

The Ministry of Education and Higher Education
The Democratic Socialist Republic of Sri Lanka

No. 1

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT
OF
THE FACULTY OF DENTAL SCIENCES,
UNIVERSITY OF PERADENIYA
IN
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA**

AUGUST, 1995

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**JAPAN INTERNATIONAL COOPERATION AGENCY
MATSUDA CONSULTANTS INTERNATIONAL CO., LTD.**

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REPORT NO. 1128102 (9) ON THE DESIGN AND IMPROVEMENT OF THE FACULTY OF DENTAL SCIENCES, UNIVERSITY OF PERADENIYA IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

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PREFACE

In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a basic design study on the Project for Improvement of the Faculty of Dental Sciences, University of Peradeniya and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Sri Lanka a study team from March 15 to April 6, 1995.

The team held discussions with the officials concerned of the Government of Sri Lanka, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Sri Lanka in order to discuss a draft report, and as this result, the present report was finalized.

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 Democratic Socialist Republic of Sri Lanka for their close cooperation extended to the teams.

August 1995



Kimio Fujita

President

Japan International Cooperation Agency

August, 1995

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of the Faculty of Dental Sciences, University of Peradeniya in the Democratic Socialist Republic of Sri Lanka.

This study was conducted by Matsuda Consultants International Co., Ltd. under a contract to JICA, during the period from March 10, 1995 to August 21, 1995. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Sri Lanka and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

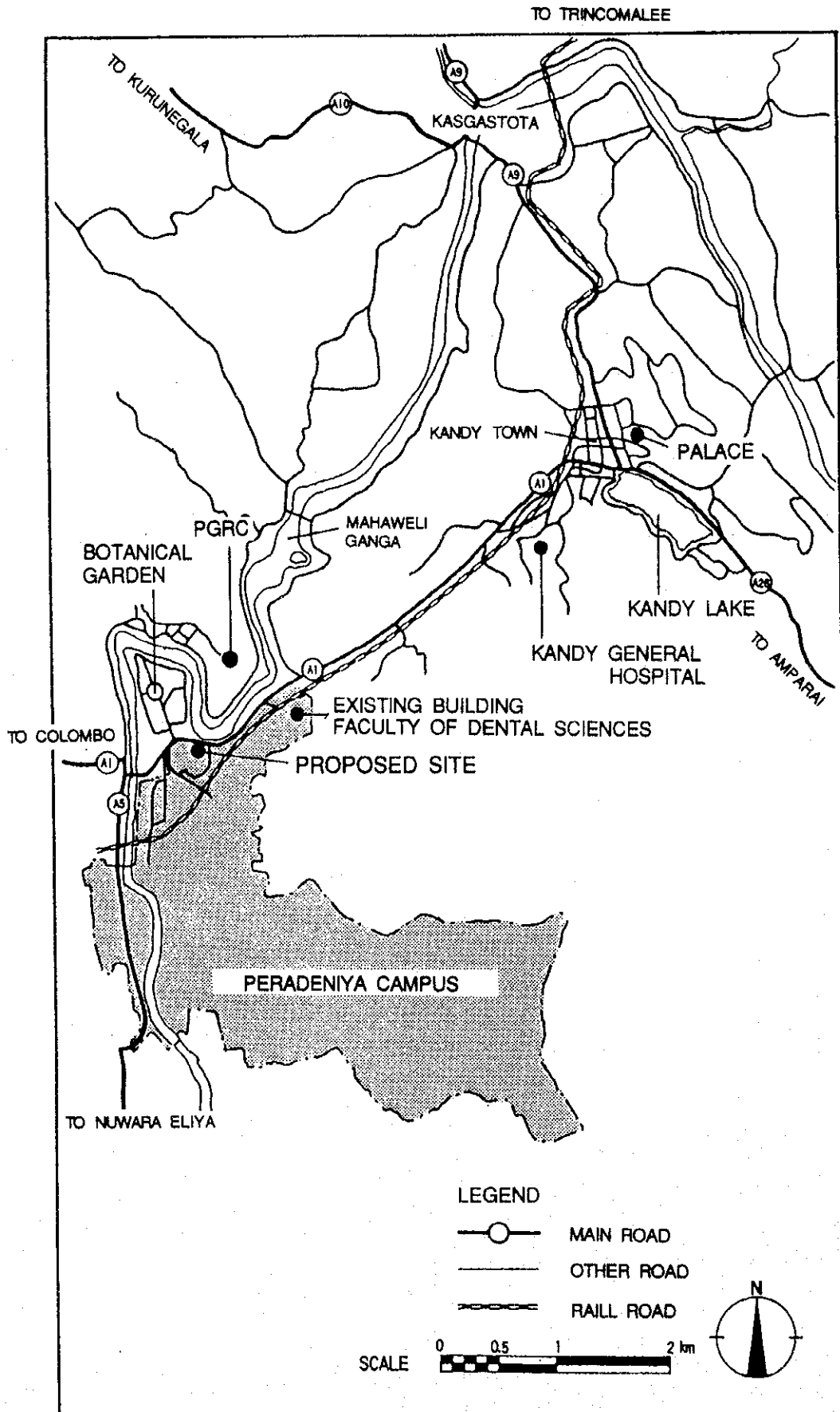
Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

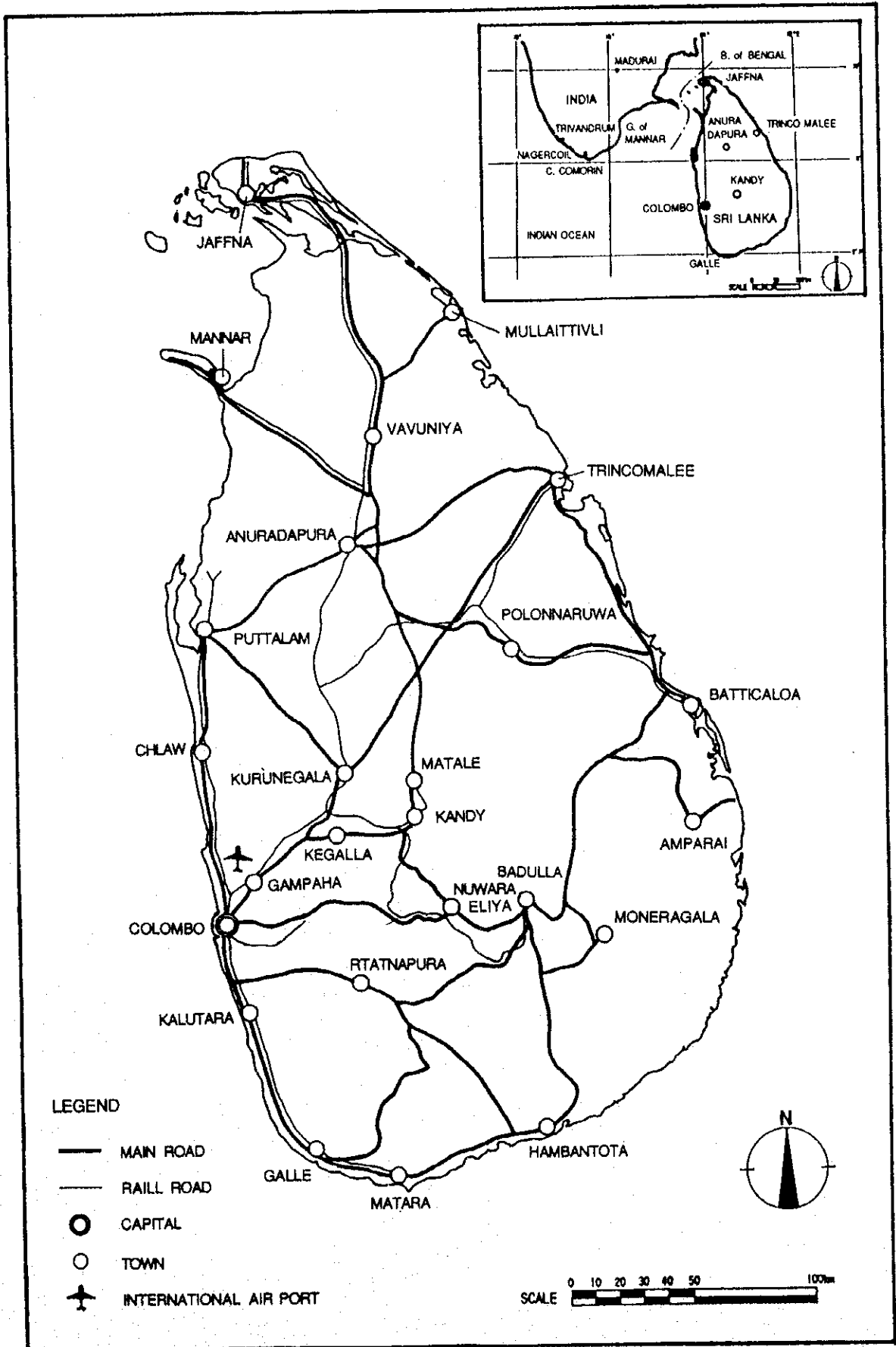


Taizo Shishido
Project manager,
Basic design study team on
the Project for Improvement of the Faculty of
Dental Sciences, University of Peradeniya in
the Democratic Socialist Republic of Sri Lanka
Matsuda Consultants International Co., Ltd.

□ KANDY AREA · LOCATION OF UNIVERSITY OF PERADENIYA



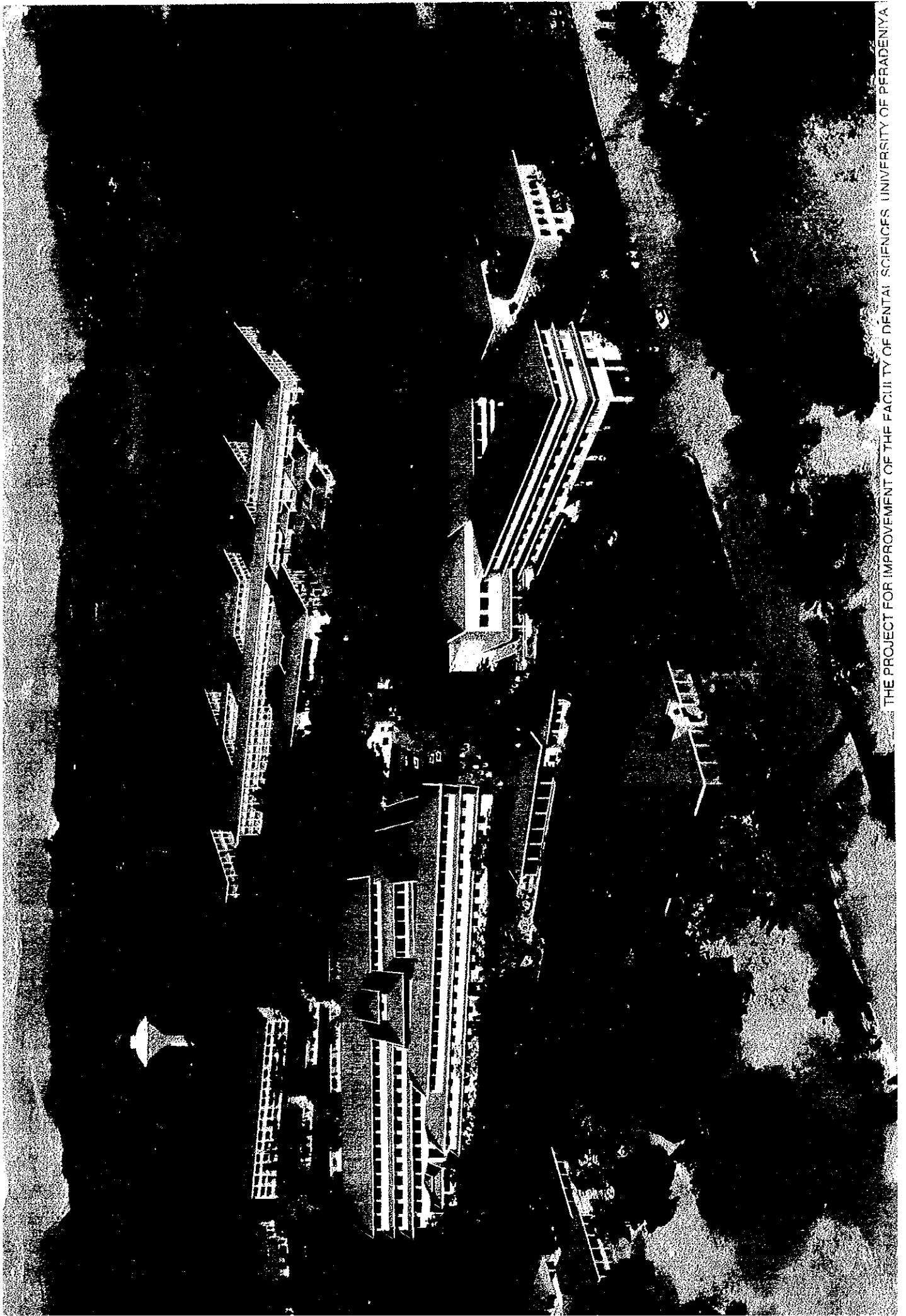
□ MAP OF SRI LANKA



LEGEND

- MAIN ROAD
- RAIL ROAD
- CAPITAL
- TOWN
- ✈ INTERNATIONAL AIR PORT





THE PROJECT FOR IMPROVEMENT OF THE FACILITY OF DENTAL SCIENCES, UNIVERSITY OF PERADENIYA

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ABBREVIATIONS

BOD	:	Biochemical Oxygen Demand
BS	:	British Standard
CPC	:	Clinical Pathology Conference
CSSD	:	Central Sterilized Supply Department
DMF	:	Decayed Missing and Filled (M index = Missing index, F index = Filled index)
ECG	:	Electrocardiograph
E/N	:	Exchange of Notes
H & E	:	Hemo Toxiline and Eosine Staining
ICU	:	Intensive Care Unit
LPG	:	Liquefied Petroleum Gas
MOH	:	Ministry of Health
MRI	:	Medical Research Institute, Colombo
PHC	:	Primary Health Care
ppm.	:	part per million
P/Q	:	Preliminary Qualification
R & D	:	Research & Development
UDA	:	Urban Development Authorities
UGC	:	University Grants Commission

CHAPTER 1

BACKGROUND OF THE PROJECT

CHAPTER 1 BACKGROUND OF THE PROJECT

1.1 Original Request for the Project

The social indices in Sri Lanka regarding education and health care are comparatively high vis-a-vis neighbouring countries and the national achievements in these fields are excellent. Since independence, Sri Lanka has provided free education and free health care. The literacy rate (89% in 1992) and the secondary education enrolment rate (78% in 1990) are both quite high and there is no significant gap between the sexes regarding these rates. The government still gives priority to manpower development for educational and medical services and has been implementing relevant measures. Some of the major targets of the 5-Year Public Investment Programme (1993 - 1997) are the expansion of university facilities, a qualitative improvement of teachers, rectification of the regional gap in medical services, improvement of the PHC and a manpower increase in the medical fields.

The University of Peradeniya was established in 1942 and the Faculty of Dental Sciences, the subject of the request for Japanese grant aid, became an independent faculty in 1973, separating itself from the Faculty of Medicine and constituting the only dental training institution in Sri Lanka. Since the introduction of the dental training course in 1943, the Faculty has so far produced some 1,000 qualified dentists who are engaged in not only the treatment of decayed teeth and periodontal diseases but also in the diagnosis and treatment of patients suffering from oral or maxillofacial lesions, facial deformities and oral tumours, etc. by surgical means, playing a crucial role in the promotion of Sri Lanka's oral hygiene and treatment.

While the Faculty is currently aiming at increasing its student intake in line with the Public Investment Programme, the absolute shortage and deterioration of its facilities make improvement and expansion of the existing facilities essential to achieve this objective. The lack of equipment required for theoretical study and practical training is also a cause for concern. Despite the existence of a rational and practical teaching curriculum, the inadequate equipment and facilities have prevented the curriculum from achieving the intended results.

Although the Faculty management has been trying hard to solve these problems, including making an application to establish the new Department of Basic Medical Sciences, it has been unable to introduce measures to improve the situation due to the severe financial situation of the central government. Under these circumstances, the

Government of Sri Lanka prepared the Project for Improvement of the Faculty of Dental Sciences, University of Peradeniya (hereinafter referred to as the Project), which envisages wide-ranging improvement of the educational and clinical facilities and related equipment, and made a request to the Government of Japan in June, 1994 for the provision of grant aid to implement the Project. In response to this request, the Government of Japan commissioned the Japan International Cooperation Agency (JICA) to send the Preliminary Study Team to Sri Lanka for the period between December 4th and December 25th, 1994 to study and discuss the background of the Project and the necessity and linkage of the requested items. The Preliminary Study Team found the Project to be both suitable and necessary as an educational project contributing to the improvement of medical care (public health and hygiene) in Sri Lanka, from the viewpoints of improving higher education and fostering manpower in the field of health care. The positive findings of the Preliminary Study led to the implementation of the Basic Design Study.

1.2 Outline and Main Components of the Request

The objectives of and requested items for the Project, taking the findings and discussion results of the Preliminary Study Team into consideration, are described below.

[Objectives of the Project]

The Project intends the general improvement and expansion of the facilities and equipment of the Faculty of Dental Sciences of the University of Peradeniya which is the only dental training institution in Sri Lanka.

[Project Implementation Body]

- (1) Competent Ministry: Ministry of Higher Education, Democratic Socialist Republic of Sri Lanka
- (2) Project Implementation Body: University of Peradeniya

[Project Sites]

Two sites by the approach road to the University of Peradeniya Teaching Hospital on the campus of the University of Peradeniya.

- Site A (north side: 3,061 m²)
- Site B (south side : 6,814 m²)

[Main Activities]

- (1) Undergraduate Dental Education:
4 year dental education at 14 divisions of 7 departments
- (2) Post-Graduate Education:
Post-graduate courses and refresher course for clinical dentists
- (3) Training Courses for auxiliary dental personnel:
Training courses for dental technicians and dental hygienists
- (4) Research and Development:
Research & Development (R & D) on teaching methods and teaching materials, etc.

[Requested Facilities]

The construction of the following facilities for dental education is requested.

- (1) Educational facilities for basic medical sciences
- (2) Basic training facilities for clinical medicine and clinical dentistry
- (3) Clinical training facilities for clinical medicine and clinical dentistry
- (4) R & D facilities
- (5) Common facilities for dental education
- (6) Administration, welfare and service facilities

[Requested Equipment]

The provision of educational and practical training equipment for the following dental specialist fields is requested.

