest diseases are infectious diseases of respiratory organs, fever due to infection of malaria, tetanus, etc. The jaundice is also seemed be caused by an epidemic hepatitis.

(d) Obstetrics & Gynaecology Dept.

In the Obstetrics & Gynaecology Dept, the number of cases of normal childbirth is largest, followed by cesarotomy, curettage of internal membrane and gastrohysterotomy. It is customary in Pakistan that women bear child at home and are carried into a hospital only after anything unusual is found about delivery in many cases. As a result, there is an extremely large number of cases of cesarotomy.

In the number of cases of childbirth (1990), normal delivery represented 58.5% followed by cesarotomy (0.3%) in order.

In the number of cases of operation in the Obstetrics & Gynaecology Dept. the most frequent cases are curettage of internal membrane (34%) and ligature of uterine tube (30%).

Table 2-20. indicates number of patients in the Allied Hospital by year in each Diagnostic Dept. and Data 8-3. Patients Records by year and disease.

Table 2-20. Number of Patients in the Allied Hospital
by year in each Diagnostic Dept.

(I) General Diagnostic Dept.

	1987(1st April~)		1988		1989		1990	
	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor
Medicine (I, II, III)	2,576	29,254	5,508	50,934	6,137	54,001	4,907 (up to Octobre)	44,517 (up to Octobre)
Surgery (I, II, III)	3,966	16,378	7,995	31,512	8,677	32,810	7,893 (up to Octobre)	28,852 (up to Octobre)
Gynae&Obstetrics a) Delivery	976 605	17,841 —	2,770 1,176	19,075 —	2,798 1,973	20,498 —	2,649 1,764 (up to Novembr)	16,096 —
b) Surgery	682	—	2,036	—	1,987	—	1,998 (up to Novembr)	—
Paediatrics	1,333	18,525	2,770	20,378	3,279	24,910	2,613	34,740
I C U	—	—	112	—	130	—	161	—
Physiotherapy	—	—	—	—	—	538 (Feb. ~)	—	960
Ophthalmology	—	7,979	—	15,412	—	16,184	—	13,145
E N T	—	6,050	—	13067	—	13,033	—	12,198
Orthopaedics	—	included in surgery	—	included in surgery	—	included in surgery	—	included in surgery
Dermatology	—	7,846	—	15,904	—	16,832	—	14,040
Psychiatry	—	1,962	—	2,561	—	3,236	—	1,453 (up to Octobre)
Plastic Surgery	—	included in surgery	—	included in surgery	—	included in surgery	—	Included in surgery
Neurosurgery	—	included in surgery	—	included in surgery	—	included in surgery	—	included in surgery
Oral Surgery	—	included in surgery	—	included in surgery	—	included in surgery	—	488 (up to Octobre)
Chest Surgery	—	included in surgery	—	included in surgery	—	included in surgery	—	included in surgery
T o t a l	10,138	105,835	22,367	168,843	24,981	182,042	21,985	166,489

(II) Central Diagnostic Dept.

	1987	1988	1989	1990
Operation Theatre	3,749	6,951	6,635	6,456
Radiology	—	47,762	65,428	4,401
Pathology	149,308	244,136	241,165	184,863
Blood Bank (a) Donors	14,042	18,337	21,008	19,150
(b) Quantity (pint)	9,986	4,732	11,380	10,688
CCU	included in Medicine	included in Medicine	included in Medicine	included in Medicine
Endoscopy Unit	473	1,104	1,585	1,513 (up to 18th Decembre)
Casualty	9,064	20,365	21,338	20,430

[2] DHQ Hospital

The DHQ Hospital is essentially a general hospital of the district level. However, since the establishment of the Medical College, this hospital came to also function as a teaching hospital of the Medical College and has been providing opportunities of clinical education for doctors and other members engaged in medical services.

The data 8-4. at the end of report indicates the results of diagnosis and treatment for the period from 1981 to November, 1990. According to this data, the tendency of diseases is not so different from the structure of diseases in the Allied Hospital and the Punjab (Refer to Table 2-7.), showing large cases of amebic dysentery, abdominal dropsy, diabetes, elephantiasis, local injury, intestinal diseases, etc. As for chest diseases such as TB, etc, oral diseases, malignant tumor, etc, the patients are hospitalized in the DHQ Hospital since no receiving system and diagnostic function of those diseases are available yet in the Allied Hospital, as mentioned already.

(2) Teaching Function of the Medical College and the Allied Hospital

Professors, associate professors and assistant professors are sent from the Medical College to the different diagnostic depts. of the Allied Hospital to manage the depts. and provide the students with clinical education. The clinical education starts from the third-year students for learning the content of work of the people working in the Hospital in the third year, passes to the study of clinical evaluation and diagnosis in the fourth year and to clinical practices in the fifth year. For the diagnostic depts. which are not yet established in the Allied Hospital such as ENT, Ophthalmology, Orthopaedics, Oral surgery, Neurosurgery, etc, the clinical education is provided in the DHQ Hospital. Recently, the number of beds in the DHQ Hospital was increased to 551 for the purpose of attaining the objective of clinical education of the Medical College. The practical study of Forensic Medicine is also provided in the DHQ Hospital as no facilities are available yet in the Allied Hospital.

In the Medical College which constitutes a part of the University of the Punjab, the following 4 specialized tests are imposed on the students:

First MBBS Test (at the end of second year)

Second MBBS Test (at the end of third year)

Third MBBS Test (at the end of fourth year)

Final MBBS Test (at the end of fifth year)

(Remarks : MBBS --- Bachelor of Medicine / Bachelor of Surgery)

The Medical College and the Allied Hospital are officially recognized by the British General Medical and Irish Medical Council.

* The following is the curriculum of education in the Medical College:

The students are admitted to the first year after passing their F.Sc Pre-medical Examination on merit basis. The first year & 2nd year classes which are Pre-clinical classes are taught the following subject as laid down in the teaching, training syllabi. The courses are according to the rules and regulations of the University of the Punjab, Lahore in accordance with the requirements of Medical & Dental Council of Pakistan.

A-Anatomy.

Histology, Embryology, Neuro Anatomy 220 Hours.
Lectures, Demonstration/Tutorials
Dissection.
Histology Practices. 500 Hours.

B-Physiology.

Physiology Lectures/Demonstration. 80 Hours.
Practices/Tutorials.

C-Bio-Chemistry.

Lectures/Tutorials/Practices/ 400 Hours.
Demonstration.

D-Islamic Study/Pakistan Study/Ethics.

Lectures as per course prescribed by 200 Hours.
the University of the Punjab, Lahore.

After acquiring a sound knowledge of the basis of normal structure, Functions of the human body, and the Bio-Chemical processes taking place, the students takes their Examination called the first professional Examination enabling them to enter to the clinical side of the teaching institute.

In the third year they take up study of Pharmacology & Therapeutics and Forensic Medicine and Toxicology. The study hours are to the following.

A-Pharmacology & Therapeutics.

Lectures. 150 Hours.
Laboratory work & Demonstration. 150 Hours.

B-Forensic Medicine & Toxicology.

Lectures. 80 Hours.
Practices. 30 Hours.

In addition to these subjects the students are made versed with the clinical approach to the patients. They are also given and introduction to Pathology and its allies.

The students after completing the required hours take up University Examination called the second Professional Examination.

In the 4th year the students are detailed with general Pathology, Special Pathology, Community Medicine and Clinical Evaluation and Interpretations. The study hours required by the students to be completed are to the following.

A-GENERAL PATHOLOGY INCLUDING BACTERIOLOGY,
PARASITOLOGY, VIROLOGY AND IMMUNOLOGY.

Pathology Lectures.	50 Hours.
Pathology Practices.	50 Hours.
Bacteriology Practices.	50 Hours.
Microbiology Lectures.	50 Hours.
Parasitology Lectures.	65 Hours.

B-SPECIAL PATHOLOGY LECTURES.

Clinical and Pathology Lectures.	75 Hours.
Clinical and Chemical Pathology Practices.	70 Hours.

C-COMMUNITY MEDICINE INCLUDING EPIDEMIOLOGY & BIOSTATISTICS.

Lectures.	75 Hours.
Demonstrations.	25 Hours.

In community Medicine the students are provided opportunity to go to the slum area of the city and the rural area of the country side and see for themselves the problems faced by the mass population and how communicable diseases spread during epidemic and the factors involved in their spread and how they could master the control. They are also made to visit the peripheral health centre and interview the medical officers appointed there and see for themselves how preventive work in addition to curative works is carried out and the expanded programme of immunization is carried out. The students then appear in the third Professional MBBS Examination.

In the final year the students are taught Medicine, Surgery, Obstetrics & Gynaecology, ENT, Ophthalmology, The study hours are to the following.

A. <u>MEDICINE.</u>	Lectures 100 hours.
1. Internal Medicine including Neurology and Tropical Medicine Clinical Clerkship in Ward, Clinical clerkship in OPD.	6 months. 3 months.
2. <u>PAEDIATRICS.</u>	Lectures 20 hours.
Clinical Clerkship in Ward and OPD.	1 month.
3. Pulmonary TB	Lectures 5 hours.
Clinical Clerkship in TB	1 month.

4. Psychological and Psychiatric Lectures 12 hours.
Medicine.

Demonstrations 12 hours.

5. Dermatology. 10 hours.

B. SURGERY.

1. General Surgery including Chest Surgery 6 months.
Neurosurgery, Urology, Orthopaedics and
Dental Diseases.

Surgical dressership in Ward & OPD. 3 months.

2. Anaesthesia. 10 hours.

3. Radiotherapy and Radiology. 15 hours.

4. Venereal Diseases. 10 hours.

5. Clinical-Pathological Conference. Weekly.

**C. OBSTETRICS AND GYNAECOLOGY INCLUDING FAMILY
PLANNING.**

1. Lectures. 80 hours.

Clinical Clerkship in Obstetrics & 3 months.
Gynecology Ward & OPD.

2. Full time residency in Maternity ward. 1 month.

3. Family planning Lectures & Demonstrations. 5 hours.

D. OTORHINOLARYNGOLOGY.

Lectures 60 hours.

Demonstrations and training 1.5 months.

Final Professional examination is conducted in Medicine and Surgery. The examination in Medicine includes Paediatrics, Psychiatry and Dermatology and in Surgery does Orthopaedics, Obstetrics and Gynaecology, ENT and Ophthalmology. The following examination techniques are used: Essay questions, Viva, Practices and Clinical Examination.

The assessment for all the students in all the subjects is done both theoretically, Practically and Viva, as well as the number of lectures/ demonstrations attended by the students. They are debarsd from taking examination if they do not fullfilthe above condition. Minimum attendance is 75% required for appearing in the examination.

After obtaining their MBBS Degree the students are given a choice to take up one tear of training in the specialized field they chose.

There is no statistical data available about the course after graduation and the situation of diagnostic activities of the students of the Medical College, but the students find their jobs at about the percentage as indicated hereunder according to an explanation given by the authorities of the Medical College:

- * Employed by Government-owned Hospitals -- 30%
(of which 20% are engaged in Regional Medical Services)
- * Practitioners ----- 30%
- * Employed by Private Hospital ----- 20%
- * Employed abroad----- 10%
(United Kingdom, United States, etc.)
- * Education to higher grade after graduation --- 10%

Many of the graduates are working as employed doctors in Government-owned Hospitals, Practitioners and employed doctors in Private Hospitals.

Although the Government of the Punjab is encouraging duties in the rural areas to doctors by paying a subsidy to those who find a job in those districts in order to solve the problem of shortage of doctors in the Regional Medical Services, it is rather difficult under the current situation because the number of organizations which can employ doctors is quite limited. Therefore, the Government of the Punjab is trying hard to secure the necessary number of doctors in the provinces by providing an incentive of a low-interest finance, etc. to doctors who start practice with a view to creating places of employment for doctors. The number of graduates who go abroad for working is said to be about 10% and there is a general tendency for going to advanced countries such as the United Kingdom and the United States to find a more advantageous situation.

There are also some others who go to the post-graduate schools of medicine in Lahore and Karachi to obtain a higher degree, according to an explanation of the College.

Table 2-21. Number Graduates and Present Number
of the Medical College

(1) Number of Graduates

Year	Graduates
1984	161
1985	205
1986	189
1987	202
1988	193

(2) Present of Students

Year	Boys	Girls	Total
1st	115	104	219
2nd	295(174)	228(94)	523(268)
3rd	158	50	208
4th	160	30	190
5th	352(157)	49(21)	401(178)
Total	1,080	461	1,541

Note: the figures shown as () is old students.

2-3-3. Current Situation and Problems of the Allied Hospital

(1) Present Progress of the Project

The situation of progress of the Project, based on the amount of construction at the time of the Field Survey (November/December, 1990), is indicated as shown in Table 2-22. According to this table the Project has achieved 81% in the expenses of the entire cost estimated, including the cost of equipment and furniture, and 92% in the costs of construction only, while the works of external structures such as garage, roads, pavements, etc. are rather delayed with a rate of progress of 50 to 60%. For that reason, the planned completion of the construction works has been postponed to June, 1992, and the completion of equipment and furniture is expected to be further delayed because it is possible only after the completion of the phaseII Project.

As for the utilization of the land in the campus, the space for the Medical College and that of the sports complex and the hostels of the students represents 1/3 of the entire land, the space for official residences of the staff members of the Medical College and the Allied Hospital occupies 1/3 and the rest is reserved as a space for the Allied Hospital and the gardens, as shown in Fig. 2-2. Of those facilities, the Allied Hospital is located on the south side of the campus closest to the town district.

Table 2-22. Construction Progress of Medical College Buildings

S.No.	Description of Items	Areas. Sft.	Amount	Progress
		2m	contract	of works
			Total Cost	
1.	College Buildings.	<u>220,868</u>	<u>Rs.343.32Lacs</u>	=100%
		20,519	Rs.343.32Lacs	
2.	Hospital Buildings.	<u>582,998</u>	<u>1,054.65</u>	= 93%
		54,162	1,129.16	
3.	Hostel Buildings.	<u>376,113</u>	<u>593.13</u>	= 95%
		34,942	624.34	
4.	Residential Accommodation	<u>568,779</u>	<u>967.74</u>	= 94%
	for College & Hospital Staff	52,841	1,031.29	
5.	Residential Accommodation	<u>45,711</u>	<u>88.29</u>	=100%
	for house-Surgeon	4,247	88.29	
6.	Mosque and Imam Sahib Residence	<u>8,616</u>	<u>16.17</u>	=100%
		800	16.17	
7.	Garages for Cars, Scooters	<u>40,526</u>	<u>12.11</u>	= 56%
	and Cycles etc.	3,765	21.76	
8.	Sports Activities	<u>260,812</u>	<u>68.42</u>	=100%
		24,230	68.42	
9.	Roads/Pavement etc.	<u>6.13miles</u>	<u>33.88</u>	= 68%
		9,863m	49.38	
10.	Land Development i/e	-	<u>227.94</u>	= 80%
	External Services		283.94	
	T o t a l	-	<u>3,373.36</u>	= 92%
			3,655.89	
11.	Escalation Charges	-		
			138.62	
12.	Consulting Fee	-	<u>59.55</u>	= 82%
			72.76	
	Construction Total	-	<u>3,437.20</u>	= 89%
			3,867.28	
13.	Equipment & furniture	-	<u>1,976.48</u>	= 72%
			2,739.01	
	Grand Total	-	<u>5,413.68</u>	= 81%
			6,666.29	

Source: PC-1 Form (Second Revision), Hospital Data (Dec, 1990)