- (1) Prosthetic Dentistry
- (2) Restorative Dentistry
- (3) Oral and Maxillofacial Surgery
- (4) Oral Pathology and General Pathology
- (5) Periodontology
- (6) Community Dentistry
- (7) Orthodontics
- (8) Paedodontics

- (9) Oral Medicine
- (10) Dento-Maxillofacial Radiology
- (11) General Anatomy, Dental Anatomy and Histology
- (12) Physiology
- (13) Biochemistry
- (14) Microbiology and Pharmacology
- (15) Others

CHAPTER 2

CONTENTS OF THE PROJECT

CHAPTER 2 CONTENTS OF THE PROJECT

2.1 Objectives of the Project

The Government of Sri Lanka has been earnestly promoting the development of manpower and the main objectives of the 13th 5-Year Public Investment Programme (1993 - 1997) including the expansion of university facilities, a qualitative improvement of teachers, rectification of the regional gap in medical services, consolidation of primary health care and an increase of people working in medical fields, etc.

The Faculty of Dental Sciences, the subject institution of the Project, is the sole dental training institution in Sri Lanka and produces qualified dentists, dental engineers and dental hygienists, playing a crucial role in the improvement of the country's dental services. The Project intends the consolidation and expansion of the facility and equipment in order to achieve a general improvement of the teaching and practical training functions of the Faculty of Dental Sciences of the University of Peradeniya in the field of both basic and clinical dental education.

2.2 Basic Concepts of the Project

2.2.1 Examination of the Request

(1) Project Planning and Requested Items

All the components of the request have been determined based on new project planning which incorporates the future development plan for the Faculty. The basic plan is to relocate the Faculty to different sites on the same campus with new facilities and equipment to create an educational environment suitable for modern dentistry and the related education and training. The planned items include (i) the appointment of new teaching staff to establish courses on basic medical sciences which have hitherto been provided by the Faculty of Medicine, (ii) the introduction of the Division of Dento-Maxillofacial Radiology in the Department of Oral Medicine and Periodontology and (iii) the construction of an operating theatre and in-patient ward for the Department of Oral and Maxillofacial Surgery which has been using the relevant but limited facilities at the Peradeniya Teaching Hospital.

With the completion of the Project, the Faculty will regard education, R & D and clinical service as its main activities, aim at increasing the under-graduate student intake from the current 75/year to 100/year by the target year of 2000 and consolidate its teaching staff and post-graduate education. The new teaching system will consist of the following 14 divisions of 7 departments.

-
1. Department of Community Dental Health
 - 1.1 Division of Community Dentistry
 - 1.2 Division of Paedodontics
 - 1.3 Division of Orthodontics
 2. Department of Oral Medicine and Periodontology
(including the Subject of Microbiology and Pharmacology)
 - 2.1 Division of Oral Medicine
 - 2.2 Division of Periodontology
 - 2.3 Division of Dento-Maxillofacial Radiology (new establishment)
 3. Department of Oral Pathology
 4. Department of Oral and Maxillofacial Surgery
 5. Department of Prosthetic Dentistry
 6. Department of Restorative Dentistry
 7. Department of Basic Medical Sciences (new establishment)
 - 7.1 Division of General Anatomy
 - 7.2 Division of Dental Anatomy and Histology
 - 7.3 Division of Physiology
 - 7.4 Division of Biochemistry

The following departments/divisions will have out-patient treatment functions in addition to the teaching function.

- 1.2 Division of Paedodontics
 - 1.3 Division of Orthodontics
 - 2.1 Division of Oral Medicine
 - 2.2 Division of Periodontology
 - 2.3 Division of Dento-Maxillofacial Radiology
 4. Department of Oral and Maxillofacial Surgery
 5. Department of Prosthetic Dentistry
 6. Department of Restorative Dentistry
-

These departments/divisions aim at providing the following theoretical teaching as well as practical training to establish modern dental practices envisaged by the new project planning. The future development plan contained in the original request is also outlined below.

1) Department of Community Dental Health

a) Division of Community Dentistry

The Division of Community Dentistry aims at teaching preventive dentistry and community health regarding not only oral health care but also general health care through theoretical teaching and practical training in all areas of primary health care. The teaching subjects include dental epidemiology, oral disease patterns, environmental health, prevention of dental diseases, survey methods and social sciences, etc. The future development plan includes the expansion of teaching and research activities together with field practice, the determination of the future direction for oral health care delivery and the efficient utilisation of manpower. The request includes the provision of computers with printers and a computer training room, etc.

b) Division of Paedodontics

The Division of Paedodontics aims at providing knowledge and techniques regarding diagnosis, treatment and oral health care through theoretical and practical training in paedodontics which covers children upto the age of seventeen. The teaching subjects cover the entire disciplines of dentistry, ranging from fillings, extractions, scaling and polishing to the treatment of fractured teeth, preparation of crowns, prosthetic replacement and the treatment of soft tissue lesions. The request includes the introduction of a new unit dedicated to the treatment of handicapped children as a separate section of the Division of Paedodontics to further expand the scope of dental treatment for children who account for one-third of all patients.

c) Division of Orthodontics

The Division of Orthodontics aims at providing theoretical knowledge backed by practical training in orthodontics which is the first branch of dentistry to be recognised as a specialist field. Students will be taught diagnosis and treatment techniques for all types of malocclusions using all available types of appliances. The request includes the provision of a well-equipped clinic for teaching purposes, facilities to conduct the cephalometric analysis of patients, a well-equipped laboratory and computer facilities.

2) Department of Oral Medicine and Periodontology

a) Division of Oral Medicine

The Division of Oral Medicine aims at providing specialized knowledge and techniques relating to the diagnosis and non-surgical treatment of disorders of the mouth and its surrounding structures. The clinical training subjects include the treatment of oral mucosal lesions (cancer and pre-cancer disorders included), treatment of disorders of the temporomandibular joint (TMJ) and the treatment of facial pain and facial neuropathies. In addition, laboratory training will be provided on clinical haematology. The request includes the provision of various materials to assist haematological investigations so that the Division can provide a clinical haematology laboratory service for clinical operations. The Division will also provide practical training on clinical biochemistry, linked to the theoretical study of biochemistry at the Department of Basic Medical Sciences. The Division plans to intensify its joint research activities with other departments and institutions in the future.

b) Division of Periodontology

The Division of Periodontology aims at teaching theory and providing practical training on the diagnosis, treatment and prevention of diseases which adversely affect tooth supporting structures (periodontal diseases). Students will be taught the required skills to diagnose periodontal diseases and to make appropriate treatment plans which meet the individual needs of patients. They will also master non-surgical periodontal therapy, including oral health instructions, scaling and such common surgical techniques as root planing under local anaesthesia. The request includes the provision of a laboratory to diagnose, evaluate and treat patients suffering from advanced periodontal diseases. The Division plans to expand its educational and research activities in the field of periodontology in the future.

c) Division of Dento-Maxillofacial Radiology

As the Faculty of Dental Sciences has no X-ray facilities of its own, it lacks an educational radiological diagnosis function. This Division is to be newly added to the Department of Oral Medicine and Periodontology and one full-time lecturer has already been recruited.

The request includes the establishment of a central radiology facility equipped with a static X-ray unit, orthopantomograph, tomograph and dental X-ray peripheral equipment to assist students to acquire the skills to operate this equipment and to interpret X-ray photographs. In addition, the Division will provide a radiology service for other departments of the Faculty.

3) Department of Oral Pathology (including General Pathology)

The Department of Oral Pathology aims at teaching theory and providing practical training on all diseases and disorders of the mouth and oro-facial area. The subjects dealt with will include aetiology, pathogenesis, pathology, histopathological diagnosis and prognosis assessment. The laboratory training subjects include routine H & E sections, ground and undecalcified sections, histochemistry and immunohistochemistry. Furthermore, students will conduct research on oral mucosal diseases, oral squamous epithelium cancer, odontogenic tumours, jaw cysts and salivary gland anomalies. The Department is also expected to expand its country-wide diagnostic oral histopathology service for all medical institutions as it currently receives some 500 requests for the pathological analysis of oral tissue. The request includes the provision of a training laboratory, a room for clinico-pathological conferences and various equipment to improve and expand the educational and research activities of the Department.

4) Department of Oral and Maxillofacial Surgery

The Department of Oral and Maxillofacial Surgery aims at teaching theory and providing practical training on the surgical methods to treat oral diseases. The oral surgical techniques taught will range from such minor procedures as the extraction of teeth and pustules to such major procedures as the paedosurgery of cleft lip and palates, the excision of cancer and the repair of facial damage and deformities. At present, the Department uses the surgical facilities of the Peradeniya Teaching Hospital. However, as the Department's use of these facilities is limited, the present arrangement is inadequate for clinical training, resulting in the loss of many training opportunities. The request includes the introduction of operating rooms and a ward attached to the Faculty. With the provision of the new facilities under the Project, it will be possible to treat a much larger number of patients and a wider range of oral diseases using superior technology. This will enable both under-graduate and post-graduate students and clinicians

to gain more knowledge and clinical experience in the surgical diagnosis of oral diseases, pre and post-operative patient care and general health care of patients and to learn the use of modern methods and equipment in the surgical treatment of such diseases.

5) Department of Prosthetic Dentistry

The Department of Prosthetic Dentistry aims at teaching theory and providing practical training on the design and fitting of artificial substitutes to replace missing teeth and surrounding tissue to restore the chewing function. The subjects of the technical training are partial dentures, complete dentures, crowns and bridges, facial prostheses and appliances for post-surgical rehabilitation. The request includes the provision of clinical facilities and laboratory facilities to construct metal-based dentures, splints and implant dentures, etc. to allow training on the latest prosthetic techniques. All these facilities will be used by the teaching staff, students and dental technicians.

6) Department of Restorative Dentistry

The Department of Restorative Dentistry aims at teaching theory and providing practical training on restorative dentistry which is the basis for all kinds of dental treatment. Students will learn the laboratory and clinical skills required for the restoration of decayed teeth and the maintenance of restored teeth and knowledge on the functions of healthy teeth and supporting tissue. As the students must practice their clinical skills on phantom heads before attending real patients, a phantom head laboratory is essential to allow the students to master the basic skills. The request includes the provision of a phantom head laboratory, clinical facilities and a X-ray laboratory. These facilities will contribute to improved health care in general by means of maintaining the healthy function of the mouth region, thereby ensuring quality of life, one of the most pressing targets for advanced dentistry today. They will also consolidate the educational arrangements for the planned post-graduate courses.

7) Department of Basic Medical Sciences

a) Division of General Anatomy

The Division of General Anatomy aims at the theoretical teaching of systematic anatomy, training on dissection and lectures as well as

practical training on histology, embryology and neuroanatomy. The request includes the provision of a dissecting room, a cold room and a preparation room for the storage and preparation of cadavers in appropriate conditions. While practical training on general anatomy will be provided in the first year as part of the study of basic medicine, the provision of the new facilities will enable revision of the current curriculum so that important aspects of clinical anatomy can be taught in the final year of the under-graduate course.

b) Division of Dental Anatomy and Histology

The Division of Dental Anatomy and Histology aims at teaching theory and providing practical training on dental anatomy and histology so that students can develop a precise understanding and the skills to deal with disease processes which affect the teeth and their surrounding structures. With the provision of the requested laboratories and equipment, such as microtomes to prepare microscopic slides of soft and hard tissues, which are special features of the Faculty of Dental Sciences, the Department will be sufficiently equipped to provide post-graduate education and to contribute to the development of new teaching materials.

c) Division of Physiology

The Division of Physiology aims at teaching theory and providing practical training on the functions of the different systems of the human body to enable students to understand the facts of clinical physiology, particularly the effects of drugs and other treatment procedures. The request includes the provision of measuring instruments related to the cardio-vascular system, such as ECGs and tonometers which comprise basic equipment for physiological analysis, in addition to a teaching laboratory. The provision of the new facilities and equipment will enable not only high quality teaching for both under-graduate and post-graduate students but also the provision of a physiological laboratory service (lung function testing and other physiological tests) for clinicians, especially oral surgeons and anaesthetists.

d) Division of Biochemistry

The Division of Biochemistry aims at teaching theory and providing practical training on the application of biochemistry to clinical medicine and the science of nutrition. Emphasis will be placed on tutorials and practical training and the taught subjects will include cell biochemistry, clinical biochemistry and nutrition. The provision of the requested facilities under the Project will not only consolidate both under-graduate and post-graduate education but will also enable the Division to provide a laboratory service for the clinical sections.

e) Division of Microbiology (attached to Department of Oral Medicine and Periodontology)

The Division of Microbiology aims at teaching theory and providing practical training mainly focused on oral microbiology which is a discipline specialising in common oral bacteria and pathogenic bacteria. Students will study how to diagnose diseases and to identify them as well as to manage causative organisms. The request includes a teaching laboratory, centrifuge, cold room and microscopes. The Division plans to expand and improve its teaching and research on clinical and oral microbiology and also to provide a laboratory service for the clinical sections.

f) Division of Pharmacology (attached to Department of Oral Medicine and Periodontology)

The Division of Pharmacology aims at teaching theory and providing practical training on all aspects of the drug treatment of dental patients. Students will study the pharmacodynamics and pharmacokinetics of drugs in addition to drug inter-actions, adverse reactions and contra-indications, etc. with the help of occasional experiments involving such small animals as rats and mice. They will also acquire clinical pharmacological experience through patient care in the hospital. The request includes the provision of audio-visual equipment, a teaching laboratory and a house to accommodate small animals.

The Basic Design Study has confirmed the following scope of the requested facilities to support the planned activities of the above 7 departments (14 divisions). The total floor area requested is 15,043 m² for essential rooms which increases to some 19,500 m² with corridors and staircases (30% of the essential floor area).

<List of Requested Facilities and Equipment>

A. Facilities

1. Education Departments	(11,417 m ²)
1.1 Basic Medical Education Rooms	3,938 m ²
1.2 Clinical Education Rooms.....	6,141 m ²
1.3 Oral and Maxillofacial Surgery Operating Theatre, etc.....	538 m ²
1.4 Ward (65 beds).....	486 m ²
1.5 Out-Patient Section	314 m ²
2. Common Large Lecture Rooms and Library, etc.	(1,815 m ²)
2.1 Large Lecture Rooms (100 seats x 4).....	800 m ²
2.2 Auditorium (500 seats).....	450 m ²
2.3 Library.....	384 m ²
2.4 English Learning Room.....	181 m ²
3. Administration/Welfare/Services.....	(1,692 m ²)
3.1 Departmental Offices.....	322 m ²
3.2 Student Facilities	590 m ²
3.3 Teaching and Administrative Staff Facilities	302 m ²
3.4 Workshops and Storage Rooms, etc.	478 m ²
4. Outdoor Building (Animal House)	119 m ²
5. Total of Essential Rooms.....	15,043 m ²
6. Corridors and Staircases (30% of Essential Floor Area)	4,500 m ²
7. Total Floor Area of Requested Facilities.....	19,543 m ²

B. Equipment

All necessary equipment for basic medical education, clinical education and practical training on dentistry to be conducted using the above facilities.

(2) Facility Functions and Appropriate Size

The total floor area of the requested facilities of approximately 19,543 m² is 2.6 times larger than the present floor area of 7,500 m² (consisting of 3,500 m² exclusively used by the Faculty of Dental Sciences and 4,000 m² for basic medical training facilities used by the Faculty of Medicine), suggesting massive expansion of the present size. The main reasons for this increase are the independence of each department or division from the others and the provision of single rooms for most teaching staff members. Such planning has inevitably increased the total number of rooms required, resulting in a rather excessive total floor area of the required facilities.

From the viewpoint of providing a facility size to match the scope of activities of the Faculty in question, the independence of each department or division in terms of facilities results in the multiple existence of similar rooms,

unnecessarily increasing the total floor area and leading to a large facility maintenance cost in turn.

In the planning of the Project, rooms for inter-departmental use will be introduced where possible to achieve an appropriate facility size vis-a-vis the envisaged functions while taking the Faculty's future expansion programme in terms of teaching staff and student size and also the need for the relative independence of each department or division into consideration. The efficient operation of common facilities will suppress an undesirable increase of the maintenance cost and will make the Project scale more realistic from the viewpoint of the sustainability of the planned facilities.

(3) New Divisions/Facilities and Possible Utilisation of Related Facilities

The request includes facilities for the Faculty's new Department of Basic Medical Sciences (consisting of the Division of General Anatomy, Division of Dental Anatomy and Histology, Division of Physiology and Division of Biochemistry) and the Division of Dento-Maxillofacial Radiology. The main new facilities required to improve the range of existing facilities include an operating theatre and an in-patient ward for clinical training at the Department of Oral and Maxillofacial Surgery.

With regard to facilities for basic medical education, surgical operations and in-patients management, the use of some of the facilities in existence can be considered to supplement the educational activities of the Faculty. These are facilities belonging to the Peradeniya Teaching Hospital and the Faculty of Medicine, both of which are located adjacent to the planned project sites. The possibility of their use for dental education purposes is examined below.

1) Facilities for Basic Medical Education and Faculty of Medicine, University of Peradeniya

The basic medical education of the Faculty of Dental Sciences, consisting of such subjects as general anatomy, dental anatomy and histology, physiology, biochemistry, microbiology and pharmacology, has so far been conducted using the facilities of the Faculty of Medicine with the cooperation of the teaching staff of the Said Faculty.

This arrangement is becoming difficult to maintain, however, as the Faculty of Medicine has started the process of increasing the number of its students in accordance with the 3-Year Development Programme for the University of Peradeniya. In fact, the present facility size has now become inadequate and the Department of Medicine has already submitted a request for facility expansion to the Ministry of Higher Education. In view of this

development, the continuous borrowing of the facilities belonging to the Faculty of Medicine for dental education will be difficult as sufficient room will not be available to accommodate the new curriculum of the Faculty of Medicine. The urgent acquisition of its own facilities for basic medical education and training is now deemed essential for the Faculty of Dental Sciences. The Faculty of Dental Sciences has already increased the number of teaching staff for basic medical education in order to establish the new Department of Basic Medical Sciences under the Faculty.

The plan to establish the Subject of Microbiology and the Subject of Pharmacology remain part of the Department of Oral Medicine and Periodontology and to distribute other subjects for basic medical education to the newly created Department of Basic Medical Sciences is deemed appropriate in order to restrain the unnecessary expansion of the administrative size of the Faculty.

2) Practical Training Facilities of Department of Oral and Maxillofacial Surgery and Peradeniya Teaching Hospital

While the practical training of the Department of Oral and Maxillofacial Surgery currently uses the facilities of the Peradeniya Teaching Hospital (three operating theatres and 450 beds) under the supervision of the Ministry of Health, the actual use is limited to the following.

- ① Operating Theatre : once a week for three hours
- ② Ward : three beds allocated for the Faculty of Dental Sciences

This present arrangement appears far from adequacy to provide a proper oral surgery service, which has become an essential part of dentistry in developed countries, even in developing countries, and the relevant practical training. It has already been made clear by the hospital management that any increase of the allocation of hospital facilities for use by the Faculty of Dental Sciences is impossible. Consequently, the provision of new operating and ward facilities under the Project is deemed essential. In connection with the above provision, consultations have been held between the Ministry of Health and the Ministry of Higher Education concerning a possible framework for inter-sectoral partnership aimed at ensuring the efficient management and sustainability of the University dental hospital (out-patient and in-patient sections) in the new facility.