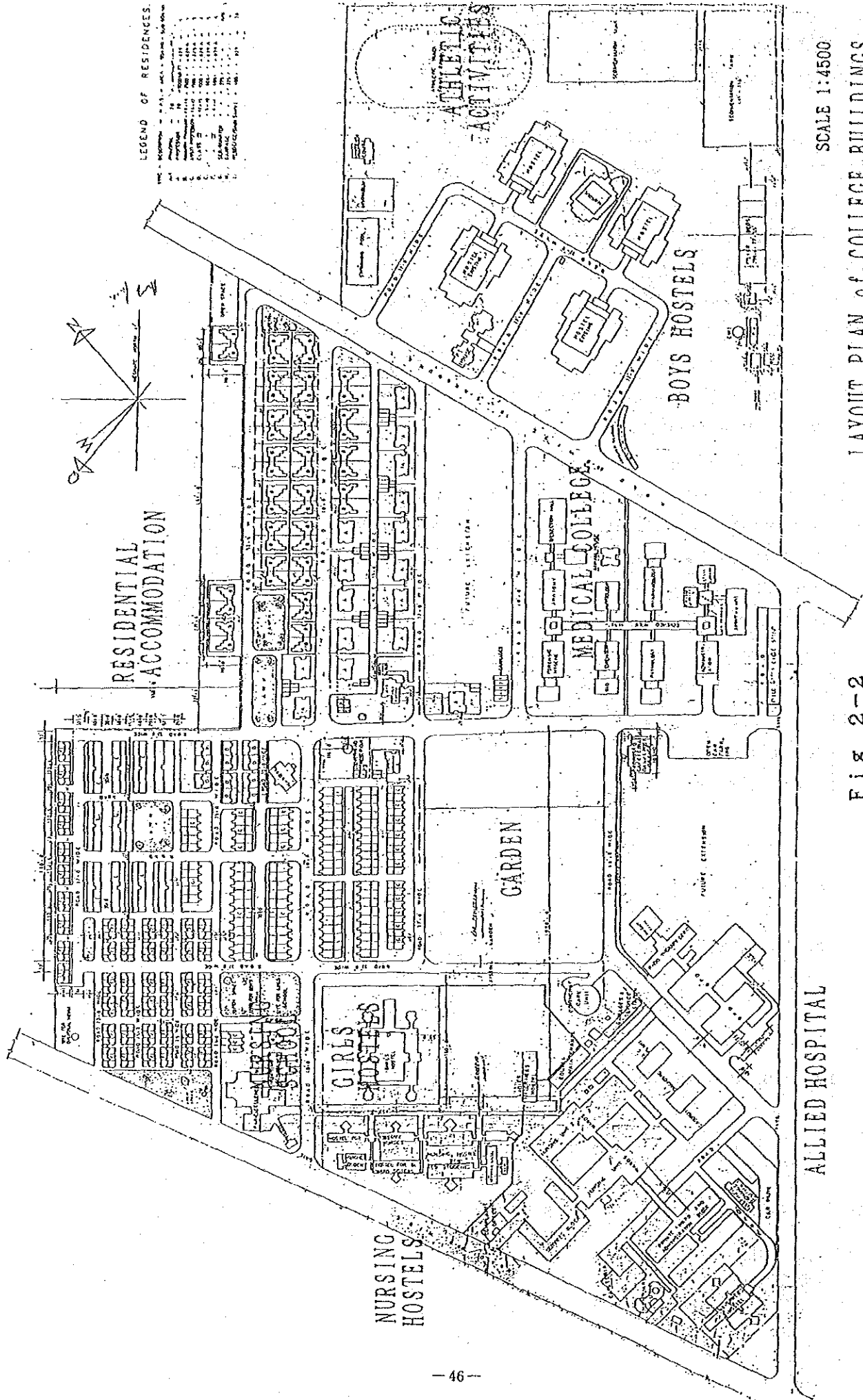


Fig. 2-2

(2) Current Situation of Buildings

The construction works of the Allied Hospital were started in 1982 and NU-1, Service Block, Diagnostic Block, etc. had been completed till 1985. In response to this completion, medical equipment was delivered (Phase I) in November, 1986 by a Grant Aid of the Government of Japan and the diagnostics and treatment started from March, 1987. At the same time, the operation of OPD Block was also started.

Even after that, the construction works of remaining facilities such as NU-2, Private Ward, etc. have followed and, as of the point in time of the Field Survey of this time, the works had been completed except 3 buildings of Psychiatric Unit(4th floor of NU-2), CCU and Mortuary Unit. Of those facilities, it is only for the Psychiatric Unit that the works have not yet been started (to be completed in March, 1992) while all the other 3 blocks are expected to be completed by April, this year and their works are getting in their final stage. The blocks which have not yet been put into operation although the works have been completed (Radiotherapy Dept. Ward, Maintenance Workshop) will start to be used after the completion of Phase II Project. However, the Private Ward and the OPD Block are already partially put in service by utilizing the equipment available locally in Pakistan. Those facilities are arranged, as shown in Fig. 2-3, in such a way that the wards and the OPD Block may surround the Diagnostic Block having the Pathology Dept., the Radiology Dept. and the Main Operation Theatres, these buildings being linked to one another by means of a two-storied corridor.

As for the utilization of the facilities, especially the Diagnostic Block is not functioning fully because the hospital has about one half of the planned final number of beds of 1,020 yet. Especially, in the Main Operation Theatres located in the second floor of the Diagnostic Block, 5 operation rooms out of 14, and 6 recovery beds out of 15 have been out of use. Those are the rooms to be used for operation of ENT Dept, Ophthalmology Dept. and Chest Surgery Dept, which are expected to have a supply of equipment by the Phase II Project. The beds (40 beds) of the Surgical Unit III, which should have normally been located in the ward, are disposed in the Casualty Ward on the first floor of the Diagnostic Block as a provisional measure by the time when the NU-2 is prepared. For that reason, Casualty Ward, with a little more than 10 overnight beds for accommodating patients, are installed in the OPD Block provisionally. The plan of the NU-1 and the Diagnostic Block are given in Appendix 8-6, at the end of this report.

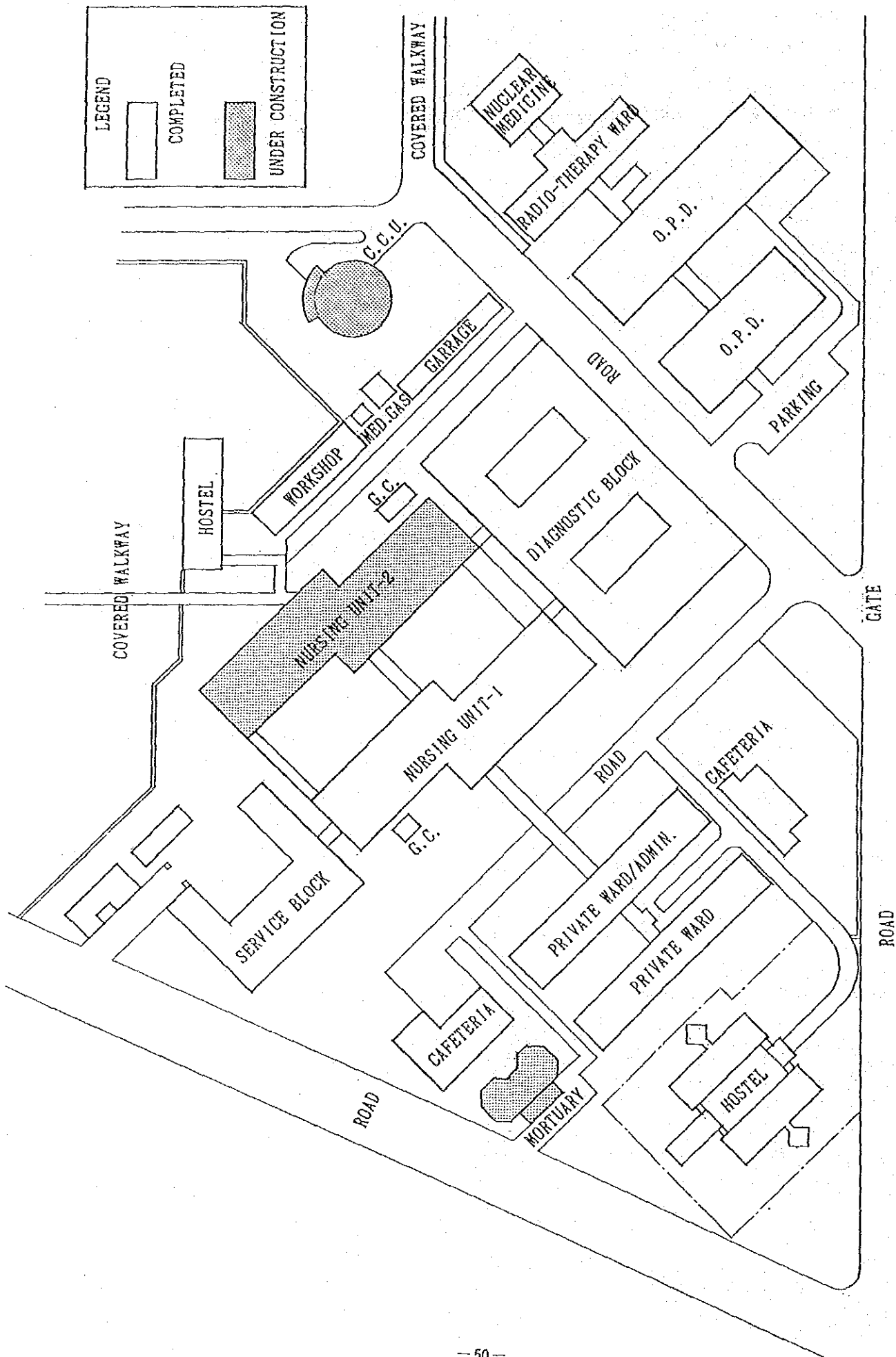
Table 2-23. Construction Schedule of Hospital Buildings

<u>No.</u>	<u>Description of Building</u> m ²	<u>Areas, Sft.</u> <u>Progress of</u> <u>of Works</u>	<u>Present</u> <u>of</u> <u>Phase I</u>	<u>Scope</u> <u>of</u> <u>Phase II</u>	<u>Scope</u>
2.	NU-1 (403beds)	<u>130,000</u>	Completed	I	I
		12,077			
3.	NU-2 (324beds)	<u>101,577</u>	Completed	N/I	I
	Ground f. - 2nd.F.	9,437			
-ditto-	Psychiatric Unit	<u>33,000</u>	Completed	N/I	I
	(75beds) 3rd.F.	3,066			
4.	Service Block	<u>20,561</u>	Completed	I	N/I
		1,910			
5.	Diagnostic Block (48beds)	<u>86,539</u>	Completed	I	I
		8,040			
6.	Private Ward (100beds)	<u>60,000</u>	Completed	N/I	I
	/ Admin. Block	5,574			
10.	CCU (10beds)	<u>7,000</u>	Completed	N/I	I
		650			
11.	OPD	<u>65,000</u>	Completed	N/I	I
		6,039			
12.	Nuclear Medicine /Radio-therapy Dept. (60beds)	<u>30,022</u>	Completed	N/I	I
		2,789			
13.	Equipment Maintenance Workshop	<u>6,000</u>	Completed	N/I	I
		557			
15.	Nursing School	<u>15,820</u>	Completed	N/I	N/I
		1,479			
	Mortuary Unit	<u>4,980</u>	Completed	N/I	I
		462			
	Hospital Cafeteria	<u>6,000</u>	Completed	N/I	N/I
		557			
	Covered Walkway (College to Hospital)	<u>9,000</u>	Completed	N/I	N/I
		836			
	Covered Walkway (Nursing School to NU-2)	<u>7,500</u>	Completed	N/I	N/I
		697			
	Grand Total	<u>5,82,998 Sft.</u>			
		54,162 m ²			

Note. I ; Included

N/I ; Not Included

Source; PC-1 FORM (Second Revision) Hospital data (Dec, 1990)



LAYOUT PLAN of HOSPITAL BUILDINGS SCALE 1:1350

(3) Current Situation of Building Services

* **Buildings:** The Faisalabad district has a very dry climate with an annual precipitation as small as 350 mm or so 70% of which concentrates in 3 months of summer from July to September, while the monthly precipitation in other months is no more than 20 mm. The daily average temperature exceeds 30 Cels. in May through September, however drops to no more than 15 Cels. During the period of December to February. The buildings of the Allied Hospital existing under such climatic conditions are provided with ventilating exhaust fans, ceiling fans and natural gas heaters only for air conditioning and their structure and layout are essentially designed for natural ventilation and natural draft. Even the major rooms such as Main Operation Theatres, Radiology Dept., Pathology Dept., etc. are provided only with a cooling system by split-type air-conditioner (installed in Phase I Project) and window-type air-conditioner. Because of a poor airtightness of steel windows and the building structure designed for natural draft, fine sand dust in the atmosphere characteristic of this area is constantly penetrating in all rooms of the buildings.

* **Equipment & Facilities:** In both the NU-1 and the NU-2, no lift system is included in the scope of the construction works in spite of the fact that they are 4-storied buildings. The same is true with such building facilities indispensable for hospital building as the said air conditioning system, fire fighting system, etc. Therefore, those facilities must be procured, installed and maintained by the Hospital after the works of the building are completed and delivered. For those reasons, three patients' lift lift and one freight lift had been installed in the NU-1 and one unit of dumb waiter (=small size lift) was supplied for the Diagnostic Block.

* **Power Supply Conditions:** The electric energy is received at 11 kV, 50 Hz from WAPDA and is used at 3-phase 4-wire 230V/400V within the Hospital. There are large voltage fluctuations, and during the period of the Field Survey, the voltage value was always indicated at about 10 - 20% higher against the rating of single phase 230V with 240 - 250V during the daytime and 260 - 270V at night. In addition, momentary voltage fluctuations of tens of volts are observed once or twice a day. Power failure occurs about twice a month on an average and its frequency gets higher during June-July and December-January periods. The cause of frequent power failures in summer is attributed to an in-

creased demand of power while that of winter is explained as shortage of water in the dam because it is a season with little rain fall. In those periods, daily load shutting of 1- 2 hours are also practiced. For protection against such power failures, 3 units of 195kVA power generators had been supplied in Phase I Project.

The amount of power consumption during the fiscal year 1989/1990 was 1,414,664 kwh with approx. 60% utilization of facilities against the entire facilities of the Allied Hospital with a charge of Rs.2,050,529.

* Water Supply Condition: The drinking water is prepared by purifying the canal water supplied by the Irrigation Dept./Punjab by slow sand filter beds in the campus. During the dry season, the well water is pumped up and mixed with the canal water in the campus. Since the well water contains a high rate of salinity, comparatively saline water is supplied in the Hospital.

The water quality satisfies the guideline values of WHO for drinking water quality. Although they are within the limits of tolerance, the total hardness and the chlorides ion content are comparative high at 216 mgCaCO₃/L and 295 mgCl/L respectively. As a result, the conductivity is as high as 1710 US/cm (at 25 Cels.), indicating the presence of a large quantity of ions in the water. Consequently, it is necessary to perform powerful water treatments for eliminating ions in order to protect medical equipment using water against adhesion of scale, corrosion of metal, etc.

Total amount of water consumption uring the year 1989/1990 was 155,000,000 cft, and the amount of water charge was Rs.10,695. It dose not appear in the books of the Allied Hospital, since the water charge is paid by the Building Dept./Medical College Construction Division, it does not appear in the books of the Allied Hospital.

(4) Current Situation of Diagnostic Depts. and Situation of Use of Equipment Supplied in Phase I.

The equipment supplied in the Phase I is used mainly in the following diagnostic depts.

The situation of use of the main equipment in each diagnostic dept. above is described hereunder (based on the list of equipment procured in Phase I).

(A) ICU

This room is actually used as a recovery room adjoining the Operation Room rather than as ICU and the main equipment units used there are patient monitoring systems, defibrillators and respirators. At present, those equipment units are not used in the number procured for the number of beds and about one half of them are to be used after the opening of the NU-2. One half of the equipment units are currently used and none of them is in the state unfit for use by trouble.

*The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity procured</u>	<u>Quantity unused</u>
A-1	Bedside Monitor	7	3
A-4	Ventilator	3	1
A-6	Eletrocardiograph	3	1
A-7	ICU Bed	15	6
A-13	ICU Countre	15	6
A-21	Ultrasonic Nebulizre	3	2
	Total		19

*Total number of items procured -- 32 items; Total number of units procured -- 140 units; Percentage of the number of unused units -- 13.5%

b. Equipment out-of-order -- 0, Total number of units procured -- 140 units; Percentage of equipment out-of-order -- 0%

(B) Obstetrics & Gynecology Dept.