Discussions are currently in progress with a view to obtaining the following assistance from the Ministry of Health and the Teaching Hospital

- ① Assistance of routine administration of the dental hospital and dispatch of a dental hospital director under the Ministry of Health
- ② Establishing a appropriate Board of Management organized by the representatives from the both Ministries (including the 6 clinical Heads of departments of the Dental Faculty)
- ③ Assistance of the recurrent cost to maintain the dental hospital (pharmaceuticals, consumable and other daily operational maintenance cost)
- ④ Assistance of administrative staff members
- ⑤ Dispatch of nursing and ancillary staff to the new operating theatre and ward
- ⑥ Assistance of other counterpart personnel from the Ministry of Health
- ⑦ Access to the Blood Bank of the Teaching Hospital
- ⑧ Inpatient meal service from the Teaching Hospital Kitchen

Meanwhile, it is planned to transfer the present Dental Clinic (2 units) serving out-patients at the Teaching Hospital to the out-patient section of the Faculty of Dental Sciences to be relocated to a new site under the Project.

The development of new operating and ward facilities at the Faculty of Dental Sciences will upgrade the conventional oral surgical and dental services of the Teaching Hospital for patients to the wide ranging specialized services with the active assistance of the Ministry of Health and the Teaching Hospital in terms of manpower and other aspects. The planned establishment of new operating and ward facilities for the Faculty of Dental Sciences is also desirable from the viewpoint of maximising the efficient use of the existing facilities and resources.

3) Existing Facilities of Faculty of Dental Sciences

Here, the possibility of providing improved educational facilities for the Faculty of Dental Sciences by means of the remodelling and extension of the existing facilities is examined based on the survey findings on the degree of deterioration and grade of the existing buildings, availability of land for extension and infrastructure conditions, etc. The existing facilities of the Faculty of Dental Sciences were originally constructed as accommodation buildings for students with the later addition of part of the laboratory and lecture buildings. All of these buildings show signs of

ageing and are too small to meet the requirements of the Faculty. The survey has confirmed that the shape of the current site and the availability of land make it practically impossible to rehabilitate the existing buildings with extensions to meet the requirements of modern dental education without disrupting the normal functioning of the Faculty. The relocation of the Faculty to the proposed sites on the same campus is, therefore, judged to be the most appropriate means of expansion. The existing buildings of the Faculty will be transferred to the university authorities upon completion of the new buildings and will be remodelled to comprise student accommodation.

(4) Requested Items and Facilities

Based on the plan submitted by the Core Group of Master Building Plan Committee (seven core members) of the Faculty of Dental Sciences, University of Peradeniya, the proposed details of the main rooms are examined below, taking the results of discussions between the Study Team members and above core members during the Basic Design Study into consideration.

1) Integration of Basic Medical Laboratories

The integration of the laboratories of different departments will be encouraged when the functions and equipment of the departmental laboratories are, in fact, similar in order to achieve the efficient use of educational equipment. The preparation rooms and store rooms attached to laboratories may be independently or commonly used depending on their functions and objectives.

- ① Integration of microbiological and biochemical laboratories
- ② Integration of histological and physiological laboratories
- ③ Integration of general pathology and oral pathology laboratories

2) Centralisation of Departmental Sterilisation Rooms

All departments/divisions providing a clinical service require a sterilisation room for tools and equipment. The introduction of a central sterilisation room at the Department of Oral and Maxillofacial Surgery should eliminate the need for departmental sterilisation rooms and reduce the level of sterilisation equipment and facilities required by each department.

3) Introduction of Dento-Maxillofacial Radiology and Centralisation of X-Ray Operation

At both the Preliminary Study and Basic Design Study stages, it was confirmed that the Division of Dento-Maxillofacial Radiology would be

newly introduced as part of the Department of Oral Medicine and Periodontology to strengthen the diagnosis of oral disease and treatment and educational function of the Faculty. While X-ray facilities are required by the Division of Oral Medicine, Department of Oral and Maxillofacial Surgery, Department of Restorative Dentistry and Division of Paedodontics, the centralised installation of the main radiological equipment at the Division of Dento-Maxillofacial Radiology will allow the minimisation of departmental radiological equipment and efficient patient diagnosis and treatment and student education. In particular, the oral medicine and oral surgery clinical units will be located at this centralised radiological facility so that they will not require their own X-ray facilities.

4) Number of Beds in Oral and Maxillofacial Surgery Ward

In planning the number of beds for the Oral Surgery Ward, the basic elements in the calculation are the estimated demand level for this type of ward in the Kandy area, and number of feasible operations a year in view of the number of teaching staff of the Division of Oral Surgery and the scope of the operating facilities.

The Annual Health Bulletin Sri Lanka reports that the number of patients undergoing oral surgical operations in the Kandy area was 1,318 in 1993 which translates to 0.87% of the total number of patients accepted of 152,366. This ratio of patients undergoing surgical operations was much lower than the national average of 2.34%, let alone the 4.26% for the Colombo area. This low ratio can mainly be attributed to the shortage of operating facilities as the oral surgery facilities in the Kandy area are limited to the Kandy General Hospital and Peradeniya Teaching Hospital. There are even time restrictions on the use of operating theatres by the field of oral surgery. Consequently, many patients have been waiting for operations for a long time or have been forced to travel to Colombo for operations. This situation suggests a large potential demand for oral surgery and the relevant hospital beds, probably totalling more than 6,000 patients a year or some 4% of the total number of dental patients which are treated. With the implementation of the Project, the hospital treatment facilities of the Faculty of Dental Sciences will be much improved. Its improved capability as a secondary facility in the field of oral surgery will attract many patients from not only the Kandy area but also from the Colombo area, further increasing the demand for more in-patient beds in the Oral Surgery Ward.

The request made by the Sri Lankan side was for the provision of 65 beds. Excluding oral cancer patients, the average length of in-patient treatment is 4 - 5 days, resulting in a monthly turnover of beds of approximately 6 times. The resulting capacity is an average of 312 patients/month based on 65 beds (bed occupancy rate of 80%). These in-patient treatment figures allow an average of 16 oral operations/day which will be difficult to meet by the limited number of teaching staff of the Division of Oral Surgery (7 at present and 9 when the new hospital is opened) and the requested 2 operating theatres. It is, therefore, deemed appropriate to halve the number of beds by adopting more sensible figures such as 8 - 9 operations/day, totalling 1,500 - 1,600 operations/year.

The following calculation of the required number of beds (on a monthly basis) is made based on 8 operations/working day, an in-patient treatment ratio of 80%, an average hospitalisation length of 7 days with allowance for some long-term in-patients and a bed occupancy rate of 80%.

• Required number of beds =

$$8 \text{ patients/day} \times 20 \text{ days} \times 80\% \times 7 \text{ days} \div 30 \text{ days} + 80\% = 37.3 = 38 \text{ beds}$$

In short, the appropriate number of beds in the proposed ward appears to be 40 considering some long-term in-patients and possible infectious disease in-patients who must be isolated in the single room, the breakdown of which is given below.

- 8 bed room (for male) × 2
- 8 bed room (for female) × 2
 (one room used both as female and children)
- 4 bed room × 2
 (used as single rooms in case of infectious disease in-patients)

5) Clinical Cubicles and Dental Chairs

A total of 234 cubicles are requested to meet all sub-specialities and purposes of each department, including one cubicle for handicapped children at the Division of Paedodontics, 6 cubicles for fixed orthodontic appliances at the Division of Orthodontics, one cubicle for demonstration purposes at the Department of Oral and Maxillofacial Surgery and 5 cubicles for post-graduates at the Division of Restorative Dentistry in addition to those for students and teaching staff. The requested cubicles by department are listed in Table 2-1. As the number of cubicles can be increased further more on the basis of specialisation, this must be restrained by facilitating their efficient, common use. This is important because the

number of cubicles can greatly affect the overall facility size and the maintenance cost level due to the need for the regular checking of dental chairs, etc. The following principles are adopted for the Project to determine the planned number of cubicles.

① Student Cubicles

Two students will share one dental chair during the practical training sessions of the Division of Paedodontics and Division of Restorative Dentistry as training in pairs is expected to achieve the required level of skill.

② Staff Cubicles

An appropriate number of staff cubicles will be provided based on the characteristics of each department and past data on patients treated per day.

③ Other Special Cubicles

Other special cubicles are withdrawn and will be replaced by the common use of student or staff cubicles.

Table 2-1 Comparison of Requested and Planned Number of Clinical Cubicles and Dental Chairs

	Present Strength	Dental Chairs for Students		Dental Chairs for Clinic Staff		Dental Chairs for Other Purposes		Total		Remarks
		Req.	Planned	Req.	Planned	Req.	Planned	Req.	Planned	
Paedodontics	16	35	36	3	3	1 (HC)	-	39	42	- Students trained in pairs - Staff clinic used to treat handicapped children - Student cubicles used for appliances
Orthodontics	14	25		2	3	6 (AP)	-	33		
Oral Medicine	5	10	8	1	2	2 (MOH)	2 (MOH)	11 (13)	10 (12)	
Periodontology	12	30	20	2	2	4 (HYG)	-	32	22	Student cubicles used for hygienist training
Oral Pathology	-	-	-	3	-	-	-	3	-	Cubicles of other departments used
Oral and Maxillo-facial Surgery	20	29	18	2	-	1 (DEM)	2 (MFS)	32	20	
Prosthetic Dentistry	15	30	36	3	5	-	-	45	41	- Students trained in pairs - Student and staff cubicles used by post-graduate students
Restorative Dentistry	33	30		4		5 (PG)	-	39		
Total	115	189	118	20	14	25 (27)	2 (4)	234 (236)	135 (137)	

Notes 1) HC — Handicapped Children AP — Appliances
 MOH — Ministry of Health Clinic (replacement from PTH) HYG — Dental Hygienists
 MFC — Maxillofacial Cubicle DEM — Demonstration Cubicle
 PG — Post-Graduate Student

- 2) All of the existing 115 dental chairs are of the old type (manufactured in the 1950's and 1960's), out of which 78 are still functioning. As they do not allow free changes of the chair position, their continued use is discarded in the project planning. It is planned to sell these chairs to private dental clinics, etc.
- 3) Number in the bracket - () - indicates total number including replacement of the existing dental chairs for MOH from Peradeniya Teaching Hospital.

6) Calculation of Appropriate Number of 100 Seat Lecture Rooms (Reduced from 5 to 2)

The present curriculum of the Faculty involves upto a total of 45 periods/week (including English lessons) for the four different student years which require a lecture room each. The maximum number of periods per lecture room per week is 40. Using the following formula, the lecture room operation rate will only be 21.5% based on the 5 lecture rooms requested which is far below the optimum utilisation rate. But it is necessary to provide 2 rooms at least for having a reasonable formation of the curriculum which needs 2 rooms simultaneously. Consequently, the number of lecture rooms to be provided under the Project has been reduced to 2 achieving a utilisation rate of 56% which is considered acceptable.

Lecture Room Utilisation Rate (%)

$$= \frac{\text{Weekly Number of Period (45)}}{\text{Maximum Number of Periods per Room per Week (40)} \times \text{Number of Lecture Rooms (2)}} \times 100 = 56\%$$

7) Calculation of Appropriate Number of 25 Seat Tutorial Rooms for Basic Medical Education (Reduced from 9 to 4)

As part of the basic medical education, tutorials are provided for first year and second year students. Based on 25 students per group, the total number of periods per week for 8 groups (4 groups for each year) is 104. Using the formula given in 6) above, the utilisation rate is as low as 28% if the requested 9 tutorial rooms are provided. Given the possibility of the simultaneous use of tutorial rooms by all 4 groups of one year and of frequent use after and before laboratory training, the planned number of tutorial rooms is 4 to cater for 4 groups at the same time sharing basis of 8 groups. These rooms will be efficiently used by both first year and second year students and the resulting utilisation rate vis-a-vis the regular number of tutorials is 65%.

8) Calculation of Appropriate Number of Tutorial Rooms for Clinical Education (Reduced from 10 to 5)

Third year and fourth year students also have tutorial classes. As it is planned to group the students of each year into 4 groups of 25 students each, a maximum of 8 groups will undergo practical training or tutorials simultaneously. Although the maximum number of regular tutorials per

week of 32 for 8 groups is smaller than in the case of basic medical education, these tutorial rooms are frequently used for orientation for daily clinical training which is conducted at the same time for all 8 groups. While the number of tutorial rooms for clinical education has been reduced from the requested 10 to 5, another 2 extra tutorial rooms for patient's health education will also be used as spare rooms for third and fourth year students to be taken place simultaneously.

9) Auditorium

While a 500 seat auditorium is requested, such an auditorium should mainly be considered as a common facility for a university as a whole rather than for a faculty. The Peradeniya campus already has an auditorium and an indoor gymnasium, both of which are used for various ceremonies. The auditorium of the nearby Sri Lanka Plant Genetic Resources Centre is also available for use. Therefore, an auditorium for the Faculty of Dental Sciences is not included in the Project. Corresponding to an occasional joint lecture among first and second year or third and fourth year students, CPC conference room and next two (2) tutorial rooms will be designed into one (1) room in order to accommodate 200 students by applying the walls as movable partitions.

10) Staff Rooms

According to the request, all teaching staffs are, in principle, given an independent room each, totalling 104 rooms and consisting of 15 department/division head rooms, excluding the Division of Dento-Maxillofacial Radiology, 79 senior lecturer and lecturer rooms and 10 junior lecturer rooms. At present, there is a total of 56 teaching staff members (24 senior lecturers, including professors, 25 lecturers and 7 junior lecturers) which will be increased to 81 by the target year of 2000

The allocation of a single room for all teaching staff members will cause a problematic expansion of the facility size. It was agreed during discussions in Sri Lanka at the time of the Basic Design Study Team's visit that the planning target would be one single room for the head of each department or division, 3 single rooms for senior lecturers and one common room to be shared by the other academic staff of each department or division. This agreement has, in principle, been heeded in the subsequent planning of the

staff rooms shown in Table 2-2 which also takes the present staffing strength and the expansion plan for 1998 into consideration.

Table 2-2 Requested and Planned Staff Rooms

Department/ Division	Present Staff					Staffing Plan for 1998					Number of Rooms		
	Pf	SL	L	JL	Total	Pf	SL	L	JL	Total	HD	L-Rm	Total
Community Dentistry	1	1	1	-	3	1	1	1	-	3	1	2	3
Paedodontics	-	1	3	-	4	-	2	3	-	5	1	3	4
Orthodontics	-	2	2	-	4	-	2	2	-	4	1	3	4
Oral Medicine	-	1	3	-	4	-	2	3	-	5	1	3	4
Periodontology	-	2	1	1	4	-	3	1	1	5	1	2	3
Dento-Maxillo-facial Radiology	-	1	-	-	1	-	1	-	-	1	-	1	1
Oral Pathology	1	2	1	-	4	1	3	1	-	5	1	2	3
General Pathology	-	1	1	-	2	-	2	2	-	4	-	2	2
Oral and Maxillo-facial Surgery	1	2	1	3	7	1	4	1	3	9	1	4	5
Prosthetic Dentistry	-	2	1	2	5	-	3	2	2	7	1	3	4
Restorative Dentistry	1	-	3	-	4	1	2	3	-	6	1	3	4
General Anatomy	-	1	2	1	4	-	2	2	1	5	1	2	3
Oral Anatomy and Histology	-	-	1	-	1	-	2	2	-	4	1	2	3
Physiology	-	2	-	-	2	-	2	1	-	3	1	2	3
Biochemistry	-	1	2	-	3	-	2	2	-	4	1	2	3
Microbiology	-	-	2	-	2	-	2	3	-	5	1	2	3
Pharmacology	-	1	1	-	2	-	2	2	-	4	1	1	2
Total	4	20	25	7	56	4	37	31	7	79	15	39	54

Note: Pf = Professor, SL = Senior Lecturer, L = Lecturer, JL = Junior Lecturer, HD = Head Room, L-Rm = Lecturer Room

11) Elimination of Animal House

The original request included the provision of an animal house (119 m²). At present, the scope of experiments and practical training involving live animals is limited mainly to the use of small animals, such as rats and mice, to check the effects of drugs as part of the teaching at the Division of Pharmacology and live animals are hardly used even in the basic research fields. As there is an established arrangement for the supply of small animals for test purposes from the National Medical Research Institute

(MRI) in Colombo, there is no specific need for the Faculty of Dental Sciences to independently breed and keep such animals. In view of the efficient use of resources, the provision of only equipment required to keep small animals for testing at the relevant laboratories while receiving the animals required for testing from the MRI is deemed appropriate. The animal house has, therefore, been eliminated from the list of items to be provided under the Project.

12) Lift for Medical Equipment

Due to the comparatively small sites vis-a-vis the size of the requested facilities, it is inevitable that the new faculty building will have multi-stories (4), requiring the installation of a lift to transport medical equipment and materials.

The use of special containers and trolleys is essential for the transportation of sterilised medical tools and equipment from the CSSD to the clinical units on each floor to ensure both safe and functional supply and control. In addition, such heavy items as powdered gypsum and liquid nitrogen cylinders required for dental treatment will be regularly transported. Given these considerations, the installation of a general-purpose rope-winding lift is deemed appropriate. In order to reduce the maintenance cost, the use of this lift will be generally restricted to the transportation of medical supplies and equipment only.

13) Miscellaneous Issues

- ① Instead of providing a separate computer room (16 m²) to process the clerical work of each clinical unit, a computer will be installed in each department/divisional office.
- ② The size of the practical laboratories for basic medical education and clinical education will be rationally determined based on the number of equipment and test tables and their efficient layout.
- ③ Of the practical clinic areas, those for Paedodontics and Orthodontics and those for Prosthetic Dentistry and Restorative Dentistry will be combined as an open clinic style so that the dental chairs of a limited number can be efficiently and flexibly used.

- ④ The facility size and number of equipment (dental chairs, etc.) will be further rationalised by combining the practical laboratory for student and the technical laboratory room for trainees of the Division of Restorative Dentistry and the Division of Prosthetic Dentistry.
- ⑤ The original request expressed a need for 8 changing rooms for each group of male and female surgeons, students, nurses and other staff. Here, rationalisation of the facility size will be made by combining those for surgeons and students and those for nurses and other staff.
- ⑥ The requested out-patient facilities included a 150 seat waiting hall, 4 general treatment units (rooms) and 3 treatment units (rooms) of the Ministry of Health. Having considered the facts that the opening hours for out-patients without an appointment are only in the morning and that those with an appointment are directly sent to the clinical unit of each department/division, the required facilities will be combined with similar rooms of the Division of Oral Medicine and other divisions to rationalise the space requirement without disrupting their functions.
- ⑦ Further integration will be considered for other requested rooms if such integration is deemed desirable for the management of the Faculty's facilities.

(5) Requested Equipment

With regard to the equipment originally requested at the time of the Preliminary Study and then revised during the Basic Design Study, it has been agreed through a series of discussions that some of the special dentistry tools, glass wears and office furniture will be removed from the list as they will be procured by the Sri Lankan side.

For the present purposes, all equipment required for theoretical education, practical training, tutorials, clinical education and clinical training at the seven departments of the Faculty has been examined. The conclusions are that dental X-ray equipment which is currently owned by several divisions but which is quite deteriorated will be renewed and provided for the newly established Division of Dento-Maxillofacial Radiography and that a wide range of basic equipment for the practical training of students, such as that used for basic medical education by the Faculty of Medicine, and basic research equipment required for the preparation of student training materials will be provided for

those divisions (Divisions of General Anatomy, Oral Anatomy and Histology, Biochemistry, Microbiology and Pharmacology) involved in basic medical education. In selecting the equipment, that requiring a high maintenance cost and/or special maintenance skills will be avoided to ensure proper maintenance by the Faculty staff after installation.

Most of the equipment of the clinical units located in the existing facilities is more than 20 years old and few spare parts are available as this equipment has passed its expected life. Consequently, the transfer of this equipment to the new facilities is not considered and new equipment will instead be provided. However, the Sri Lankan side has agreed to the transfer of many dentistry tools, such as mirrors and scalers, etc., of which the conditions are still good enough for further use, to the new facilities.

2.2.2 Examination Results

(1) Facility Plan

Based on the results of the examination of the requested items in 2.2.1, the following facilities are judged suitable to form the core facilities to be provided under the Project.

1) Sites and Buildings

Site A

Building A : 4 stories above ground

- Basic medical education and related practical training facilities
- Lecture rooms and tutorial rooms for common use; library
- Faculty office
- Car park

Site B

Building B : 4 stories above ground

- Clinical medicine and related practical training facilities
- Out-patient facilities
- Rooms for common services

Building C: Single-story above ground

- Student service facilities

2) Facility Sizes at Site A and Site B

	Site A: 3,061 m ²			Site B: 6,814 m ²				Total: 9,875 m ²
	Building A			Building B			Building C	
	Rooms	Corridors/ Staircases/ Balconies	Total	Rooms	Corridors/ Staircases/ Balconies	Total	Rooms	
PHF	-	-	-	-	21	21	-	21
3F	340	192	532	700	426	1,126	-	1,658
2F	813	245	1,058	1,525	490	2,015	-	3,073
1F	813	336	1,149	1,842	439	2,281	-	3,430
GF	681	522	1,203	2,101	497	2,598	194	3,995
Total	2,647 m²	1,295 m²	3,942 m²	6,168 m²	1,873 m²	8,041 m²	194 m²	12,177 m²

3) Main Sections and Rooms

Table 2-3 Building A (Basic Medical Education and Practical Training; General Studies; Faculty Administration)

	Floor Area (m ²)	Facilities
3F	532	• Lecture Rooms (2); Library
2F	1,058	• Biochemistry, Microbiology Pharmacology and Joint Laboratory (1) • Common Tutorial Rooms (4)
4F	1,149	• Physiology; Histology • Joint Laboratory (1) • Faculty Administration
GF	1,203	• General Anatomy, Oral Anatomy, Histology • Student Locker Room • Car Park
Total	3,942	

Table 2-4 Building B (Clinical Education and Practical Training)

	Floor Area (m ²)	Facilities
PH 1F	21	• Machine Room for Lift
3F	1,126	• Oral Pathology, General Pathology • CPC Conference Room, Tutorial Rooms (2)
2F	2,015	• Community Dental Health (Community Dentistry, Paedodontics, Orthodontics) • Tutorial Rooms (1), Staff Common Room
1F	2,281	• Periodontology, Prosthetic Dentistry, Restorative Dentistry • Tutorial Room (1), Staff Rooms for Oral Medicine and Oral and Maxillofacial Surgery
GF	2,598	• Out-Patient Facilities, Oral Medicine, Oral and Maxillofacial Surgery, Operating Rooms, Ward, Dento-Maxillofacial Radiology, CSSD, Workshops, Service Facilities
Total	8,041	

Table 2-5 Building C (Canteen Building)

	Floor Area (m ²)	Facilities
GF	194	Student Canteen, Kitchen, Toilets
Total	194	
Grand Total	12,177	

(2) List of Main Equipment

The selected major equipment based on the results of examination of the request are shown as below.

1	Community Dentistry	Dental Chair Unit, Computer, Dental Instrument, etc.
2	Paedodontics	Dental Chair Unit, Autoclave, Light Cure Machine, Dental Instrument, etc.
3	Orthodontics	Dental Chair Unit, Autoclave, Light Cure Machine, Dental Instrument, etc.
4	Oral Medicine	Dental Chair Unit, Autoclave, Light Cure Machine, Dental Instrument, etc.
5	Periodontology	Dental Chair Unit, Autoclave, Light Cure Machine, Dental Instrument, etc.
6	Radiology	X-Ray Apparatus, Dental X-Ray Apparatus, Orth-Phantom X-Ray Unit, etc.
7	Oral Pathology	Binocular Microscope, Microtome, pH Meter, Liquid Nitrogen Tank, etc.
8	Pathology	Binocular Microscope, Anaerobic Jar, Spectrophotometer, Refrigerator, etc.
9	Oral and Maxillofacial Surgery	Operating Table, Operating Light, Anaesthesia Apparatus, Dental Chair Unit, High Pressure Steam Sterilizer, etc.
10	Prosthetic Dentistry	Dental Chair Unit, Autoclave, Light Cure Machine, Dental Instrument, etc.
11	Restorative Dentistry	Dental Chair Unit, Autoclave, Light Cure Machine, Dental Instrument, etc.
12	General Anatomy	Autopsy Table, Cadaver Preservation, Deep Freezer, Binocular Microscope, etc.
13	Dental Anatomy and Histology	Binocular Microscope, Automatic Slide Stainer, Automatic Tissue Processor, Praffin Oven, etc.
14	Physiology	Binocular Microscope, Electrocardiograph, Electromyograph, Polygraph, Treadmill, etc.
15	Biochemistry	Binocular Microscope, Autoclave, Deep Freezer, Clean Bench, etc.
16	Microbiology	Binocular Microscope, Centrifuge, Analytical Balance, Deep Freezer, Microtome, etc.

(3) Project Planning Principles

Based on the examination of the requested items, it is concluded that the planning principles for the Project are to facilitate the integration of rooms with similar functions through rationalisation and to make the overall planning size of the facilities compact while maintaining the intended functions of all the rooms originally requested instead of providing a full range of independent facilities for each department or division as requested. Moreover, it is believed that the efficient operation of common facilities will reduce the future maintenance cost to an acceptable level to enhance the sustainability of the Project while conforming to the future development programme of the Faculty.

The basic concept of the Project, established through the Basic Design Study, is to relocate the Faculty of Dental Sciences to two project sites on the University of Peradeniya campus with the construction of new buildings and the provision of new equipment required for the education and practical training of modern dentistry in line with the future development programme of the Faculty. There are three main components of the Project as described below.

① Construction of New Faculty Buildings

New buildings will be constructed to accommodate 7 departments (14 divisions) and the Faculty administration.

② Provision of Equipment

New equipment for both basic and clinical dentistry education and practical training at 7 departments (14 divisions) will be provided.

③ Initial Training on Maintenance Skills

Initial training will be provided by the contractor (maker) for the Faculty's academic and technical staff to ensure the proper installation, operation and maintenance of the equipment supplied.

2.3 Basic Design

2.3.1 Design Concept

The basic design for the Project is required to ensure the required functions of all the departments/divisions of the Faculty to successfully pursue their basic and clinical education and practical training targets of modern dentistry. In addition, the buildings to be constructed must be appropriate vis-a-vis the local environment and social conditions, etc. The following design principles for the planning of the Project are adopted, taking the special environmental features of and around the project sites and other relevant local conditions into consideration.

(1) Design Principles Vis-a-Vis Natural Conditions

1) Temperature and Humidity

Peradeniya is situated in the central highland at around El. 500 m. With a mean temperature of 24.5°C and mean humidity of 74%, the climate is more pleasant than in the southwestern lowland. The mean maximum temperature is around 30°C from March to May while the mean minimum temperature is slightly below 20°C from December to February. This pleasant climate is fully utilised in the basic design in that such high cost systems as mechanical ventilation and air-conditioning will only be installed for those rooms requiring these systems in order to perform their envisaged functions.

2) Rainfall

The annual rainfall in the area ranges from 1,500 mm to 2,400 mm. There is a considerable rain in rainy season, namely April, May and October, November while there is little rain in January and February. As there are heavy squalls during the rainy season, the drainage must be able to deal with short bursts of heavy rain. Eaves and louvres are necessary to protect the rooms and open corridors from rain.

3) Wind Velocity

As this inland area is surrounded by mountains, the wind velocity is low throughout the year. No cyclone damage is anticipated. The prevailing wind is from the southwest in the dry season and from the northeast in the rainy season. In principle, natural ventilation will be adopted for all the

buildings to create pleasant indoor conditions, making the best use of the local climate.

4) Insolation

The proximity of the sites to the 7th parallel of the north latitude means strong insolation, necessitating careful planning for the roof insulation. Given the shape of the sites which stretch in the north-south direction, architectural design techniques involving roofs, eaves and louvres to be used to shut out direct sunlight in both the morning and afternoon will be employed.

5) Lightning

Lightning frequently occurs in the rainy season, causing damage. A system to protect the entire facilities from lightning will be provided.

6) Earthquakes

Sri Lanka is situated outside any known seismic belt and no earthquake damage has so far been recorded. Consequently, earthquake force will not be considered in the structural design.

7) Tree Conservation

The felling of trees on the sites will be kept to a minimum and the building layout should be environment-friendly. In particular, two large rain trees on Site B will be kept intact.

(2) Design Principles Vis-a-Vis Social Conditions

1) Function as a Dental Clinic

The Faculty of Dental Sciences is not simply an educational institution but also provides a dental treatment service for out-patients. Given the facts many in-patients in Sri Lanka are attended by their families and that some 30% of out-patients come from outside Kandy, a waiting hall is planned in the out-patient zone to prevent confusion at the opening of the clinic in the morning. The architectural design priority will be given to providing good amenities for dental patients. A separate entrance for students and Faculty staff from the patient entrance will be introduced together with carefully planned internal path lines to prevent undesirable congestion.

2) Buildings Harmonious with the Environment

Kandy is an old city which was the capital of the last dynasty until the early 19th century and which is still regarded as the centre of Sri Lankan traditions and culture by the public. In order to preserve the environment and scenery with abundant greenery, the building design for the Project must minimise any adverse impacts of the buildings on the environment. In the field of architectural design, particular attention must be paid to the historical design of the existing buildings of the University of Peradeniya to ensure that the new Faculty buildings blend with the surrounding scenery as part of the campus configuration of the University.

(3) Building Standards, Laws and Permission/Approval Required

The Government of Sri Lanka has regulation for approval to build new buildings, including government buildings, in urban areas compulsory and the planned buildings under the Project are not exempt from this requirement. The University of Peradeniya will apply to the Urban Development Authority (UDA) for approval. The entire approval process usually takes approximately 3 weeks. The architectural, structural and building services design details for the Project must abide by the Sri Lankan laws and regulations in force and Japanese and/or British standards will be taken into consideration for the better securing of the facilities.

(4) Design Principles Vis-a-Vis Use of Local Subcontractors and Local Materials, etc.

The size of the construction market in Sri Lanka is rather small and the number of large-scale construction works is limited. It is, therefore, necessary to carefully examine the subcontractors prior to making a final selection as the technical and administrative ability to complete the assigned work on time considerably vary from one subcontractor to another. Aggregate, bricks, concrete blocks and stone are available locally among the various construction materials. Most of the other materials required must be imported and the possibility of importing these materials from neighbouring countries will be applied constructively in to the design. Almost all types of construction machinery, including such heavy machinery as cranes, are available locally.

In the case of medical equipment, most of the planned equipment cannot be procured locally and must be imported from Japan or third countries. The

preparation of a careful equipment maintenance plan is necessary in view of the mainly foreign origin of such equipment.

(5) Design Principles Vis-a-Vis Maintenance and Management Capability of Project Implementation Body

The maintenance of the Faculty's buildings and building services will be carried out by the technical assistance of the Building Maintenance Department of the University. While the maintenance of medical equipment is currently conducted by a full-time technician of the Faculty, the University is planning to reinforce its general maintenance staff. Due to the small market size for dentistry equipment in Sri Lanka, there is not a strong after-service network provided by agents. The introduction of a maintenance workshop belonging to the Faculty should be planned for the Project in order to establish a self-reliant maintenance and repair system. This requirement necessitates the careful selection of equipment which does not demand a radical transformation of the existing maintenance system. Therefore, the equipment plan for the Project must be prepared based on the precondition that equipment requiring special maintenance skills and expensive spare parts is excluded.

(6) Design Principles Vis-a-Vis Facility Grades

Planning of the design grades for the planned facilities must take the envisaged functions and grades of the requested rooms, technical level for facility maintenance and financial capability of the Faculty/University to meet the future maintenance cost, etc. into consideration. Further attention must be paid to minimising adverse impacts on both the natural and social environments of the University.

1) General Building Grades

The general grades of the planned buildings and their interiors must be compatible with the standard grades of such relevant educational facilities as higher education facilities of Sri Lanka in general, the existing buildings of the University of Peradeniya and/or neighbouring buildings of the Faculty of Medicine. The architectural design must incorporate natural lighting and natural ventilation as much as possible to make the best use of the relatively cool climate of Kandy throughout the year in order to minimise the operation and maintenance cost.

2) Construction Materials and Methods

The construction materials will be those which are highly durable and weatherable and, in principle, those commonly used in the area will be used. Local construction methods will be used with the provision of technical assistance to ensure proper maintenance.

3) Electrical Installations and Air-Conditioning System, etc.

The planning scope for electrical installations and air-conditioning system will conform to the standard level of relevant educational facilities and reduction of the electricity cost will be planned where possible. In particular, an air-conditioning system will be installed for such essential rooms as the operating rooms of the Department of Oral and Maxillofacial Surgery and to protect that equipment of which the proper functioning depends on air-conditioning. The planning scope for an emergency power generation unit will be kept to a minimum and will include the fire-fighting system.

4) Equipment Grades

As the Faculty is constituting the sole dental training institution in Sri Lanka, the equipment grades will enable the Faculty to contribute to improving dentistry education in the country. At the same time, proper attention must be paid to minimising the maintenance cost and labour requirement for the Faculty. In principle, the adoption of grades which are far higher than the existing technical level will be avoided by analysing the grades and maintenance situation of existing equipment in detail.

The local procurement of equipment will be given priority to reduce the required maintenance cost and load after equipment installation. If local procurement is not possible, the procurement priority will be given to such neighbouring third countries as Thailand where good distribution channels are available. Japan will only be considered as an equipment supply source when procurement from neighbouring countries is proved to be impossible. However, these principles shall not apply if the quality of local equipment is unacceptably poor or appears unable to meet the specific educational requirements.

(7) Design Principles Vis-a-Vis Construction Schedule

An appropriate construction schedule must be planned based on the use of local materials, local construction methods and ability of subcontractors. Particular attention should be paid to establishing a smooth supply of bricks, reinforcing bars, timber and roofing tiles, etc. Another important factor to be taken into consideration is the long rainy season in the Kandy area. Further care should be taken to minimise construction noise and the construction hours in view of the proximity of the Teaching Hospital to the project sites and the use of the access road by hospital visitors. All these factors must be taken into proper consideration when deciding the construction schedule for the Project.

2.3.2 Examination of Design Conditions

(1) Planned Facilities

From a functional point of view, the planned facilities can be classified into the following groups.

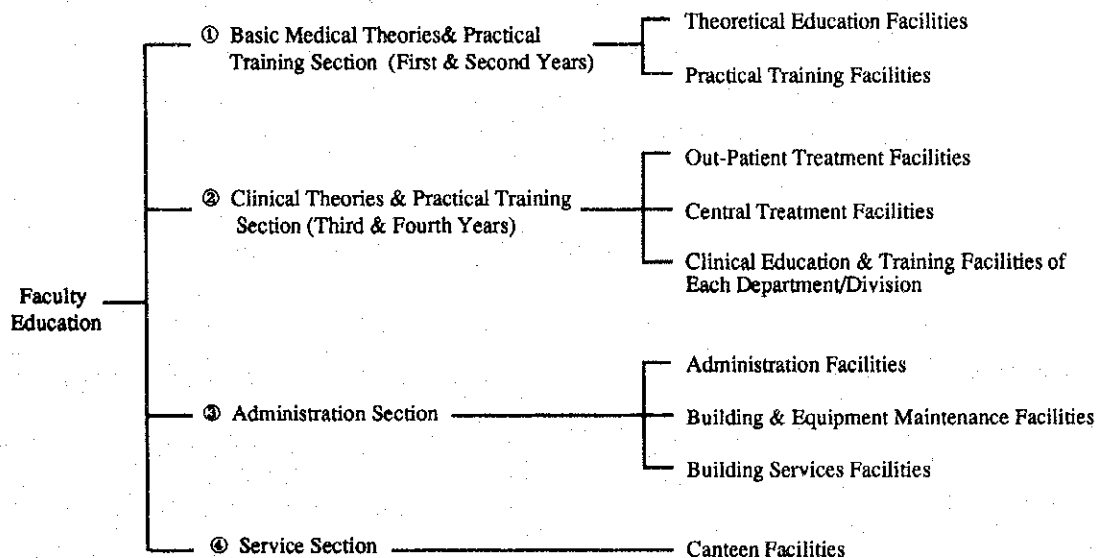


Fig. 2-1

In addition to the facilities listed above, a car park, waste water treatment plant and incineration plant are essential auxiliary facilities to ensure the smooth and healthy running of the Faculty. Given the planned sizes of the buildings, parking space for some 60 cars is required pursuant to the Rules and Regulations for Designing Buildings (UDA). The minimum requirement based on the present parking situation appears to be some 40 parking lots, consisting

of 2 lots for the Faculty's official cars, some 20 lots for staff and some 20 lots for out-patients.

A technically and environmentally competent waste water treatment plant and incineration plant should be planned as independent buildings from the other buildings on the project sites to create a hygienic environment for students, academic and administrative staff, out-patients, in-patients and all other people using the facilities of the Faculty.

(2) Divisions and Functions of Two Separate Sites

Because of the size of the available sites, it is impossible to locate all the required functions (facilities) of the Faculty on a single site unless a very high building is planned. It appears highly desirable to limit the building height to 3 or 4 stories in order to achieve harmony between the new buildings and the buildings on the adjacent sites. A relatively low height of building is also appropriate vis-a-vis the management style of the Faculty. Based on the above considerations, the planned facilities will be distributed to two sites. Although such division will not hamper the proper functioning of the Faculty, the facility plan and layout must ensure a rational combination of the departmental/divisional functions with the planned facility size. From a managerial point of view, the combinations given in Table 2-6 are feasible.