This diagnostic dept. can be roughly divided into the following 4 parts:

(a) Labour Room/Delivery Room (b) Operation Room (c) Neonate Room

(d) Ward

- (a) The main equipment units disposed in the Labour Room/Delivery Room are delivery monitoring systems and ultrasonic diagnostic systems. Those systems were actually used for diagnosis on the occasion of the visit of the Study Team and we could understand that the diagnosis by images was being made in a good condition.
- (b) In the Operation Room, there are corposcopes and cryo surgery units (using carbon dioxide) necessary for obstetrics & gynaecological operations in addition to the equipment installed in ordinary operation rooms. In this Operation Room, the condition of maintenance of all equipment units is good in view of the large number of cases treated due to frequent operation of cesarotomy.
- (c) In the Neonate Room in which a Neonatal Intensive Care Unit (NICU) for collectively monitoring neonates and immature infants is installed, incubators, phototherapical equipment, CPAP system for neonate, etc. are provided. The equipment works normally when it is put under voltage but there is a problem about the daily maintenance system. Namely, the units cannot be connected immediately to the power source in case of an emergency and therefore it is impossible to cope with a case of emergency where an immediate relief of the patient is required. Daily maintenance for ensuring immediate connection of plug and plug sockets found in one same room are often different from one another and it sometimes happens that some plug cannot be connected to any of the plug sockets in the room.
- (d) None of the equipment units installed in the Ward especially those provided around the beds is unusable.

*The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment -- 0, Total number of units procured -- 757 units; Percentage of the number of unused units -- 0%

b. Equipment out-of-order

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
B-61	Ice Cube Machine	1	1
	Total		1

*Total number of items procured -- 109 items; Total number of units procured -- 757 units; Percentage of the number of units out-of-order -- 0%

(C) Main Operation Theatre

As reported in paragraph 2-3-3(2) "Current situation of Building" above, the Operation Theatre are divided into two operation blocks (north & south). The south block (6 Operation Rooms) is not used including the Recovery Room (6 beds) except one room which is used for Endoscopic Examination Room.

- * The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>unused</u>
C- 1	Universal Operating Table	8	1
C- 2	Orthopaedic Operating Table	2	2
C-12	Mobile X-Ray TV Unit	2	2
C-14	Cryosurgery Unit	1	1
C-18	Anaesthesia Apparatus	10	7
C-32	Polygraph for Thoracic Surgery	1	1
C-33	Polygraph for Cranial Nerve Surgery	1	1
C-34	Continuous Blood Gas Monitor	2	1
C-36	Blood Bank Refrigerator	2	1
C-48	Electro Surgical Unit	1	1
C-50	Cold Light Source	1	1
C-58	Cart for Endoscopes	1	1
	Total		20

- * Total number of item procured -- 136 items; Total number of units procured -- 563 units; Percentage of the number of unused units -- 3.5%

b. Equipment out-of-order

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
C-13	Surgical Mobile X-Ray TV Unit	1	1
	Total		1

- * Total number of items procured -- 32 items; Total number of units procured -- 140 units; Percentage of the number of unused units -- 13.5%

b. Equipment out-of-order -- 0, Total number of units procured -- 563 units; Percentage of equipment out-of-order -- 0%

(D) Casualty Dept.

In this diagnostic dept., all equipment units are maintained in a good condition and are utilized for casualty relief of the patients probably because there are frequent coming in and going out patients.

There is no equipment out-of-order nor unused unit.

(E) Ophthalmology Dept.

The equipment units procured are used in a part of the Outpatient Ward and the professors room of Ophthalmology. There is nothing difficult about those units both from the technical viewpoint and in the matter of maintenance and control, and they are fully contributing to the diagnosis and the treatment.

- * The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>unused</u>
E-3	Examining Light	2	2
	Total		2

- * Total number of item procured -- 7 items; Total number of units procured --- 11 units; Percentage of the number of unused units -- 0%

b. Equipment out-of-order -- 0, Total number of units procured -- 11 units; Percentage of equipment out-of-order -- 0%

(F) Plastic Surgery

- * The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>unused</u>
F-1	Examining Light	3	3
	Total		3

- * Total number of item procured -- 7 items; Total number of units procured --- 17 units; Percentage of the number of unused units -- 17.6%

b. Equipment out-of-order -- 0, Total number of units procured -- 17 units; Percentage of equipment out-of-order -- 0%

(G) Medicine Dept.

The equipment units installed in this diagnostic dept. include high-grade equipment in addition to ward equipment such as electrocardiograph (ECG), ultrasonic diagnostic system, defibrillator, load cardiogram measuring system, patient monitoring system, etc. However, those units are not well maintained for various reasons and some of them are out of order.

- * The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment -- 0; Total number of units procured -- 16 units; Percentage of the number of unused units -- 0%

b. Equipment out-of-order

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
G-1	ECG	3	3
G-3	Phased Array Ultrasonic Tomograph	2	2
G-4	Defibrillator	2	2
	Total		7

- * Total number of items procured -- 32 items; Total number of units procured -- 140 units; Percentage of equipment out-of-order -- 0%

(H) Radiology Dept.

The number of cases of radiology by angiography is rather small in view of the scale of this hospital, but the number of examinations made by using various radiographic examination systems may be judged as at a normal level. There is no single unit out-of-order especially because an agency of the manufacturer of various radiographic diagnostic systems is located in Karachi and the maintenance services are provided by engineers of that agency.

- * The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>unused</u>
H-7	Surgical Mobile X-ray	3	3
	Total		3

The about mentioned equipment are not used since there is no much frequency of use and same equipment in another section can meet the frequency.

(I) Pathology Dept.

Since the quality of water in this district is poor (there is a high level of salinity which can be felt easily by the sense of taste), the filters of the water purification system must be frequently replaced. No high-class automatic analyzers as those used in Japanese hospitals are installed here and the equipment is used more flawlessly than expected. However, there may be some problems when a wave of automation comes with an increase in the number of patients in the near future.

One unit of blood gas analyzer procured is left in trouble because there is no agency in Pakistan, although what is required is replacement of electrode and adjustment of calibration only. When selecting the type of equipment especially high-class equipment, priority should be given to the availability of maintenance service of a local agency.

* The condition of trouble and unused equipment in this diagnostic dept. is as follows:

* Total number of item procured -- 29 items; Total number of units procured --- 62 units; Percentage of the number unused units -- 4.8%

a. Unused Equipment -- 0: Total number of units procured -- 94 units; Percentage of the number of unused units -- 0%

b. Equipment out-of-order

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
I-17	Blood Gas Analyzer	1	1
	Total	1	1

* Total number of item procured -- 21 items; Total number of units procured 40 units; Percentage of equipment out-of-order -- 1%

(J) Blood Bank

* The condition of out-of-order and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>unused</u>
J-1	Blood Bank Refrigerator	4	3
J-2	Ultra Low Temperature Freezer	2	2
J-3	Refrigerated Centrifuge	1	1
	Total		6

* Total number of item procured -- 21 items; Total number of units procured -- 30 units; Percentage of the number of unused units -- 20%

(K) Ward

* The condition of trouble and unused equipment in this diagnostic dept. is as follows:

b. Equipment out-of-order

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
K-21	Ultrasonic Nebulizer	20	20
	Total		20

* Total number of items procured -- 43 items; Total number of units procured -- 2451 units; Percentage of equipment out-of-order -- 0.8%

(L) General Equipment

<u>Kind of lift</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
1. Lift		
Lift for Patients	3	2
Lift for Services	1	1
Dumb waiter	1	1

[Record of Repair for the Lift]

Ward	NU-1				Diagnostic Block
Type	For patients			For services	Dumb waiter
	No. 1	No. 2	No. 3	No. 4	No. 5
Installation	Take-Over completed on 29th November, 1986				
1987	Hospital started functioning on 31th March, 1987. Warranty period ended (one year) on 28th November, 1987				
1988	Went into malfunction in May				(Unknown)
1989					
1990		Went into malfunction in January ↓ malfunction in May ↓ Went into malfunction again in August ↓		Went into malfunction in July ↓	
Current Status	(Not working)	(Not Working)	(In operation)	(Not working)	(Not working)

Tenders were invited in January, 1990 for the repair of the lifts No. 1 & 2, and a trader in Lahore presented a tender for a price of Rs. 54,300/unit x 2 units = Rs. 108,600 (approx. 680,000 yen). However, no contract has been concluded yet because the offer did not meet the budget of the Allied Hospital. The No. 1 lift was repaired in May that year by a local trader for Rs. 5,000 (approx. 30,000 yen) but went into trouble again in August the same year. The defective point is said to be the IC circuit of the control panel located in the Mechanical Gases Room but the lift is left unrepaired because of unavailability of this spare part (or it may be that the price proposed by repairer is too high). As a cause for the trouble, the Hospital side mentions "overload" (riding of too many people), but it seems that a variety of factors such as accuracy of execution at the time of installation, penetration of fine sand, voltage fluctuation, insufficiency of daily inspection & maintenance, etc. are involved in a complicated way.