Table 2-6 Feasible Combinations of Facility Distribution

	Site A	Site B	Assessment Results
Alternative A	③ Administration Section ④ Service Section	① Basic Medical Education Section ② Clinical Education Section	<ul style="list-style-type: none"> • Desirable from operational point of view • Impossible to build ① and ② on Site B because of site size
Alternative B	① Basic Medical Education Section ④ Services Section	② Clinical Education Section ③ Administration Section	<ul style="list-style-type: none"> • No operational difficulties • Access to the service section from the clinical section is slightly difficult
Alternative C	① Basic Medical Education Section ③ Administration Section	② Clinical Education Section ④ Service Section	<ul style="list-style-type: none"> • No operational difficulties • Good access to the administration section from outside • Rational distribution of facilities in terms of their sizes

It is concluded that Alternative C is the best option and that the facility distribution to the two sites will be planned based on Alternative C.

With regard to car parking, while the provision of a car park on Site A, mainly for teaching and administrative staff, and another car park on Site B for out-patients is desirable, the provision of a car park on Site A is deemed to be rational because of its direct access to a trunk road and the need to reduce the traffic load on the approach road to the teaching hospital.

(3) Design Standards for Facility Size

The planned size of each room in the new buildings of the Faculty of Dental Sciences is listed below. The planning decision on the room size is based on the functions and size of the existing facilities of the Faculty while taking the Japanese Medical Facility Floor Area Standards (compiled by the Japan Architectural Society and others) and the likely layout of the necessary equipment into consideration.

**BUILDING A : BASIC MEDICAL EDUCATION,
COMMON · ADMINISTRATION SECTION**

GROUND FLOOR—LIST OF FACILITIES & FLOOR AREA

1. DIVISION OF GENERAL ANATOMY, DENTAL ANATOMY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Dissecting Rm.	320	225	100 students, 1 group : 6 students/dissection table × 12 tables example in Japan 3.0~3.2m ² /student 12.5m × 18.0m
2) Cadaver Processing Rm.	45	59	Integration of 3 Rms as 1 Rm. Storage tank for 18 cadaver. Refrigerator for 18 cadaver. 6.5m × 9.0m
3) Cadaver Storage Tank Rm.	18		
4) Cold Rm.	15		
5) Demonstration Lab. / Staff Dissecting Rm.	36	32	
6) Equip. / Instrument Rm.	18	12	3.0m × 4.0m
7) Organ Store Rm.	18	18	3.0m × 6.0m
8) Museum Preparation Rm.	30	21	Integration with Organ Store Rm. 3.5m × 6.0m
9) Museum	75	59	based on layout of 25 seats & specimen shelf 6.5m × 9.0m
10) Head's Rm.	(2 Rms.) 48	(2 Rms.) 36	3.0m × 6.0m × 2 Rms.
11) Academic Staff Rm.	(8 Rms.) 144	(4 Rms.) 72	18m ² (3.0m × 6.0m) × 3 Rms. by sharing basis
12) Technician's Rm.	18	18	3.0m × 6.0m
13) Minor Employee's Rm.	10	—	common use
14) Office Rm.	18	30	Office and Computer Rm. used as 1 Rm. Integration of general anatomy and dental anatomy office 5.0m × 6.0m
15) Computer Rm.	16		
16) Toilet	15	11	closet : 2, shower : 2, wash hand basin : 2
17) Mortuary	—	12	3.0m × 4.0m
Sub Total	844	605	

2. GENERAL SECTION

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Students' Locker Rm.	100	26	for 1st, 2nd year 200 students, simplified locker provided Female : 5.2m × 2.5m, Mele : 5.2m × 2.5m
Sub Total	100	26	

3. COMMON SECTION

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Tea Preparation Rm.	10	6	2.0m × 3.0m
2) Toilet (Male)	—	13	closet : 3, wash hand basin : 2
3) Toilet (Female)	—	10	closet · urinal : 2, wash hand basin : 2
4) Janitor Rm.	—	3	1.5m × 2.0m
5) Minor Staff Rm. (Female)	—	9	3.0m × 3.0m
6) Minor Staff Rm. (Male)	—	9	3.0m × 3.0m
7) Corridor, Stairs & Others	—	522	Parking Space included
Sub Total		572	
GF Total		1,203	

1st FLOOR—LIST OF FACILITIES & FLOOR AREA

1. DIVISION OF HISTOLOGY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Histology Practical Lab.	250	187.5 × 1/2	Integration with Physiology Practical Lab. 50 students, 1 group : 6 students/work table × 8 work table 3.5 ~ 4.0m ² /student × 50 students basis 12.5m × 15.0m
2) Histology preparation lab.	45	40	based on layout of work table and equipment 5.0m × 8.0m
3) Microscopes Store Rm.	10	6	based on layout of shelf for microscopes 2.0m × 3.0m
4) Chemical Storage	18	16	4.0m × 4.0m
5) Tutorial Rm.	(2 Rms.) 120	→	layout on 2nd Floor — common section
6) Integrated Teaching / Learning Rm.	50	→	Lecture Rm. used for Integrated Teaching / Learning Rm.
7) Post Graduate Study Rm.	36	18	3.0m × 6.0m
Sub Total	529	174	

2. DIVISION OF PHYSIOLOGY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Students' Practical Lab.	300	187.5 × 1/2	Integration with Histology Practical Lab. 50 students, 1 group : 6 students/work table × 8 tables
2) Demonstration Rm.	36	30	4.5m × 6.5m
3) Equipment Rm.	36	30	4.5m × 6.5m
4) Preparation Lab.	36	30	4.5m × 6.5m
5) Store Rm.	30	30	4.5m × 6.5m
6) Tutorial Rm. 60m ² × 2Rms.	120	→	layout on 2nd Floor — common section
7) Head's Rm.	24	18	3.0m × 6.0m
8) Academic Staff Rm. 18m ² × 8Rms.	108	(2 Rms) 36	Lessen to 2 Rms × 18m ² Sharing basis
9) Technician's Rm.	18	18	Sharing with Division of Histology 3.0m × 6.0m
10) Office	18	30	Sharing with Division of Histology 5.0m × 6.0m
11) Computer Rm.	16	→	arranged in Office
12) Post Graduate Study Rm.	—	18	changed from Technician's Rm.
Sub Total	752	334	

3. DIVISION OF BIOCHEMISTRY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Academic Staf Rm.	(5 Rms.) 90	18	18m ² /Rm. × 1Rm. layout another 1 Rm. on 2nd Floor
2) BIO. storage	18	18	3.0m × 6.0m
Sub Total	163	36	

4. FACULTY'S ADMINISTRATION SECTION

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Dean's Office	60	54	including 18m ² Reception & Toilet Space 6.0m × 9.0m
2) Administration Office	59	54	4.5m ² /staff × 11 staffs 6.0m × 9.0m including 9m ² Registrar's cubicle
3) Print Rm.	24	18	arranged with phtocopy & simple printing machine 3.0m × 6.0m
4) Computer Rm.	16	18	arranged with Computer, Telephone Exchanger, fire alarm receiving panel 3.0m × 6.0m
5) Conference Rm.	100	72	accomodate to 24 persons (Professor & Senior Lecture) 3.0m ² /person × 24 persons 6.0m × 12.0m
6) Telephone Exchange Rm.	10	→	arranged in Computer Rm.
7) Tea Room	18	—	
8) Tea Preparation Rm.	10	6	3.0m × 2.0m
9) Store Rm.	10	12	3.0m × 4.0m
10) Toilet	15	→	common use
Sub Total	322	234	

5. COMMON SECTION

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Tea Preparation Rm.	(20)	9	3.0m × 3.0m
2) Toilet (Male)	(45)	14	closet : 2, urinal : 1, wash hand basin : 2
3) Toilet (Female)		12	closet : 2, wash hand basin : 2
4) Illustration Photo Unit	40	18	including Dark Rm.
5) Corridor, Stairs & Others	—	336	
Sub Total		371	
1stF Total		1,149	

2nd FLOOR—LIST OF FACILITIES & FLOOR AREA

1. DIVISION OF BIOCHEMISTRY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Students' Practical Lab.	350	187.5×1/2	50 students, Integration with Micro - Biology Practical Lab. 1 group : 6 students/work table × 8 tables 3.5~4.0m ² /student × 50students 12.5m × 15.0m
2) Bio - Chemistry Prep. Rm.	18	18	3.0m × 6.0m
3) Wash Rm. (Glass Ware)	18	19.5×1/2	3.0m × 6.5m share with Micro - Biology
4) Cold Rm.	15	→	by Refrigeraton (Equipment work)
5) Chemical Store Rm.	18	→	shelf for chemicals in Prep. Rm.
6) Equip. / Glass Ware Store Rm.	(18)	→	layout on 1st Floor
7) Instrument Rm.	18	9	3.0m × 3.0m
8) Teaching Lab.	36	28	4.0m × 7.0m
9) Tutorial Rm.	(2Rms.) 120	→	layout on 2nd Floor — common section
10) Head's Rm.	24	18	3.0m × 6.0m
11) Academic Staff Rm.	(5 Rm.)(90)	18	18m ² /Rm. × 1Rm. layout another 1 Rm. on 1st Floor
12) Technician's Rm.	18	18	3.0m × 6.0m
13) Minor Staff Rm.	10	→	commom use on Ground Floor
14) Office	18	30×1/2	sharing with Micro - Biology Office
15) Computer Rm.	16		5.0m × 6.0m
16) Tea Preparation Rm.	10	→	common use
17) Toilet	15	→	common use
18) Entrance Lobby	40	→	common use
Sub Ttal	736	228	

2. DIVISION OF MICROBIOLOGY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Student Practical lab.	340	187.5 × 1/2	50 students Integration with Bio - Chemistry Practical Lab.
2) Washing Rm.	20	19.5 × 1/2	share with Bio - Chemistry
3) Media Preparation Rm.	30	21	3.5m × 6.0m
4) Service Lab.	90	78	6.5m × 12.0m
5) Centrifuge Rm.	6	→	arranged in Service Lab.
6) Cold Rm.	10	9	3.0m × 3.0m
7) Store Rm.	30	10.5	3.0m × 3.5m
8) Tutorial Rm.	(2Rms.) 90	→	layout on 2nd Floor – common section
9) Head's Rm.	24	18	3.0m × 6.0m
10) Academic Staff Rm.	(4Rms.) 72	(2Rms.) 36	lessen to 2 Rms × 18m ² by sharing basis
11) Technician's Rm.	18	18	3.0m × 6.0m sharing with Pharmacology
12) Office	18	30 × 1/2	share with Physiology Office
13) Computer Rm.	16	→	arranged in Office shared with Physiology
14) Tea Preparation Rm.	10	→	common use
15) Toilet	24	→	common use
Sub Total	806	309	

3. DIVISION OF PHARMACOLOGY

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Exprimental Demonstration Lab.	30	→	share with Oral Medicine Lab. and other lab.
2) Office Computer Rm.	16	18	3.0m × 6.0m
3) Tutoril Rm.	45	→	layout on 2nd Floor – common section
4) Head's Rm.	24	18	3.0m × 6.0m
5) Academic Staff Rm.	(2 Rms) 36	18	lessen to 1Rm. as Sharing basis
6) Technician's Rm.	12	→	sharing with Micro - Biology
7) Toilet	15	→	common use
Sub Total	163	54	

4. COMMON SECTION (TUTORIAL ROOM)

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Tutorial Rm. 40 Seats Rm. × 6 Rms.	(360)	144	lessen to 4 Rms × 25 seats/Rm 1.5m ² /student × 25 students = 37.5m ² / standard Rm.
2) Tutorial Rm. 25 Seats Rm. × 4 Rms.	(185)		
3) English Language Teaching Unit	181	18	
Sub Total		162	

5. COMMON SECTION

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Student's Office	(18)	—	elimination
2) Tea Preparation Rm.	(20)	12	2.0m × 3.0m × 2
3) Toilet Staff	(39)	18	closet : 4, wash hand basin : 4
4) Toilet (Male)	—	12	closet : 2, urinal : 3, wash hand basin : 2
5) Toilet (Female)	—	18	closet : 3, wash hand basin : 2
6) Corridor, Stairs & Others	—	245	
Sub Total		305	
2ndF Total		1,058	

3rd FLOOR—LIST OF FACILITES & FLOOR AREA

1. COMMON SECTION (LECTURE ROOMS AND OTHERS)

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Lecture Rm. 125Seats × 4Rm.	800	200	108 seats Rm. × 2 Rms. 10.0m × 10.0m/Rm.
2) Library	384	140	64 reading seats × 1.56m ² /seat ÷ 100m ² standars basis book shelf 4,000 books / (140 books / m ²) ÷ 28m ² Librarian's counter space : 12m ²
3) Auditorum	450	—	
4) Corridor, Stairs & Others	—	192	
3rdF Total		532	
G~3rdF Total		3,942	

BUILDING B : CLINICAL EDUCATION, COMMON · SERVICE SECTION

GROUND FLOOR -- LIST OF FACILITIES & FLOOR AREA

I. OUT PATIENT DEPARTMENT.

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Registration Rm.	19.5	15	3.0m × 5.0m
2) Reception Counter	4	12	2.0m × 6.0m
3) Shorff's Office	10		Pharmacy counter included
4) Pharmacy and Drug Store	20	15	3.0m × 5.0m
5) Treatment Clinic 10m ² × 3 Rms.	30	24	replacement of 2 Clinic from PTH 3.0m × 4.5m = 13.5m ² /Rm. standard basis
6) Admission Clinic 5m ² × 4 Rms.	20	8	2.0m × 4.0m
7) Patient's Waiting Hall	150	143	100 persons × 1.2m ² /person standard basis Entrance Hall included
8) Doctors Duty Rm.	9	6	2.0m × 3.0m
9) Wash / Sterilizing Rm.	10.5	→	sharing with Oral Medicine
10) Store Rm.	7	→	sharing with Oral Medicine
11) Tea Preparation Rm.	8	→	common use
12) Patients' Toilet	20	16	common use
13) Staff Toilet	6	→	common use
Sub Total	314	239	

2. DEPARTMENT OF ORAL MEDICINE.

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Waiting Area	36	27	Out Patient Dept. used for Waiting Area
2) Practical Clinic Area 8.75m ² × 10 Units	87.5	72	3.0m × 3.0m × 8 units
3) Staff Clinic Rms. 16m ² × 1 Rm.	16	12	3.0m × 4.0m = 12.0m ² standard basis
4) Examination Rm.	16	12	3.0m × 4.0m = 12.0m ² standard basis
5) Biopsy Rm.	12	9	3.0m × 3.0m
6) Wash / Sterilizing Rm.	10	9	3.0m × 3.0m
7) Linen Preparation Rm.	10		
8) Clinical Instrument Store Rm.	12	7.5	2.5m × 3.0m
9) Study Model Rm.	12	7.5	2.5m × 3.0m
10) X - Ray Rm.	16	→	use Centralized Radiology Unit
11) Store Rm.	8	6	2.0m × 3.0m
12) Haematology Lab.	25	48	Integration as 1 Rm. share with Pharmacology
13) Clinical Chemistry Lab.	30		
14) Office Rm.	18	(30)	layout on 1st Floor sharing with Periodontology's Office
15) Computer Rm.	16		
16) Patient's Record Rm.	16	6	Reception included
17) Head's Rm.	24	(18)	layout on 1st Floor - 3.0m × 6.0m
18) Academic Staff's Rms. 18m ² × 5 Rms	90	(54)	lessen to 3Rms. × 18m ² sharing basis layout on 1st Floor
19) Technicians Rm.	10	(18)	layout on 3rd Floor, sharing with other divisions
20) Tutorial Rm.	45	→	layout on 1st~3rd Floor - common use
21) Tea Preparation Rm.	10	→	common use
22) Toilet	15	→	common use
23) Clinic Area Inner Corridor	—	51	
Sub Total	534.5	267	

3. RADIOLOGY UNIT

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Clinic	10	→	Oral Medicine - Clinic used for Radiology's Clinic
2) Static X - Ray Unit	16	24	4.0m × 6.0m
3) Control Rm.	8		
4) Intra - Oral - X - Ray	32	32	3 units arranged, 4.0m × 8.0m
5) Ortho Pantomogram	12	36	6.0m × 6.0m
6) Reception / Waiting	16	6	Outer Corridor used for Reception / Waiting
7) Record Rm.	16	10	2.5m × 4.0m
8) Storage Rm.	16	8	2.0m × 4.0m
9) Dark Rm.	8	8	2.0m × 4.0m
10) Radiologist's Rm.	20	14	3.5m × 4.0m
11) Technician's Rm.	10	10	2.5m × 4.0m
12) Staff Rm. - 1	18	--	
13) Staff Rm. - 2	18	--	
14) Inner Corridor	35	28	
15) Toilet	15	→	common use
Sub Total	250	176	

4. DEPARTMENT OF ORAL SURGERY

4-1 ORAL SURGERY CLINIC UNIT

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Reception / Waiting Area	40	24	4.0m × 6.0m
2) Practical Clinic Area 6m ² × 30 Units	180	108	2.25m × 2.75m standard basis × 18 units
3) Inner Corridor	—	78	
4) Staff Clinic Rm. 12m ² × 2 Rms.	24	—	share with Practical Clinic Area
5) Wash / Sterilizing Rm.	12	12	3.0m × 4.0 m
6) Linen Preparation	10		
7) Stores	10	4	2.5m × 1.6m
8) Minor Operation Rm.	48	24	4.0m × 6.0 m lessen area by corresponding to Operation Theatre Unit
9) Maxillo - Facial Clinic	36	24	6.0m × 4.0 m lessen area by corresponding to Staff Clinic
10) Recovery Rm.	12	—	elimination
11) Speech Therapy Rm.	12	12	4.0 m × 2.5m
12) X - Ray Rm.	18	→	use Centralized Radiology Unit
13) Head's Rm.	24	(18)	Layout on 1st Floor
14) Academic Staff Rms. 18m ² × 7 Rms.	126	(72)	lessen to 4 Rms. × 18m ² sharing basis layout on 1st Floor
15) Office Rm.	18	(18)	layout on 1st Floor, 3.0m × 6.0m
16) Computer Rm.	16	→	arranged in Office
17) Tea Rm.	10	→	common use
18) Tutorial Rm.	45	→	common use
Sub Total	641	284	

4-2 OPERATION THEATRE UNIT

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Operation Rms. 36m ² × 2 Rms.	72	84	Operation Rm. No.1 48m ² Operation Rm. No.2 36m ² Space for Panel & Duct included
2) Anaesthesia Rms. 12m ² × 2 Rms.	24	24	4.0m × 6.0m sharing as 1 Rm.
3) Preparation Rms. 12m ² × 2 Rms.	24	12	2.0m × 6.0m sharing as 1 Rm.
4) Nurse Station	18	6	2.0m × 3.0m
5) Nurse Rm.	12	9	3.0m × 3.0m
6) Recovery Rm.	36	16	3beds
7) Anesthetist's Rm.	—	8	4.0m × 2.0m
8) Intensive Care Unit.	80	27	2beds, including 9m ² Nurse Station
9) Conference Rm.	18	15	10 persons × 1.5m ² /person standard basis
10) Trolley Bay	18	24	4.0m × 6.0m
11) Changing Rm Dr (Male)	18	12.5	sharing Rm. with doctors and students
12) Changing Rm Student (Male)	17		
13) Changing Rm Dr (Female)	18	12.5	sharing Rm. with doctors and students
14) Changing Rm Student (Female)	17		
15) Changing Rm Nurse (Male)	17	12.5	sharing Rm. with nurses and minor staffs
16) Changing Rm Minor Staff (Male)	18		
17) Changing Rm Nurse (Female)	18	12.5	sharing Rm. with nurses and minor staffs
18) Changing Rm Minor Staff (Female)	18		
19) Scrubbing Rm.	2	9	corridor's alcove
20) Store Rm.	12	6	
21) CSSD	81	87	depend on layout of sterilizing equipment and work space
22) Clean Corridor	—	69	2.4m width secured for stretcher access 3.0m × 23.0m
23) Dirty Corridor	—	48	2.0m × 24.0m
Sub Total	538	489	

4-3 WARD UNIT

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Nurse Station 1 · 2	12	24	
2) Nurse Rm.	6		
3) Treatment Rm.	6	12	3.0m × 4.5m = 13.5m ² standard basis
4) Doctor Rm.	6	8	2.0m × 4.0m
5) Minor Staff Rm.	8	8	2.0m × 4.0m
6) Student Study Rm.	18	→	eliminated by corresponding to each clinical 1 Rm.
7) Trolley Bay	4	→	arranged in corridor
8) 6 Beds Rms 36m ² × 4 Rms.	144	144	arranged by 8 beds × 4 Rms.
9) 6 Beds Rms 36m ² × 3 Rms.	108		
10) 4 Beds Rm (Child) × 2	32		
11) 2 Beds Rm (Child)	8		
12) 3 Beds Rms 24m ² × 3 Rms.	72		
13) 2 Beds Rms 12m ² × 3 Rms.	36	36	arranged by 4beds × 2 Rms. 3.0m × 6.0m = 18m ² /Rm.
14) Children's Play Rm.	8	—	
15) Patient Toilet	18	56	closet : 8, shower : 4, wash hand basin : 7
16) Preparation Rm.	—	10	2.0m × 5.0m
17) Inner Corridor	—	45	
Sub Total	486	343	

5. COMMON SECTION

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Main Store Office	100	15	2.5m × 6.0m
2) Plaster Bulk Store		6	2.0m × 3.0m
3) Store Rm.		48	6.0m × 8.0m
4) Maintenance Work Shop	80	48	6.0m × 8.0m
5) Medical Gas Station Rm.	—	24	3.0m × 8.0m
6) LPG. Cylinder Rm.	—		
7) Compressor Rm.	—		
8) Transformer Rm.	—	36	6.0m × 6.0m
9) Standby Generator Rm.	—		
10) Mechanical Machine Rm.	—	24	3.0m × 8.0m
11) Toilet (Female)	—	26	closet : 6, wash hand basin : 3
12) Toilet (Male)	—	24	closet : 3, urinal : 4, wash hand basin : 3
13) Tea Preparation Rm.	—	4	2.0m × 2.0m
14) Minor Staff Rm. (Male)	—	24	common use
15) Nursing Administrator Rm.	8	12	3.0m × 4.0m
16) Laundry & Linen Rm.	22	12	2.0m × 6.0m
17) Corridor, Stairs & Others	—	497	
Sub Total	220	800	
GF Total		2,598	

1st FLOOR – LIST OF FACILITIES & FLOOR AREA

1. DIVISION OF PERIODONTOLOGY

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Reception / Patient Waiting Area	35	31	Reception : 2.5m × 4.0m = 10.0m ² Waiting Area : 3.5m × 6.0m = 21.0m ²
2) Practical Clinic Area 6m ² × 30 Units	180	120	2.25m × 2.75m = 6.19m ² standard basis lessen to 20 units
3) Inner Corridor	—	98	
4) Staff Clinic Rm 12m ² × 2 Rms.	24	24	3.0m × 4.0m 12m ² × 2 Rms.
5) Periodontal Surgery Rm.	12	→	Staff Clinic used for Periodontal surgery Rm.
6) Wash/ Sterilizing Rm.	20	15	2.5m × 6.0m
7) Linen Preparation Rm.	10	18	
8) Store Rm.	10		
9) Hygienist's Clinic 7.5m ² × 4 Units	30	→	Practical Clinic used for Hygienist's Clinic
10) Advanced Diagnostic & Treatment Lab.	42	—	use Oral Medicine Lab.
11) Head's Rm.	24	18	3.0m × 6.0m
12) Academic Staff Rms. 18m ² × 8 Rms.	144	36	lessen to 2Rms. × 18m ² by sharing basis
13) Office Rm.	18	→	sharing with Oral Medicine's Office
14) Computer Rm.	16	→	arranged in Office
15) Tutorial Rm.	45	→	layout on 1st~3rd Floor – common use
16) Health Education Rm.	25	18	3.0m × 6.0m, common use 15 persons × 1.2m ² /person standars basis
17) Tea Preparation Rm.	10	→	common use
18) Toilet	15	→	common use
Sub Total	660	378	

2. DIVISION OF PROSTHETICS

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Reception / Patient Waiting Area	35	33	Reception 12m ² + Waiting Area 21m ²
2) Practical Clinic Area 6m ² × 30 Units	180	125	integration with Restorative by 42 Clinical Units 2.25m × 2.75m = 6.19m ² standard basis 6m ² × 42 × 1/2
3) Inner Corridor	—	102	sharing with Restorative 204m ² × 1/2
4) Staff Clinic Rm 12m ² × 3 Rms.	36	30	5 Rms. sharing with Restorative 3.0m × 4.5m = 13.5m ² standard basis 12m ² × 5 × 1/2
5) Wash / Sterilizing Rm.	12	12	3.0m × 4.0m
6) Linen Preparation Rm.	10	12	3.0m × 4.0m
7) Plaster Rm.	10	6	sharing basis 3.0m × 4.0m × 1/2
8) Technical Lab. for 50 Students	85	144	(50 students + 6 trainees) × 3.0m ² /person standard basis
9) Technical Lab. for 12 Trainees	40		8.0m × 18.0m based on work table layout for 50 students
10) Students' Plaster Rm	20		
11) Technicians' Lab.	80	54	12 technicians × 5m ² /person standard basis
12) Technicians' Plaster Rm.	20		6.0m × 9.0m
13) Metal Casting Lab.	30	→	use Technician's Lab.
14) Store Rm.	30	12	3.0m × 6.0m
15) Head's Rm.	24	18	3.0m × 6.0m
16) Academic Staff Rms. 18m ² × 7 Rms.	126	54	lessen to 3 Rms × 18m ² by sharing basis
17) Office Rm.	18	18	3.0m × 6.0m
18) Computer Rm.	16	→	arranged in Office
19) Tutorial Rm.	45	→	layout on 1st~3rd Floor — common use
20) Tea Preparation Rm.	10	→	common use
21) Patient Toilet	23	16	common use closet : 4, wash hand basin : 2
Sub Total	850	636	

3. DIVISION OF RESTORATIVE

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Reception / Patient Waiting Area	35	27	Reception 9m ² + Waiting 18m ²
2) Practical Clinic Area 6m ² × 30 Units	180	125	integration with Prosthetics by 42 Clinical Units 2.25m × 2.75m = 6.19m ² standard basis 6m ² × 42 × 1/2
3) Inner Corridor	—	102	sharing with Prosthetics 204m ² × 1/2
4) Staff Clinic Rm 12m ² × 4 Rms.	48	30	5 Rms. sharing with Prosthetics 3.0m × 4.5m = 13.5m ² standard basis 12m ² × 5 × 1/2
5) Wash / Sterilizing Rm.	20	12	3.0m × 4.0m
6) Linen Preparation Rm.	10	12	3.0m × 4.0m
7) Plaster Rm.	10	6	sharing basis 3.0m × 4.0m × 1/2
8) Post Graduate Clinic 6.25m ² × 5	31.25	→	sharing with Practical Clinic and Staff Clinic
9) X - Ray Rm. 9m ² × 2 Rms	18	18	3.0m × 3.0m × 2 Rms.
10) Technicians' Lab.	30	36	6.0m × 6.0m
11) Head's Rm.	24	18	3.0m × 6.0m
12) Academic Staff Rms. 18m ² × 7 Rms.	126	54	lessen to 3 Rms. (18m ² × 3) by sharing basis
13) Office Rm.	18	18	3.0m × 6.0m
14) Computer Rm.	16	→	arranged in Office
15) Tutorial Rm.	45	→	layout on 1st~3rd Floor — common use
16) Tea Preparation Rm.	10	→	common use
17) Toilet	15	→	common use
Sub Total	636	458	

4. DEPARTMENT OF ORAL MEDICINE

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Office Rm.	(18)	30	use as Department's Office
2) Computer Rm.	(16)		
3) Head's Rm.	(24)	18	
4) Academic Staff's Rms. 18m ² × 5 Rms.	(90)	72	Oral Medicine : 3 Rms. × 18m ² Radiology : 1 Rm × 18m ²
Sub Total	(148)	120	

5. DEPARTMENT OF ORAL SURGERY

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Head's Rm.	(24)	18	3.0m × 6.0m
2) Academic Staff's Rms. 18m ² × 5 Rms.	(126)	72	lessen to 4 Rms. × 18m ² by sharing basis
3) Office Rm.	(34)	18	3.0m × 6.0m
Sub Total	(184)	108	

6. COMMON SECTION

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Tutorial Rm. 45m ² × 3 Rms.	(135)	36	lessen to 1 Rm by common use 1.5m ² /1 person × 25 = 37.5m ² standard basis
2) Hospital Director Rm.	—	30	24m ² + 6m ² Toilet
3) Audit & Clerical Office	—	12	4.0m × 3.0m
4) Minor Staff Rm. (Female)	—	12	2.0m × 6.0m
5) Toilet (Female)	—	24	closet : 6, wash hand basin : 3
6) Toilet (Male)	—	24	closet : 3, urinal : 4, wash hand basin : 4
7) Tea Preparation Rm.	—	4	2.0m × 2.0m
8) Corridor, Stairs & Others	—	439	student's Locker for 3rd & 4th year
Sub Total		581	
1stF Total		2,281	

2nd FLOOR – LIST OF FACILITIES & FLOOR AREA

1. DEPARTMENT OF COMMUNITY DENTAL HEALTH

1-1 DIVISION OF COMMUNITY DENTISTRY

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Office Rm.	24	24	4.0m × 6.0m sharings among 3 divisions of Community Dentistry. Paedodontics and Orthodontics
2) Computer Rm.	45	36	6.0m × 6.0m possible to arrange 10 units of Computer
3) Post Graduate Study Rm.	36	18	3.0m × 6.0m
4) Tutorial Rm.	45	→	layout on 1st~3rd Floor – common use
5) Head's Rm.	24	24	4.0m × 6.0m
6) Academic Staff Rms. 18m ² × 6	108	36	lessen to 2 Rms. × 18m ² by sharing basis
7) Tea Preparation Rm.	10	→	common use
8) Store Rm.	16	12	3.0m × 4.0m
9) Toilet	15	→	common use
Sub Total	323	150	

1-2 DIVISION OF PAEDODONTICS

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Reception / Patient Waiting Area	45	42	Reception : 9.0m ² Waiting Area : 33.0m ²
2) Children's Play Rm.	18	24	4.0m × 6.0m
3) Health Education Rm.	30	30	20 persons × 1.5m ² person standard basis 6.0m × 5.0m
4) Clinic Area 6.0m ² × 35 Units	210	108	integration with Orthodontics by 36 Clinical Units 2.25m × 2.75m = 6.19m ² standard basis 6m ² × 36 × 1/2
5) Staff Clinic 12m ² × 3 Rms.	36	24	12m ² × 2Rms. 3.0m × 4.0m = 12m ² standard basis
6) Clinic Rm. for Handicapped	18	24	Minor Surgery Rm. used for Handicapped 6.0m × 4.0m
7) Minor Surgery Rm.	12	→	both use as Minor Surgery Rm. and Handicapped Clinic Rm.
8) X - Ray Rm. W/Dark Rm.	18	16	X - Ray Rm. : 10m ² , Dark Rm. : 6m ²
9) Wash / Sterilizing Rm.	20	12	3.0m × 4.0m
10) Plaster Rm.	12	8	2.0m × 4.0m
11) Linen Preparation Rm.	10	10	2.5m × 4.0m
12) Store Rm.	10	8	2.0m × 4.0m
13) Model Rm.	10	9	share with Orthodontics 3.0m × 6.0m × 1/2
14) Research Lab.	18	26	
15) Tutorial Rm.	45	→	layout on 1st~3rd Floor -- common section
16) Office Rm.	18	→	sharings with office for Department of Community Dental Health.
17) Computer Rm.	16	→	arranged in Office above
18) Head's Rm.	24	18	5.2m × 3.5m
19) Academic Staff Rms. 18m ² × 8 Rms.	144	54	lessen to 3 Rms. × 18m ² sharing basis
20) Tea Rm.	10	→	common use
21) Patient Toilet	15	16	
22) Inner Corridor	—	117	sharings with Orthodontics 234 × 1/2
Sub Total	739	546	

1-3 DIVISION OF ORTHODONTICS

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Reception / Patient Waiting Area	35	30	Reception : 8m ² Waiting Area : 22m ²
2) Clinic Area 6.0m ² × 25 Units	150	108	integration with Paedodontics by 36 Clinical Units 2.25m × 2.75m = 6.19m ² standard basis 6m ² × 36 × 1/2
3) Staff Clinic Rm. 12m ² × 3 Rms.	36	36	12m ² × 3Rms. 3.0m × 4.0m = 12m ² standard basis
4) Fixed Appliance Cubicle 6.25m ² × 5 Units	31.25	→	Staff Clinic and Practical Clinic used for Fixed Appliance
5) Fixed Appliance Lab.	10	16	integration as 1 Rm.
6) Preparation Rm.	10		4.0m × 4.0m
7) Plaster Rm.	10	8	2.0m × 4.0m
8) Store Rm.	10	6	1.5m × 4.0m
9) Technician's Lab.	50	45	6 technicians × 5 m ² /person 6 trainees × 3.0m ² /person 9.0m × 5.6m
10) Student's Lab	20	66	25 students × 2.6m ² /student
11) Technician's Rm.	18	9	3.0m × 3.0m
12) Model Rm.	20	9	share with Paedodontics 3.0m × 6.0m × 1/2
13) Head's Rm.	24	18	3.0m × 6.0m
14) Academic Staff Rms. 18m ² × 7 Rms.	126	54	lessen to 3 Rms. × 18m ² by sharing basis
15) Office Rm.	18	→	sharing with Department Office
16) Computer Rm.	16	→	arranged in Office above
17) Tutorial Rm.	45	→	layout on 1st~3rd Floor — common use
18) Tea Preparation Rm.	10	→	common use
19) Toilet	15	→	common use
20) Inner Corridor	—	117	sharing with paedodontics 234 × 1/2
Sub Total	654.25	522	

2. COMMON SECTION

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Tutorial Rm. 45m ² × 3 Rms.	(135)	72	2 Rms. common use for all divisions 1 student/1.5m ² × 25 students = 37.5m ² standard basis
2) Non Academic Staff Common Rm. (Female)	100	54	6.0m × 9.0m
3) Post Graduate Study Rm.	—	18	3.0m × 6.0m common use
4) Academic Staff Common Rm.	90	72	30 staffs (Professor + Senior Lecture) × 2.4 m ² /person
5) Teachers' Association Office	12	22	
6) Compressor Rm.	—	10	4.0m × 2.5m, common use for 1st & 2nd Floor
7) Toilet (Female)	—	24	closet : 6, wash hand basin : 3
8) Toilet (Male)	—	24	closet : 3, urinal : 4, wash hand basin : 4
9) Tea Preparation Rm.	(30)	11	4.5m ² + 6.5m ²
10) Corridor, Stairs & Others	—	490	student's Locker for 3rd & 4th year
Sub Total		797	
3rdF Total		2,015	

3rd FLOOR – LIST OF FACILITIES & FLOOR AREA

1. DEPARTMENT OF ORAL PATHOLOGY

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Practical Clinic Area 6m ² × 3 Units	18	→	Oral Medicine on Ground Floor used
2) Staff Clinic Rm.	12	→	Oral Medicine on Ground Floor used
3) Reception / Waiting Area	10	—	
4) Practical Laboratory	90	90	50 students × 1.8m ² /student standard basis 9.0m × 10.0m
5) Pathological Laboratory	75	54	6.0m × 9.0m
6) Histopathology Reporting Rm	15	12	3.0m × 4.0m
7) Immunohisto - Chemistry Lab.	25	24	6.0m × 4.0m
8) Pathology Museum Prep. Rm.	18	18	4.5m × 4.0m
9) Advanced Diagnosis Lab.	30	30	7.5m × 4.0m
10) Preparation Rm.	10	12	3.0m × 4.0m
11) Microscope Store Rm.	12	12	3.0m × 4.0m
12) Chemical Store Rm.	18	12	3.0m × 4.0m
13) CPC Conference Rm.	150	160	100 persons × 1.2m/person standard basis 10.0m × 16.0m stage : 20m ² , shelf for specimen 36m ² included
14) Dark Rm	10	6	2.0m × 3.0m
15) Post Graduate Study Rm.	18	18	3.0m × 6.0m
16) Technicians' Rm.	20	18	3.0m × 6.0m
17) Minor Staff Rm.	6	→	layout on G - Floor sharing basis
18) Tutorial Rm. 45m ² × 2 Rms	90	→	layout on 1st~3rd Floor — common section
19) Head's Rm.	24	20	5.0m × 4.0m
20) Academic Staff Rms. 18m ² × 8Rms.	144	60	lessen to 4 Rms. × 15m ² sharing with General Pathology
21) Office Rm.	18	20	5.0m × 4.0m
22) Computer Rm.	16	—	arranged in Office Rm.
23) Tea Room	10	—	common use
24) Toilet	15	→	common use
Sub Total	854	566	

2. COMMON SECTION

Room Name	Request Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Tutorial Rm. (2 Rms.)	(90)	60	30m ² × 2 Rms.
2) Non Academic Staff Rm. (Male)	100	18	3.0m × 6.0m
3) Pantry	(10)	8	
4) Toilet (Female)	—	24	closet : 6, wash hand basin : 3
5) Toilet (Male)	—	24	closet : 2, urinal : 4, wash hand basin : 3
6) Corridor, Stairs & Others	—	447	(Machine Rm. for Lift included)
Sub Total		581	
3rdF Total		1,147	(PF—Machine Rm. for Lift included)
GF~ 3rdF Total		8,041	

BUILDIN C : CANTEEN

Room Name	Requested Area (m ²)	Designed Area (m ²)	Designed Standard & Remarks
1) Canteen	200	126	80 setas × 5 times operation 1.5m ² /seats × 80 setas = 120m ²
2) Kitchen	98	42.5	1/3 of above
3) Students' Cloak Rm.	(160)	→	layout in Basic Medical Education and Clinical Education Section
4) Toilet (Male)	40	25.5	closet : 2, urinal : 2, wash hand basin : 1
5) Toilet (Female)			closet : 2, wash hand basin : 1
Total		194	

2.3.3 Basic Design

(1) Site and Layout Plan

In the construction of the planned buildings on the proposed sites, it is essential to provide as much open space as possible around the new buildings as the staff accommodation building of the Peradeniya Teaching Hospital and private buildings are located on the neighbouring sites. Based on the size and shape of the sites, the introduction of multi-stories buildings is necessary to accommodate all the planned facilities. A 4-stories building appears to be the limit for the effective operation of the Faculty's education in order to perform the proper functioning of all the facilities. Consequently, the maximum height of the buildings will be 4-stories and the buildings will be designed to be as compact as possible to satisfy the minimum open space requirement for the service road and others between the new buildings and the neighbouring sites.