At present, only one unit, or No. 1 is in operation. Judging from the situation of use, it seems that 2 units were enough in quantity from the beginning and the remaining 3 units were not required. (In fact, a repair system was established only after the No. 2 lift went out-of-order.)

2. Air Conditioner

21 units out of 131 (16%) are not working. They are of split type for cooling only and are under a strong influence of the sand dust in the air and voltage fluctuations. The internal unit is mounted at a height no less than 4 m from the floor face and this makes daily maintenance very difficult. It is also difficult to remove the unit for repair. Moreover, because the split type is very rare in this country, it is difficult to obtain spare parts or receive a repair service for it.

3. Central Piping System of Medical Gases (Hydrogen, Vacuum)

The both facilities are fully utilized. The Main Operation Theatre mentioned insufficiency of hydrogen pressure but the indicated supply pressure was quite normal at 4.5 kg/cm^2 both in the Manifold Room and in the Main Operation Theatre are any leakage of gas on the way seems quite improbable.

4. Electric Power Generator

Two units out of three are used. One unit is not currently used but is reserved for an eventual increase of load by the Project.

5. Incinerator

The Incinerator works normally but is not currently used. Rubbish is stacked outside the fence for collection by the rubbish collecting vehicle of the municipal office.

6. Laundry Equipment

3 Washing machines, 2 Dehydrators and one Sheet Presser are fully utilized. Corrosion and rust are conspicuous in the parts other than stainless steel of the machines.

7. Kitchen Utensils

The number of users sharply decreased after the meals became chargeable in September, 1990. However, the equipment is still used in some

way or another.

- * The condition of trouble and unused equipment in this diagnostic dept. is as follows:

a. Unused Equipment

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>unused</u>
L-5	Air Conditioner	131	4
	Total		4

b. Equipment out-of-order

<u>Item No.</u>	<u>Equipment Name</u>	<u>Quantity</u> <u>procured</u>	<u>Quantity</u> <u>out-of-order</u>
L-5	Air Conditioner	131	21
L-6	Ambulance	6	1
L-9	Patient Lift	4	3
L-10	Lift	1	1
	Total		26

By totalizing what has been explained above, we will calculate hereunder the rate of non use and the rate of trouble of the equipment procured in Phase I by diagnostic dept. "Equipment out-of-order" as mentioned here means the equipment which is left as it is for reason of impossibility of repair.

The biggest cause of unuse of the equipment is that certain depts. to install them are not established yet due to the delay of construction by Pakistani side.

The survey of equipment out-of-order and unused equipment was made on various kinds of medical equipment other than general equipment and utensils such as chemical shelves, irrigator, operation instruments (forceps), beds, etc. and the total amount of the equipment concerned represents about 80% of the total amount of the equipment procured. Here are the rate of unused equipment and the percentage of trouble, etc.

<u>Dept.</u>	<u>Trouble Ratio</u>	<u>Percentage of Unused Equipment</u>	<u>Number of Equipment Units Surveyed</u>
(A) ICU	0%	32%	60
(B) Obstetrics & Gynaecology Dept.	2%	0%	61
(C) Operation Theatre	1%	24%	83
(D) Emergency Dept.	0%	0%	33
(E) Opthalmeology Dept.	0%	67%	3
(F) ENT Dept.	0%	30%	10
(G) Medicine Dept.	44%	0%	16
(H) Radiology Dept.	0%	23%	13
(I) Clinical Lab	0%	0%	7
(J) Blood Bank	0%	55%	11
(K) Ward	49%	0%	41
(L) General	23%	6%	62
TOTAL	11%(43 units)	14(57 units)	400

(5) Current Situation of the Maintenance & Control System

The Field Survey of this time revealed the presence of various problems about the current maintenance & control system. We will enumerate hereunder those problems about the current maintenance & control system.

(a) Procurement of Spare Parts

As for spare parts, there are many special articles which are unavailable in the domestic market of Pakistan and there is no way but rely on overseas suppliers. However, no import licence can be obtained if the amount is small. If, on the contrary, the amount is too large, it is impossible to make the purchase because of restrictions in the budget of the Allied Hospital. Even if such problems can be cleared, the procurement of spare parts is very difficult as it takes as much time as one year to one year and a half, putting great obstacles to the repair of the equipment.

(b) Maintenance Staff and Repair Tools

5 members of the workshop staff are currently in charge of repair of medical equipment as maintenance staff. They are 2 assistant equipment technicians, 1 assistant electric technician and 2 assistants. When any trouble is produced, they go to the field with

information from the medical staff of the Allied Hospital. They check the state of trouble and, if repair is possible, take the equipment to the workshop in the Hospital for repair. If it is impossible to repair the equipment by themselves, they either bring it to a private workshop in town or call a technician of the agency of the equipment. According to the results of repair, those repair members seem to be capable of either identifying the defective part or repair it except for precision electronic equipment (radiographic equipment, CT scanner, polygraph, etc.) if only an electric circuit diagram is available. However, to make planning and implementation of regular inspection, provide guidance on daily inspection and perform repair of electronic equipment, etc, it is necessary to secure a technical staff of higher level. The current setup is insufficient in both technical level and number of persons. Appendix 8-7. indicates the records of measures taken against the trouble of the medical equipment (from March, 1987 up to today).

The repair tools available in the workshop at present are several pieces of very basic tools such as tester, soldering iron, etc. There are not many kinds of tools and the members are handling the repair work by using tools of their own make. There is no such instrument as precision equipment necessary for the calibration of electronic equipment (simulator, calibrator, etc.) or equipment necessary for trouble shooting (oscilloscope, digital tester, etc.) at all. Therefore, judging from such situation, it is rather doubtful if correct data are secured in clinical inspection on some specific points (especially ECG, patient monitoring system, spirometre, analyzer, etc.), although the existing medical equipment is certainly utilized.

(c) Maintenance Manual

The maintenance control and repair of the equipment must be made based on the maintenance manual of the manufacturer. However, in the Allied Hospital, it is only for 12% of the entire equipment procured that the maintenance manual of Phase I was obtained, and the electric circuit diagram necessary for the identification of defective points and causes is practically non existent, as it was explained. There are some manufacturers who treat the electric circuit diagram of precision equipment as corporate secrecy. However, except such special cases, the electric circuit diagram should be supplied to the user from the viewpoint of maintenance control in

areas lacking knowledge and technical capacity.

(d) Repair Cost

The repair cost consists of expenses for procurement of spare parts and engineering expenses for the dispatch of technicians. In the procurement of special spare parts, the repair cost far exceeds the budget of the Allied Hospital in some cases. According to an explanation of the Allied Hospital, the spare parts are expensive because only the manufacturer can supply them and there is no competition.

However, the spare parts price naturally gets high if the purchase quantity is small and it is easily understood that the cost of spare parts is a big burden considering the current standard of economy of this country.

Therefore, it takes very long time to secure the budget for the purchase of expensive spare parts, in case necessary, which makes the period out-of-order longer.

Appendix 8-7. mentioned before indicates the details of the repair cost of the Allied Hospital.