It appears impossible to secure sufficient space for a car park on Site B because of the site's shape and the allocation of two new buildings on this site while Site A can only provide open space for 10 cars. The idea of using the site of the neighbouring Teaching Hospital for a supplementary car park is unrealistic as the Teaching Hospital itself is suffering from a shortage of car parking space, forcing out-patients to park in front of the hospital entrance as well as along the approach road. This situation makes it essential to secure the maximum use of the indoor piloti space on the ground floor of Building A as a car park.

The planned distribution of the Faculty's facilities on Site A and Site B is described below.

Site A....Basic Medical Theories & Practical Training Section

- Practical training facilities for General Anatomy, Oral Anatomy and Histology
- Practical training facilities for Physiology
- Practical training facilities for Biochemistry
- Practical training facilities for Microbiology
- Practical training facilities for Pharmacology
- Tutorial Rooms (4), Lecture Rooms (2)
- Library, English Language Teaching Unit

Administration Section

- Dean's Office, Administration Office, Conference Room, Illustration Photo Unit, Print Room, Car Park, Waste Water Treatment Plant

As Site A will have direct access from the trunk road, the plan incorporates a feature to reduce the traffic load on the Teaching Hospital approach road. To be more precise, given the gently upward slope of the said approach road, the main approach to Building A will be to the first floor to make the best use of the difference in elevation between Site A and the Teaching Hospital approach road while the practical training rooms for General Anatomy and Oral Anatomy will be located on the semi-basement level.

It is planned that the building entrance for cadavers for dissection and the dissection room will not be directly seen by the public.

No bridge linking between the buildings on Site A and Site B is planned as the facilities distributed on these two sites are planned not to require constant interaction to perform their functions.

Site B....Clinical Theories & Practical Training Section

- Practical training facilities for Oral Medicine
- Practical training facilities for Oral and Maxillofacial Surgery
- Practical training facilities for Prosthetic Dentistry and Restorative Dentistry
- Practical training facilities for Periodontology
- Educational facilities for Community Dentistry
- Practical training facilities for Paedodontics and Orthodontics
- Practical training facilities for Oral Pathology
- Tutorial Rooms (5)
- Staff Rooms

Out-Patient Treatment Section

- Practical Clinic Units, Reception, Pharmacy and Drugstore; Waiting Area, Hospital Director Room

Central Treatment Section

- Operating Rooms, Recovery Rooms, ICU, CSSD
- Ward (40 beds), Treatment Rooms, Nurse Station, Nursing Administrator Room
- Dento-Maxillofacial Radiology Rooms

Common Service Section

- Building & Equipment Maintenance Work Shop
- Building Service Rooms

Service Section

- Canteen

The planning priorities for the facilities to be distributed on Site B are the line of flow enabling the easy approach by out-patients, separate entrances for out-patients and students/staff members, the establishment of quiet surroundings for the ward and the provision of a service road. The facility layout should also ensure the preservation of large trees located on both sides of the approach to Site B. The canteen will mainly be used by students but its planning conditions also allow for its use by out-patients. It is planned as an independent building in a location which is accessible from the out-patient area as well as the student activity areas.

(2) Building Plan

1) Facilities on Each Floor

Site A: Building A (Basic Medical Education and Administration Building)

Based on examination of the site size vis-a-vis the required floor area of each Faculty division to be housed in Building A, the most rational building size is judged to be a 4-stories building which is 3-stories in part.

Of the facilities to be housed in Building A, the laboratories for Anatomy, Physiology/Histology and Biochemistry/Microbiology require a large space each with plumbing for water supply, drainage and LPG supply. These will be located in the same place on different floors to rationalise the plumbing work. The location of the dissection room requires careful planning to prevent the public from seeing cadavers moving in and out of the building. To meet this requirement, the dissection room will be located on the ground

floor in a semi-basement style. The third floor is the most appropriate location for the lecture rooms from the structural point of view as a large span will be employed to avoid central columns. Parking space for 15 - 16 cars will be secured on the ground floor using the piloti space.

Ground Floor : Division of General Anatomy and Division of Oral Anatomy and Histology

Dissection room, cadaver processing room, museum, museum preparation room, academic staff room, students' locker room, mortuary, car park

First Floor : Division of Physiology and Division of Histology

Joint practical laboratory, separate preparation laboratories, academic staff rooms, Faculty administration

Second Floor : Division of Biochemistry, Division of Microbiology and Division of Pharmacology

Joint practical laboratory, separate preparation laboratories, academic staff room, tutorial rooms (25 seats × 4), English Language Teaching Unit, post-graduate students' room

Third Floor : Lecture rooms (2), library

Site B: Building B

(Clinical Education, Out-Patient and Central Clinic Building)

Here again, based on examination of the site size vis-a-vis the required floor area of each Faculty department/division to be housed in Building B, the most rational building size is judged to be a 4-story building which is 3 stories in part. Each floor will house the following facilities.

Ground Floor : The out-patient area, central clinic and related practical training rooms for Oral Medicine and Oral and Maxillofacial Surgery will be located on this floor to achieve the best flow line for patients. A maintenance workshop and other building service-related rooms will also be located on this floor.

First Floor : Practical training rooms for Restorative Dentistry, Prosthetic Dentistry and Periodontology, all of which are closely related to out-patient treatment, and 1 tutorial room, academic staff rooms, and hospital director room will also be located on this floor

Second Floor : Three divisions (Community Dentistry, Paedodontics and Orthodontics) of the Department of Community Dental Health, 2 tutorial rooms, academic staff rooms and academic staff common room

Third Floor : Tutorial and practical training rooms for Oral Pathology and General Pathology which will also function as the central pathological testing centre, lecture room-cum-clinical pathology conference room, 2 tutorial rooms, staff rooms

Site B: Building C (Canteen Building)

Single-story building housing the canteen, kitchen and toilets.

2) Planning

In principle, the building plan will adopt side corridors to maximise natural lighting and natural ventilation. The distribution of different functions on the same floor, as seen in the case of Building B, will assist separate lines of flow corresponding to different functions. The introduction of a courtyard is designed to ensure plenty natural lighting and natural ventilation while a side corridor will link sections performing different functions. This side corridor will be open on one side to facilitate the use of natural conditions and to reduce the maintenance cost.

3) Sectional Plan

The primary dependence on natural ventilation instead of mechanical air-conditioning will require a relatively large air space per person, necessitating a fairly high floor height as in the case of other similar buildings. The adopted floor heights for Building A are 4.2 m for the dissection room on the ground floor, 4.0 m for other practical laboratories and 3.6 m for offices and staff rooms. In the case of Building B, the floor height will be 4.0 m for the ground floor and 3.8 m for all other floors.

Partitions will be kept as low as possible to provide open space in the upper part for good lighting and ventilation unless such opening disrupts the specific functions of the rooms or laboratories. Eaves will be provided to effectively shut out direct sunlight and rain. The maximum number of floors is 4 in view of providing efficient vertical lines of flow for staff and students to ensure the smooth functioning of the Faculty. The locationing of the operating rooms and ward on the ground floor eliminates the necessity to use the lift for patient transportation. Normal use of the lift will be limited to the transportation of sterilising materials and equipment to reduce the lift maintenance cost.

4) Elevation

As the planned buildings will comprise part of the configuration of the facilities belonging to the University of Peradeniya, their design must conform to that of the existing facilities. They must also be in harmony with the surrounding natural and social environments. The key elements of the external design are a slanting tiled roof and deep eaves to shut out direct sunlight and rain. Other design priorities include harmony with the local traditions and climate and both economy and durability in order to achieve a minimum maintenance cost.

(3) Structural Plan

1) Ground Conditions of Project Sites

The boring survey conducted at 6 points (3 on Site A and 3 on Site B) found that the ground consists of clay with loose sand upto 2 m below ground level, followed by fairly compacted sand and clay with gravel upto 5 - 10 m below ground level and hard clay upto 15 m below ground level. Further deeper is a slightly loose silt, sand and clay layer of some 5 m in thickness. The limestone distributed some 20 m below ground level forms the bedrock, gently sloping from the northwest towards the southeast in general.

The groundwater table fluctuates between 4.65 m and 10.55 m below ground level, depending on the weather situation. The highest groundwater table of 4.65 m below ground level will not affect the actual building foundations. The ground survey findings suggest that continuous footings constructed 2.0 m below ground level will provide a load bearing strength

of 20.0 tons/m² for both sites and that consolidation settlement will be within the allowable range.

Given the building structure of 3 - 4 stories without a basement, the likely foundations will be either mat-slab direct foundations using the sand-clay layer at a depth of 2 - 5 m below the ground as the supporting base or pile foundations using the limestone bedrock at a depth of 20 m or more below the ground as the supporting base.

Because of problems regarding the manufacture of piles and pile driving work in Sri Lanka and also because of the need to shorten the construction period, spread foundations by means of mat-slab direct foundations with a foundation base 2 m below the ground will be adopted for the Project.

2) Structure

The structure of the buildings will be rigid-frame, reinforced concrete which is the common structure used in Sri Lanka. Concrete blocks will be used for the external walls while bricks will be used for the internal partition walls. The roof structure will be a structural steel trussed roof to ensure durability.

3) Structural Design Standards

The structural design standards to be used for the Project will follow British Standards which are officially used in Sri Lanka together with the relevant Japanese Standards to select realistic standard values vis-a-vis the actual situation.

a) Dead Load

BS 6399 Part 1 (1984) will be used as the basic standard together with an independent load calculation for each type of material used in view of the employment of realistic values.

b) Live Load

BS 6399 Part 1 and Live Load Calculation Standards of the Japan Architectural Society. The live loads of the main rooms are given below.

Type of Room	Live Load (kg/m ²)
Office/Staff Room	255
Clinical Unit	300
Operating Room	300
Ward	180
Laboratory	306
Tutorial Room	306
Lecture Room	510

c) Wind Force

The design wind force is 35 m/sec (approximately 75 miles/m) which is the BS CP3 Standard for a monsoon area.

d) Seismic Force

The seismic force is not considered as Sri Lanka is not located in an earthquake zone.

e) Materials

Ordinary Portland Cement

Concrete : design standard strength $F_c = 210 \text{ kg/m}^2$

Deformed Bars : SD 294 equivalent

Structural Steel : SS 400 equivalent

(4) Building Services Plan

1) Electrical Installations

The planning principles for the electrical installations are energy saving, high reliability, safety and easy and low cost maintenance.

a) Electricity Supply Facilities

The 11 KV high voltage electricity supply will be made from the substation on the premises of the University to the transformer room on the ground floor of Building B. The project components relating to electricity supply are the installation of transformers in Building B and

wiring on the secondary side of the transformers. The power level required to operate the planned facilities is estimated to be 800 KVA. Using two 400 KVA transformers, the supply voltage of 11 KV will be dropped to 400 V or 230 V which will then be supplied to the distribution panel of each building. In preparation for expected long blackouts, an emergency diesel power generation unit will be installed to provide minimum electricity supply to run the vital equipment of the Faculty, consisting of lighting and other essential equipment, including the air-conditioning system, in the operating rooms and fire-fighting pumps.

b) Lighting Equipment and Socket Outlets

In view of the planned non-use of the facilities, except the central treatment section and the ward, at night, the design luminous intensity will be at a level to assist the natural lighting. Fluorescent lamps will mainly be used due to their energy efficiency, i.e. low running cost. A small compartment switching system will be adopted to reduce the running cost. Apart from those power outlets for general use, additional power outlets will be strategically installed to meet the actual level of power demand of each room. The average design luminous intensity of the main rooms is given below.

Room Type	Design Luminous Intensity (lux)
Operation Room	750
Anaesthesia Room and Preparation Room	300
Clinical Unit	300
Ward	100

c) Telephone

The telephone line will be extended by the Sri Lankan side to the switchboard to be installed under the Project in the Faculty's Administration Office in Building A. All wiring work to the secondary switchboard in each building and telephone outlets in certain rooms is also included in the Project. Furthermore, an internal telephone extension system capable of housing upto approximately 72 lines and some 50 extension phones will be installed in key places in the

buildings for internal and external communication purposes. An interphone system will be installed between the entrance to Building B and the nurses station, doctor room and also between the operating rooms and the preparation room.

d) Speaker System

A speaker system with a microphone will be installed in the clinical pathology conference room on the third floor of Building B which will also be used as the lecture room.

e) Fire Alarm System

A push button-type emergency alarm bell will be installed at each indoor fire plug and hose storage box to warn of the break-out of fire.

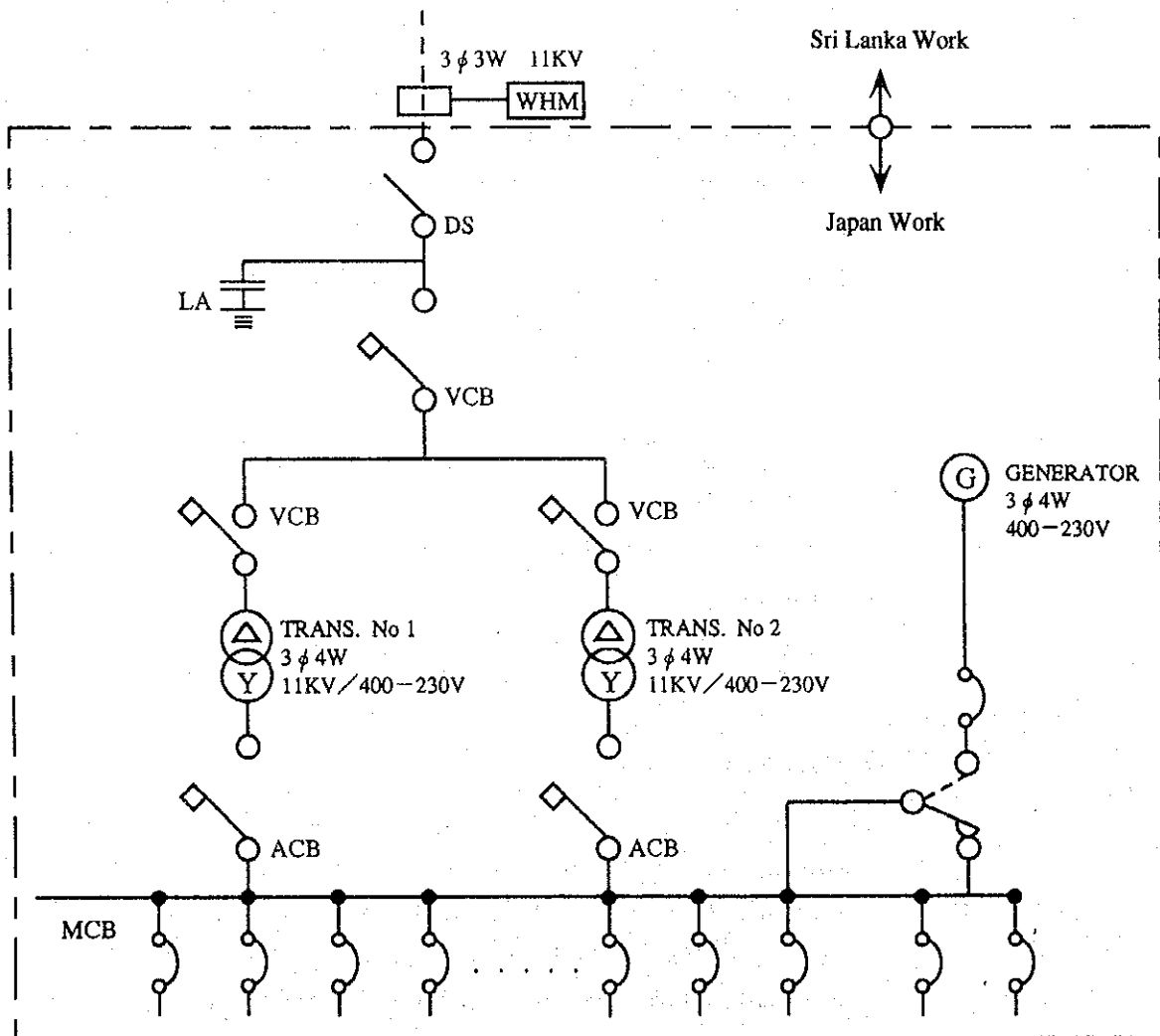


Fig. 2-2 One-Line Diagramme for Power Receiving and Transforming System

f) **Lightning Rod and Grounding System**

A lightning rod will be installed on top of the buildings together with a conductor and an independent grounding conductor will be provided for certain medical equipment.

g) **Lift**

A rope-operated lift will be installed in Building B, mainly for the transportation of sterilised tools and equipment between the sterilising room and clinical units as well as the practical laboratories, etc. on each floor.