2-4. Development Programme

2-4-1. Programme for Developing Nationwide Health Care System

The Government of Pakistan started the Seventh Five-Year Plan from 1st July, 1988, and the Ministry of Planning and Development is planning to make investments of Rs. 660,200 million (approx. 1,980 billion yen) during the period of 5 years up to 1993 when the Seventh plan ends. Of those investments, Rs. 16,000 - 20,000 million (approx. 96 - 120 billion yen) are intended for the field of health care. Moreover, 60% of this amount is going to be spent for the improvement of rural health care, and the operation budget is expected to be increased from Rs. 3.5 billion (approx. 21 billion yen) to Rs. 10 billion (approx. 60 billion yen).

The investment amount of the Seventh plan represents an increase of 43% over that of the previous the Sixth plan. The investment plan in the private sector represents 54% of this investment amount, indicating a higher dependence on the private sector. The Sixth plan aimed at making it possible for the entire nation to share the benefits produced

by such measures as promotion of investments in private sector, improvement of productivity, increase of profits on agricultural products, improvement of productivity in factories, etc. and especially combining policies for people in lower bracket of income with an economic growth.

However, the majority of those plans based on those measures failed to produce any satisfactory results although there were some which turned out successful.

The Seventh plan was elaborated in consideration of the lessons from the Sixth plan. The Seventh plan is characterized by that it aims at a qualitative improvement of people's life by adopting a new policy of public investments i.e. participation of private sector so that the public operations especially those relating to education and health care may cover the entire fields of the society.

Here are the basic aims of the Seventh plan.

- (1) Movement towards full employment, specially of the educated.
- (2) Provision of nutrition, shelter, health, education and transport and other public services through maximum coverage of population.
- (3) Development of human resources, with emphasis on education and training of manpower.
- (4) Progressive achievement of self-reliance in all spheres of life, including the gradual reduction of dependence on foreign loans, technology and know-how.
- (5) Promotion of private sectors activity to the fullest extent consistent with social responsibility, through further deregulation of the economy, so as to transfer the bulk of the financial burden of investment and growth from the government's budgetary resources to the private sector's own resources.
- (6) Restoring equilibrium in public finances by a concrete programme of balancing the revenue budget, and eliminating the imbalance between the Government's expenditure requirement and its revenue raising capacity.
- (7) Strengthening the balance of payments by aggressive promotion of exports, through industrial, commercial and exchange rate policy and to achieve a better balance between imports and exports.
- (8) Pursuing a restrained monetary policy to ensure continued price stability.

The targets proposed for the realization of the second point of the said main objects of the Seventh plan include qualitative improvement of medical care in the field of health and medical care, rectification of differences between cities and rural areas, establishment of health services and effective first-aid medical services in national universities, correction of imbalance in the number of people engaged in health and medical services, introduction of proper policy on drugs and medicines and health insurance, utilization of specialists and functions of the private sector in the field of management of the health and medical administration.

During the execution of the Sixth plan, the gross mortality dropped from 12 persons per 1,000 people to about 11 persons per 1,000 people, the infant mortality dropped from 98.5 deaths per 1,000 births to 80 deaths per 1,000 births, while the average life expectancy extended to 61 years. However, no significant progress was seen with the question of rehabilitation of the third degree malnutrition and care of the disabled. In areas where the Sixth plan has not met its goals include creation of a cadre of health managers, introduction of user charges and patronage to traditional medicine.

The development plans in the field and health care of the Seventh plan, which succeed to the greater part of the content covered by the Sixth plan, are intended to improve the health care system on the nationwide scale in order to further raise the level of health & medical care achieved in the Sixth plan. Table 2-24. indicates the target values in medical field of the Seventh plan together with the achievement of the Fifth and Sixth plans.

Table 2-24. Achievement of the Fifth & the Sixth Plan
and the Target of the Seventh Plan.

	<u>1982</u>	<u>1987-88</u>	<u>1992-93</u>
HEALTH SECTOR			
INFANT MORTALITY (age 0-1) (per 1000)	98.5	80.0	60.0
LIFE EXPECTANCY (YEARS)	58.6	61.0	63.0
Nos. OF DOCTORS			
URBAN	18,800	28,000	36,700
RURAL	1,200	8,000	15,000
Nos. OF RHC	298	492	625
Nos. OF BHU	1,693	3,496	5,409
Nos. OF DISPENSARIES	6,490	6,050	6,000
MCH CENTRES/SUB CENTRES			

Source : the Seventh Plan

The concrete measures i.e. the content of the Programme for developing Nationwide Health Care System for achieving the targets of the Seventh plan are the following:

- (1) Improving primary health care in rural areas.
- (2) Improving primary health care in urban areas.
- (3) Improving medical care by introduction.
- (4) Reinforcement of preventive medicine.
- (5) Implementation of special medical programmes.

(Note) To "improve medical care by introduction" as mentioned in (3) hereabove, any teaching hospital is requested to have specialized depts. (Chest Disease Dept, Urology Dept, Cardiology Dept, Nephrology Dept, Oncology Dept, Nuclear Medicine Dept, Plastic Surgery/Psychiatry Dept. and Neuro-surgery Dept.) in addition to the

diagnostic depts. provided by DHQ Hospital (Medicine Dept, Surgery Dept, Obstetrics & Gynaecology Dept, Paediatrics Dept, Psychiatry Dept, Dermatology Dept, ENT Dept, Dentistry Dept.).

(Note) "Implementation of special medical programmes" as provided in item (5) above includes not only supply of school health service, dental care service, countermeasures against diseases of circulatory system, etc. but also formation of personnel to be engaged in the health service. At present, the institutions for formation of specialized personnel to be engaged in the health and medical services are known to be insufficient in all respects as exemplified by shortage of health staff, shortage of depts, lack of academic degree, lack of boarding facilities, etc. Under such circumstances, the Medical College is expected to make up for such inadequacies during the period of the Seventh plan. Considerations will be taken so that the number of students admitted each year to this College will not exceed 200 and be brought as close to 100 as possible. However, the College says that it will not reduce the number of students since the ratio of the number of doctors to the number of inhabitants is still low in the Punjab and in the border provinces.

Moreover, to reduce the difference in the number of doctors between cities and provincial areas, it is planned that 4,300 doctors be employed in the regional health programme and 1,000 doctors in the health centres in urban areas. In addition, 2,500 more doctors are going to be employed for the school health service i.e. (execution of regular inspection to public schools) in order to strengthen casualty depts, HQ Hospitals (Headquarter Hospital or Tehsil/Taluka) and DHQ Hospitals (District Headquarters Hospital).

2-4-2. Programme for Developing Health Care System in the Punjab

Table 2-25. indicates the details of the budget for the Programme for Developing Health Care System in the Punjab for the year 1990-1991.

Table 2-25. Development Budget for the Punjab (Rupees.in lac)

<u>Sub-Sector/Dept.</u>	<u>ON-GOING SCHEMES</u>	<u>NEW SCHEMES</u>	<u>TOTAL</u>
1.GENERAL HOSPITAL	22.88	10.70	32.58
1)Teaching Hospitals	12.30	6.67	18.97
2)DHQ Hospitals	7.79	3.23	11.02
3)HQ Hospitals	2.79	0.80	3.59
2.MEDICAL EDUCATION	32.00	6.96	38.96
1)Specialized Medical Institutions	6.42	1.14	7.56
2)Medical Colleges	15.67	1.40	17.07
3)Stipends and Scholarships	5.82	1.14	6.96
4)Miscellaneous	4.09	3.28	7.37
3.RURAL HEALTH PROGRAMME	46.22	16.22	62.44
1)RHCs	17.21	0.75	17.96
2)BHUs	29.01	15.47	44.48
TOTAL			135.00

Source : Development Budget, the Punjab

As it is seen in Table 2-25, top priority is given to the regional health project with 46.4% of the total budget in the Punjab. 18.25% is assigned for medical education and a specially high proportion of 14.05% is given to teaching hospitals. As we have seen so far, the Programme for Developing Health Care System in the Punjab seems to put emphasis on the improvement and expansion of primary medical facilities especially BHU, which are the most fundamental units, so as to improve the level of medical care up to the terminal points in each area. We can also see that the Programme intends to form doctors and other personnel strengthening medical education especially teaching hospitals. Those points are apparently in conformity with the said policy of the national development plan in the field of health and medical care.

2-4-3. Trend of Foreign Aid

The total amount of foreign aids received by Pakistan during the past 7 years (1981 - 87) amounts to a little less than 7.4 billion dollars, with an annual average of a little over 1 billion dollars. The average value temporarily dropped to a little less than 1 billion dollars in 1987 because of a suspension of aid from the United States, but made a sharp increase to a little less than 1.8 billion dollars in 1988.

By country, the major countries providing aids are the United States, Japan, Germany and United Kingdom in order, and the amount of aid from Japan has sharply increased in recent years to rank among the largest suppliers of aid together with the United States.

According to the annual development programme for the period 1987 - 1988, we can see that about one half of the budget was represented by financial aid from abroad in the form of projects. Table 2-26. indicates the results of aids between two countries and those by multiple countries during the past 10 years.

Table 2-26. Total External Assistance to MOH and PWD (1976-86)

<u>Agency</u>	<u>MOH</u>		<u>PWD</u>		<u>TOTAL</u>
	\$US mil.	%	\$US mil.	%	\$US mil.
(1) BILATERAL					
United States	61.00	42.2	94.00	70.6	155.00
Japan	16.85	11.7	0.00	0.0	16.85
Canada	13.68	9.5	2.91	2.2	16.58
United Kingdom	12.02	8.3	6.72	5.0	18.74
Netherlands	5.00	3.5	0.00	0.0	5.00
Switzerland	0.00	0.0	0.10	0.0	0.10
TOTAL \$ /					
% BILATERAL	108.55	75.2	103.73	77.8	212.27
(2) MULTILATERAL					
WFP	32.96	22.8	0.00	0.0	32.96
World Bank	0.00	0.0	18.00	13.5	18.00
UNDP	1.71	1.2	0.00	0.0	1.71
UNICEF	1.39	1.0	0.42	0.3	1.81
UNFPA	0.00	0.0	11.02	8.3	11.02
TOTAL \$					
% MULTILATERAL	36.03	25.0	29.44	22.1	65.50
GRAND TOTAL	144.56	100.0	133.15	100.0	277.77

Source: World Bank: 1987.

Note. USAID : United States Agency for International Development
CIDA : Canadian International Development Agency
WFP : UN/FAO World Food Programme
UNDP : United Nations Development Programme
UNICEF : United Nations Children Fund
UNFPA : United Nations Fund for Population Activities

Furthermore, the content of aids of the major supplying countries and their characteristics will be enumerated hereunder.

Aids between Two Countries:

(1) United States (USAID)

The aids from the United States are characterized by the emphasis on economic aids for the matters of health and population. More than one half of the total amount of aids between two countries provided during the period of 1976 to 1987 were those from the United States. The major assistance activities made in recent years are as follows:

(a) First Medical Project (1982 - 87)

This is a national project aiming at development of regional medical care. As a result of this project, professional schools of medical technology were constructed in 13 places all over the country, and the activities such as formation of medical technicians, construction of facilities, dispatch of lecturers, payment of wages to trainees and supply of equipment and materials were made.

(b) Malaria Control Programme (1982 - 87)

This is a resumption of a plan formerly put into practice. It mainly consists of supplies of equipment and materials with very little technical assistance.

(c) Infant Relief Plan (1988 - 93)

This is a five-year plan started in 1988, consisting in the implementation of the Expanded Programme of Immunization (EPI) for tetanus, measles, etc.

(d) Population Control Plan (1982 - 89)

This plan is intended to support the population control programme of Pakistan, consisting in supply of contraceptives, organization of technical assistance training, etc.

(2) Japan

Japan is one of the largest suppliers of aid to Pakistan rivalling the United States. Since 1979, Japan provided aid of a total amount of approx. 13 billion yen including both grant aid and yen credits. Those funds were invested in medical schools and in the development of peripherals of high-grade technical services.

Table 2-27. indicates the main assistance projects of Japan in the field of health and medical care.

Table 2-27. Project List of Japanese Grant Aid in Health Sector
(1979 - 1986)

		(Billion Yen)
1979	- Urban Malaria Eradication	0.6
1980	- Urban Malaria Eradication	0.6
	- Medical Equipment Improvement Project for Hospitals in Sind Province	0.6
		0.6
1981	- Urban Malaria Eradication	0.5
	- Improvement of the Equipment for National Institute of Health	0.35
1982	- Urban Malaria Eradication	0.5
	- Children's Hospital in Islamabad	1.8
1983	- Children's Hospital in Islamabad	2.5
1984	- College of Nursing and Paramedical Institute(I)	1.5
1985	- College of Nursing and Paramedical Institute(II)	0.92
	- Procurement of Medical Equipment for Punjab Medical College	1.67
	- Improvement of the Equipment for National Institute of Cardiovascular Diseases, Karachi	0.78
1986	- Improvement of Medical Services for Sind Arid Zone	0.84
TOTAL		13.16

The aid from Japan are provided without specifying the fields of use. In recent years, there is a tendency for aiming at rectification of differences among provinces in primary health care and health & medical facilities. There are also programmes for promotion of immunity against tropical diseases and TB control of malaria and family planning. Specialists are dispatched to hospitals for technical assistance.

(3) United Kingdom

United Kingdom is giving financial aid for the development of regional medical facilities in the Baluchistan and NWFP. With those aid, supply of medical equipment, repair of equipment, supply of workshops and technical turnings were realized. It is also planned to construct an equipment maintenance workshop in Quetta, the Baluchistan and to form electrical and mechanical technicians there in parallel with the maintenance work. Other health and medical projects include programmes for development of hospital equipment to the districts under direct control of the Government of Pakistan.

(4) Other Countries Providing aid between Two Countries

Aid in the field of health and medicine from the Netherlands is used for the supply of equipment and technical assistance on the manufacture of vaccines against diphtheria, hooping cough and tetanus in tie-up with NIH.

Aid among Multiple Countries:

(1) UNICEF

UNICEF is supplying a fund for Expanded Immunization Programme necessary for the supply of refrigerating equipment and vehicles and implementation of vaccination, training, etc. Other important activities include a basic medical service project and a training project for Traditional Birth Attendants. UNICEF thinks that the conventional midwives will play an important role in the improvement of primary health care and maternity insurance in the 5 to 10 years to come.

(2) WHO

WHO is supplying fund for a number of technical assistance and training activities. The two-year budget which ended in December, 1987 was US\$ 3.25 million. For the period which ended in December,

1989, the budget was increased to us\$ 3.75 million. Those fund were invested in approx. 30 different projects. WHO is also implementing the TB control programme financed by the Arab Gulf Fund.

(3) Asian Development Bank (ADB)

The ADB has been giving assistances in medical field of the total amount of us\$21 million to the Punjab and the Sind. In addition, a credit of us\$30.4 million is planned for the implementation of the third medical project, of which us\$3.7 million is expected to be given specially as a technical assistance by International Assistance Organization.

This credit is focused on the improvement of rural health facilities such as RHC and facilities for formation of nurses and health nurses in the Baluchistan and the NWFP. It is also planned to establish a National Health Planning Unit and a Workshop for maintenance and repair of medical equipment in the said two provinces.

2-5. Circumstances and Content of the Request

2-5-1. Circumstances of the Request and Positioning of the Project

With the implementation of Phase I, improvement of medical equipment was realized in NU-1, Diagnostic Block and Service Block of the Allied Hospital. The completion of the NU-1 and the Diagnostic Block made it possible for the basic medical departments such as Medicine, Surgery, Obstetrics & Gynaecology, Paediatrics and Radiology, etc. to start their functions. Following the completion of the Phase I, the Government of Pakistan constructed several facilities by its own budget in order to achieve the establishment of the Medical College. Although the Government of Pakistan could meet the demands for medical services of the local inhabitants on the basic diagnostic courses with the success of the Phase I, it is still dependent on existing DHQ Hospitals for special courses. Under such circumstances, the Government made up Phase II intended to improve the medical equipment for the newly constructed NU-2, Radiotherapy Dept. Ward, Private Ward, CCU, Mortuary Unit, Maintenance Workshop, OPD Block, etc. With a view to providing the regional inhabitants with medical services of high degree even in special courses and improving at the same time the clinical education to the students of