2) **Plumbing**

a) **Water Supply**

The University obtains its water from Mahaweli River (Mahaweli Ganga) and the intake and purification facilities, the pump station and laid supply pipe network ensure a steady water supply on the campus. And the University has a water reservoir (4,500 ton) on the top of a hill in the campus to distribute water by natural gravity in case of power blackouts with a capacity to supply water for about three hours. For the facilities planned under the Project, the Sri Lankan side is expected to extend the water supply pipe to the boundary of Site B from the existing network on the campus in view of the fact that no problems are anticipated in terms of the supply volume and water quality. A set of an underground water reservoir tank and an elevated water tank is planned in Building-B to distribute water to use points in each building. The supply of special water (sterilised water and distilled water, etc.) will be locally made using individual equipment specially designed to produce such water.

b) **Hot Water Supply**

An independent electric water heater will be installed in those places requiring hot water for easy maintenance and economy.

c) **Water Drainage**

Four types of waste water will be produced by the planned facilities, i.e. general waste water, including sewage, medical waste water, laboratory waste water containing chemicals and rainwater. The

planning priority is given to easy operation and maintenance and to a low maintenance cost. Laboratory waste water containing formalin and other chemicals will, in principle, be neutralised and diluted at each laboratory prior to discharge to the general and medical waste water drainage system. The agronomical and biological treatment process will be employed to treat general and medical waste water and the treated water will be discharged to the side ditches of the trunk road via a disinfection tank. Although the National Water Supply and Drainage Board has not yet established environmental standards for waste water discharge, a BOD of 20 ppm is planned under the Project in view of the importance of environmental conservation. Rainwater will simply be drained to the side ditches of the trunk road via side ditches on the sites. Plaster discharged from the technical laboratory and plaster room will be recovered at each sink to prevent damage to both the drainage pipes and the waste treatment plant and environmental pollution.

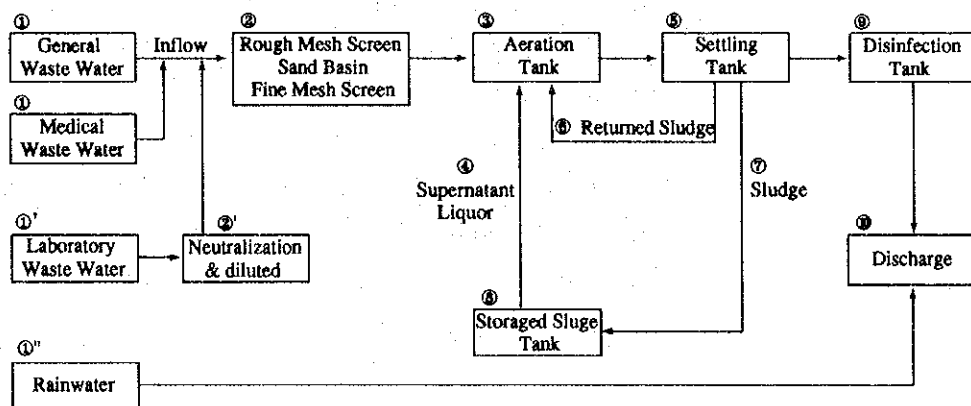


Fig. 2-3 Waste Water Treatment Flow Sheet

d) Sanitary Ware

The local circumstances will be taken into consideration in the selection of sanitary ware. As ceramic sanitary ware is liable to breakage, that available locally will be selected in view of easy replacement. In principle, local style sanitary ware will be used with some Western style sanitary ware provided for the staff.

e) Gas Supply

An LPG supply network will be installed in view of the safe and the easy replacement of cylinders in the LPG cylinder room to supply LPG

to the technical laboratory, practical laboratories for basic medical education and the kitchen in which they need large consumption of it. Small cylinders will be used in the laboratories to assist tests and experiments.

f) Kitchen

The local circumstances will be taken into consideration in the selection of kitchen equipment. Priority will be given to locally available equipment even if this equipment is rather simple in view of easy use, easy maintenance and a low running cost.

g) Medical Gas Supply

Exclusive central supply systems for the planned facilities will be installed to supply oxygen, nitrous oxide (laughing gas) and compressed air and to provide suction. As compressed air and suction systems are usually simultaneously used in dental treatment rooms as well as technical laboratories, central systems operating on each floor or in each clinical unit will be introduced to ensure sufficient supply and easy maintenance. The suction system is designed to include a waste water drainage mechanism.

Table 2-7 Main Rooms with Medical Gas Supply

	Room	Medical Gas Plumbing			
		Oxygen	Laughing Gas	Compressed Air	Suction
Central Clinical Units	Operating Room	○	○	○	○
	Anaesthesia Room	○	○	○	○
	Recovery Room	○	-	○	○
	ICU	○	-	○	○
Oral and Maxillofacial Surgery	Clinic	-	-	○	○*
Oral Medicine	Clinic	-	-	○	○*
Periodontology	Clinic	-	-	○	○*
Restorative Dentistry/ Prosthetic Dentistry	Clinic	-	-	○	○*
	Technical Laboratory	-	-	○	○*
Paedodontics/ Orthodontics	Clinic	-	-	○	○*
	Technical Laboratory	-	-	○	○*

* Wet Suction Type

h) Fire-Fighting Facilities

Indoor fire plugs and fire extinguishers will be installed pursuant to the relevant laws and regulations in Sri Lanka.

i) Solid Waste Disposal

A solid waste collection station will be established for the separate collection of general waste and such dental waste as waste plaster from the technical laboratories, such infectious waste as syringes, and other medical contaminated waste, etc. In principle, medical waste will be disposed of by the university incinerator while other waste will be collected by the University authority.

3) Ventilation and Air-Conditioning

The following principles will be adopted for the planning of ventilation and air-conditioning to minimise the maintenance cost.

- ① Integration of such natural conditions as insolation, temperature and wind direction in the planning.
- ② Adoption of a suitable cleanliness class 100,000 for operating rooms as required for medical facilities.
- ③ Minimisation of the running cost.
- ④ Selection of equipment which can be repaired by local agents.
- ⑤ Selection of equipment which is easy to operate and maintain.

a) Air-Conditioning

Natural ventilation will be adopted for most rooms while air-conditioning will be installed for those rooms requiring air-conditioning to properly perform their envisaged functions. An air-cooled, separate type air-conditioning system will be installed to permit room-by-room operation and easy repair and maintenance. Indoor units will be installed on the wall or ceiling while outdoor units will be installed on the balcony or roof. A high performance air filter will be attached to the system used in operating rooms and others where a high level of air cleanliness is required. The planned rooms for air-conditioning are listed below.

Building A : Medical supply store rooms, microbiological laboratories and preparation rooms, offices with a computer

Building B : Operating rooms, medical supply storage rooms, X-ray rooms, offices with a computer

b) Ventilation

While natural ventilation will, in principle, be employed, a ventilation fan will be installed in those rooms requiring forced ventilation, such as the dissection room and laboratories. A ceiling fan will be installed in ordinary rooms to facilitate cooling by air current.

(5) Construction Materials Plan

In selecting the construction materials to be used, priority will be given to local materials in view of easy maintenance.

1) Exterior Finishes

① Exterior Walls

The finish of exterior walls will be emulsion paint for outdoor use on a mortar base.

② Roofs

Locally manufactured roofing tiles will be used on top of the roof boards covering a trussed roof using structural steel. Asphalt waterproofing work will be conducted for the flat roof section.

③ Doors and Windows

Exterior windows will be glass jalousie windows with a wood frame while interior doors and windows will be made of wood.

2) Interior Finishes

① Floors

Cement press tiles will be used for ordinary rooms in view of easy cleaning and maintenance. Corridors and laboratories will have coloured mortar floors with a wax finish. Terrazzo tiles will be used for

the operating rooms and scrubbing room, etc. where water is used for cleaning purposes.

② Walls

Vinyl chloride resin enamel paint will be applied upto some 1.5 m from the floor for the easy wiping of the clinical units, ward and laboratories where the walls may be contaminated. The wall areas above will be finished with emulsion paint. The walls of the operating rooms will be finished with semi-porcelain tiles.

③ Ceilings

A suspended ceiling will be introduced for cosmetic purposes for those rooms where ceiling ducts and pipes are located. In principle, however, a paint finish will be applied to the exposed concrete.

The planned exterior and interior finishes are compiled in Table 2- 8. Most of the basic construction materials, such as cement, sand, gravel, concrete blocks, bricks and others for form work, carpentry and plaster work are available locally. Some materials will require importation from neighbouring countries.

Table 2-8 List of Construction Materials

	Popular Local Finish	Planned Finish	Reasons for Planned Finish
Roofs	Tiled pitched roof Flat roof	Tiled pitched roof	To harmonise with the existing University buildings and the surrounding environment.
Exterior Walls	Mortar with paint finish	Mortar with paint finish	Easy maintenance and compliance with the standard specifications of the existing University buildings.
Doors and Windows	Wood frame Aluminium frame	Wood frame with oil paint finish	Compliance with the standard specifications of the existing University buildings.
Interior Walls	Paint Tiles	Paint Semi-porcelain tiles	General compliance with the standard specifications. Tiled walls for operating rooms for easy cleaning.
Floors	Mortar Cement tiles Terrazzo tiles	Mortar Cement tiles Terrazzo tiles	Compliance with the standard specifications.
Ceilings	Paint Asbestos board	Paint Calcium silicate board	Compliance with the standard specifications with emphasis on durability and workability for suspended ceilings.

(6) Equipment Plan

In selecting the equipment for the planned facilities for the Faculty, those equipment which fails to meet the following criteria will be dropped and alternatives will be proposed. In selecting the spare parts, consideration shall be given to the surveyed state of use of equipment and the local conditions, etc., and the content and quantity of spare parts shall be calculated for each item of equipment that is judged to be necessary.

- A : The item in question is classified as dentistry education equipment.
- B : The item in question is compatible with the educational targets, educational and training curricula, facility size and number of students, etc.
- C : The item in question is suitable in view of the local climatic conditions (relatively high temperature and humidity), the environment of the sites and the planned facilities.
- D : The item in question is capable of improving the present situation of the Faculty and does not require a radical change of the management system.
- E : The item in question can be procured within the University's budget when replacement is required in the future.
- F : Proper maintenance of the item in question is feasible from the financial and technical viewpoints.
- G : The item in question is not classified as a consumable or a testing agent.
- H : The function and quality of the item in question do not overlap with those of other items.
- I : The item in question is relatively easy to maintain.
- J : There is a sales agent for the item in question in Sri Lanka or a neighbouring country for the relatively easy and quick supply of expendables and spare parts, etc.
- K : The item in question cannot be procured by the Faculty for financial and/or other reasons.
- L : The item in question is not part of the building service facilities.

A list of equipment satisfying the above criteria is given below.

No.	Item No.	Equipment	Quantity
1	A001	Amalgam Mixer	9
2	A002	Anaerobic chamber	1
3	A003	Anaerobic Jar, Big	3
4	A004	Anaerobic Jar, Small	1
5	A005	Anaesthesia Machine	3
6	A006	Analytical Balance	4
7	A007	Artery Syringe	1
8	A008	Audiometer	1
9	A009	Autoclave, Table Top	20
10	A010	Automatic blood Cell Counter	1
11	A011	Automatic Cover Slipper	1
12	A012	Automatic Slide Stainer	1
13	A013	Automatic Tissue Processor	1
14	A014	Autopsy Light	6
15	A015	Autopsy Table	12
16	A016	Bicycle Exerciser/Ergometer	1
17	A017	Binocular Microscope (A)	150
18	A018	Binocular Microscope (B)	3
19	A019	Binocular Microscope with Photo	5
20	A020	Blood Bank Refrigerator	1
21	A021	Burnout Furnace	6
22	A022	Cadaver Preservation Locker	1
23	A023	Camera	12
24	A024	Cardiac Sound Mike	6
25	A025	Cardiac Defibrillator	1
26	A026	Cassettes (8 × 10)	5
27	A027	Cassettes (10 × 12)	5
28	A028	Cassettes (11 × 14)	3
29	A029	Cassettes (14 × 14)	3
30	A030	Cassettes (14 × 17)	3
31	A031	Casting Machine	1
32	A032	Central Vacuum System (A)	1
33	A033	Central Vacuum System (B)	1
34	A034	Central Vacuum System (C)	1
35	A035	Centrifuge	5
36	A036	Chromatograph	2
37	A037	Clean Bench	2
38	A038	CO2 Incubator	1
39	A039	Cold Unit	1
40	A040	Constant Temp Bath	1
41	A041	Continuous Infusion Pumps	4
42	A042	Cooling Cabinet, Wall Mounted	3

43	A043	Corpse Cutting Machine	1
44	A044	Cryostat	1
45	A045	Deep Freezer (A)	3
46	A046	Deep Freezer (B)	3
47	A047	Deep Freezer (C)	1
48	A048	Deep Freezer (D)	1
49	A049	Deep Freezer (E)	1
50	A050	Dental Developer	1
51	A051	Dental Drill	2
52	A052	Development Tank for Panoramic View	2
53	A053	Digital Clinical Refractometer	2
54	A054	Dissecting Instrument Set (A)	50
55	A055	Dissecting Instrument Set (B)	4
56	A056	Dissecting Microscope	1
57	A057	Distilling Machine	5
58	A058	Dryer	1
59	A059	Drying Cabinet	1
60	A060	Dust Collector for laboratory Lathe	6
61	A061	ECG Monitor	3
62	A062	Electric Drill with Stand	1
63	A063	Electric Grinder	1
64	A064	Electric Polishing Machine	7
65	A065	Electric Stirrer & Voltex	2
66	A066	Electric Balance	3
67	A067	Electro Oxidizing Unit	2
68	A068	Electro Surgical Unit	1
69	A069	Electrocardiograph	1
70	A070	Electromyograph	1
71	A071	Electrophoresis	2
72	A072	Embalming Machine	1
73	A073	Emergency Oxygen Unit	11
74	A074	Enlarger for B&W Photography	1
75	A075	Examination Couch	7
76	A076	Examination Lamp	2
77	A077	Fluorescence Binocular Microscope	2
78	A078	Food Conveyor	2
79	A079	Formalin Tank	1
80	A080	Fume Hood	1
81	A081	Glassware Washing Machine	1
82	A082	Glassware Drying Cabinet	2
83	A083	Hand Lifter	1
84	A084	Hanger (24 × 18)	5
85	A085	Hanger (30 × 24)	5

86	A086	Hanger (30 × 40)	3
87	A087	Hanger (35 × 35)	3
88	A088	Hanger (45 × 45)	3
89	A089	Headphone	2
90	A090	Heavy Duty Microtome/Rotary/Sledge	1
91	A091	Height & Weight Scales	2
92	A092	High Frequency Centrifugal Casting Machine	1
93	A093	High Pressure Steam Sterilizer (A)	1
94	A094	High Pressure Steam Sterilizer (B)	1
95	A095	Electric Boiler	1
96	A096	Hot Air Oven (A)	7
97	A097	Immuno Staining Incubator	1
98	A098	Incubating Vertical Shaker	1
99	A099	Low Temp Incubator	5
100	A100	Injection Cannula (A)	2
101	A101	Injection Cannula (B)	5
102	A102	Intra-Oral X-Ray Unit	6
103	A103	IV Fluid Stand	15
104	A104	Laboratory Engine	10
105	A105	Laboratory Lathe	15
106	A106	Hot Air Oven (B)	2
107	A107	Phantom Head System	28
108	A108	Lead Apron	5
109	A109	Light Cure Machine	20
110	A110	Liquid Nitrogen Storage Cylinder	1
111	A111	Liquid Nitrogen Tank	2
112	A112	Magnetic Stirrer	2
113	A113	Maintenance Tool Set	1
114	A114	Microcentrifuge	1
115	A115	Micromotor	16
116	A116	Microscope Cabinet	6
117	A117	Binocular Microscope with Photo	1
118	A118	Microspirometer	1
119	A119	Microtome Knife Sharpener	1
120	A120	Model Trimmer	8
121	A121	Morgue Cart	3
122	A122	Museum Specimen Fixing Tank	1
123	A123	Negative To Positive Converter	1
124	A124	Operating Light	3
125	A125	Operating Table	3
126	A126	Orth-Phantom X-Ray Machine	2
127	A127	Paraffin Block Humidifier	1
128	A128	Paraffin Embedding Centra	1

129	A129	Paraffin Floating Bath	1
130	A130	Paraffin Oven	1
131	A131	Perspex Cutting Machine	1
132	A132	pH Meter	4
133	A133	Photodryer	1
134	A134	Pipette Dryer	3
135	A135	Pipette Washer	3
136	A136	Polygraph	1
137	A137	Polymerization Vessels	1
138	A138	Porcelain Furnace	1
139	A139	Precision Microtome	1
140	A140	Prophylaxis Cleaner	5
141	A141	Pulp Tester	2
142	A142	Pulse Oximeter	3
143	A143	Rasin Curing Unit	2
144	A144	Refrigerator (A)	4
145	A145	Refrigerator (B)	2
146	A146	Refrigerator (C)	5
147	A147	Sandblaster	2
148	A148	Scubbing Apparatus	6
149	A149	Shaker for Tissue Fixation	1
150	A150	Shaking Water Bath	2
151	A151	Sledge Microtome	2
152	A152	Slide Warmer	5
153	A153	Soloder Holder	5
154	A154	Spectrophotometer	2
155	A155	Sphygmomanometer (A)	8
156	A156	Sphygmomanometer (B)	33
157	A157	Sphygmomanometer (C)	2
158	A158	Sport Ergo Treadmill	1
159	A159	Spot Light	6
160	A160	Spot Welder	6
161	A161	Stereomicroscope	1
162	A162	Stethoscope (A)	5
163	A163	Stethoscope (B)	30
164	A164	Stretcher	5
165	A165	Suction Unit	3
166	A166	Suspension Drill	3
167	A167	Teaching Microscope for 5 persons	1
168	A168	Thermoplastic Former	2
169	A169	Ultracentrifuge	1
170	A170	Ultrasonic Cleaner	4
171	A171	Ultrasonic Scaler	20

172	A172	Vacuum Suction	4
173	A173	Vice	2
174	A174	Vortex Mixer	1
175	A175	Water Bath	5
176	A176	Work Shop Tool Box	1
177	A177	A-Ray Apparatus	1
178	A178	X-Ray Film Illuminator (A)	10
179	A179	X-Ray Film Illuminator (B)	2
180	A180	X-Ray Film Illuminator (C)	1
181	A181	Mini Bus	1
182	A182	Instrument Set for Clinical Education	1
183	A183	Instrument Set for Basic Medicine	1
184	A184	Knife Sharpner	1
185	A185	Micropipette	3
186	A186	Thermoplastic Pressure Former	1
187	A187	Micromotors	2
188	A188	X-Ray Developing Equipment	2
189	A189	CO2 Monitor	1
190	A190	Oximeter	1
191	A191	Dressing Drums	20
192	A192	Nebulizer Unit	1
193	A193	Heating Plate for Polyclave	3
194	B001	Overhead Projector	14
195	B002	Copy Machine	3
196	B003	Computer with Printer	28
197	B004	Slide Projector	8
198	B005	Electric Typewriter	21
199	B006	Typewriter (A)	1
200	B007	Typewriter (B)	1
201	B008	Bed	45
202	B009	White Board	16
203	B010	Monitor	7
204	B011	Screen (A)	1
205	B012	Screen (B)	14
206	B013	VTR	4
207	C001	Dental Chair Unit (A)	79
207	C002	Dental Chair Unit (B)	56