

**(7) Basic Design Drawings**

**Site Plan**

**Building A — GF-1F Plan**

**Building A — 2F-3F Plan**

**Building B & C — GF Plan**

**Building B — 1F Plan**

**Building B — 2F Plan**

**Building B — 3F Plan**

**Building A & C — Section-Elevation**

**Building B — Section-Elevation**

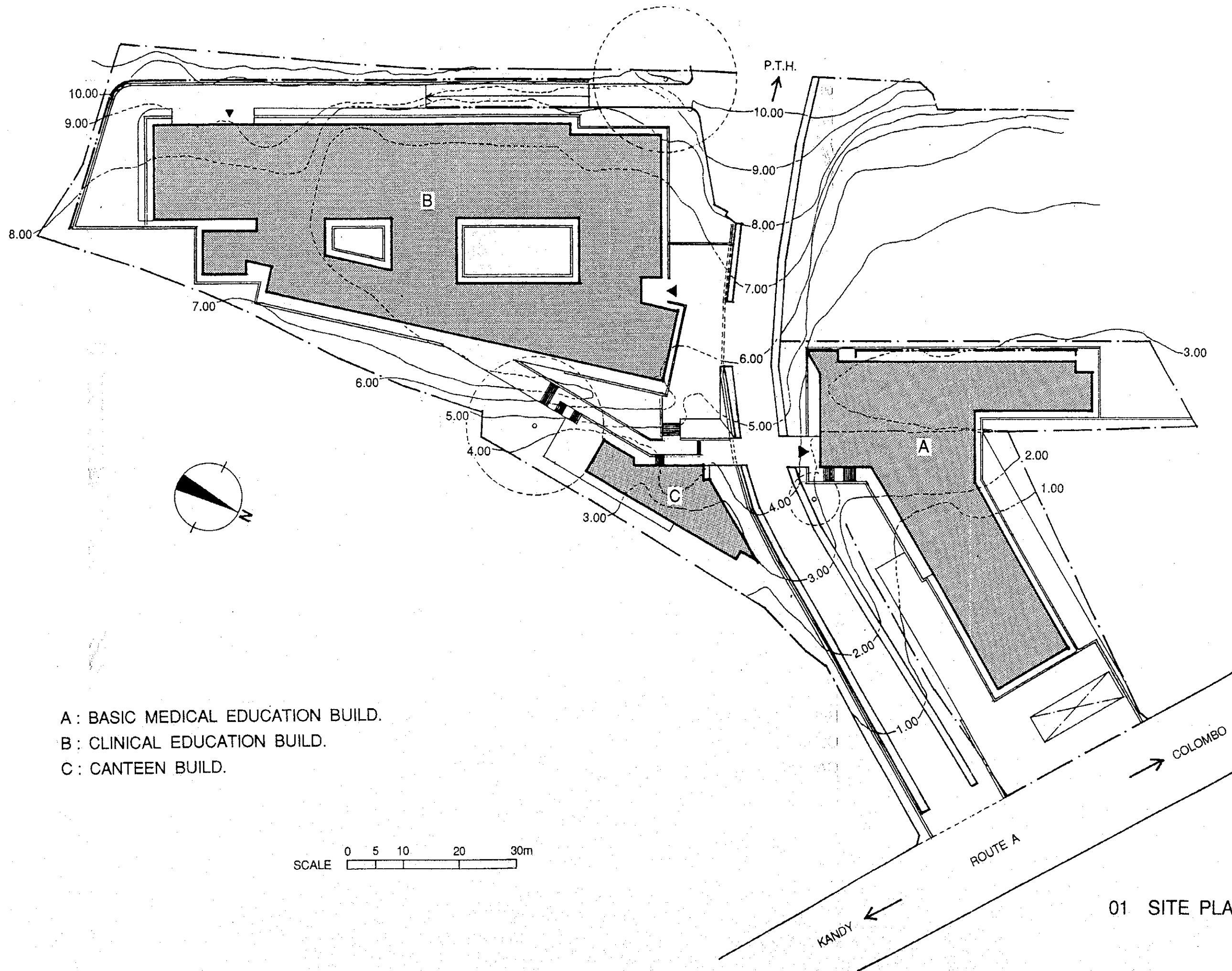
**Power & Telephone Extension Plan**

**Water Supply & Drainage System**

**Storm Water Drainage Plan**



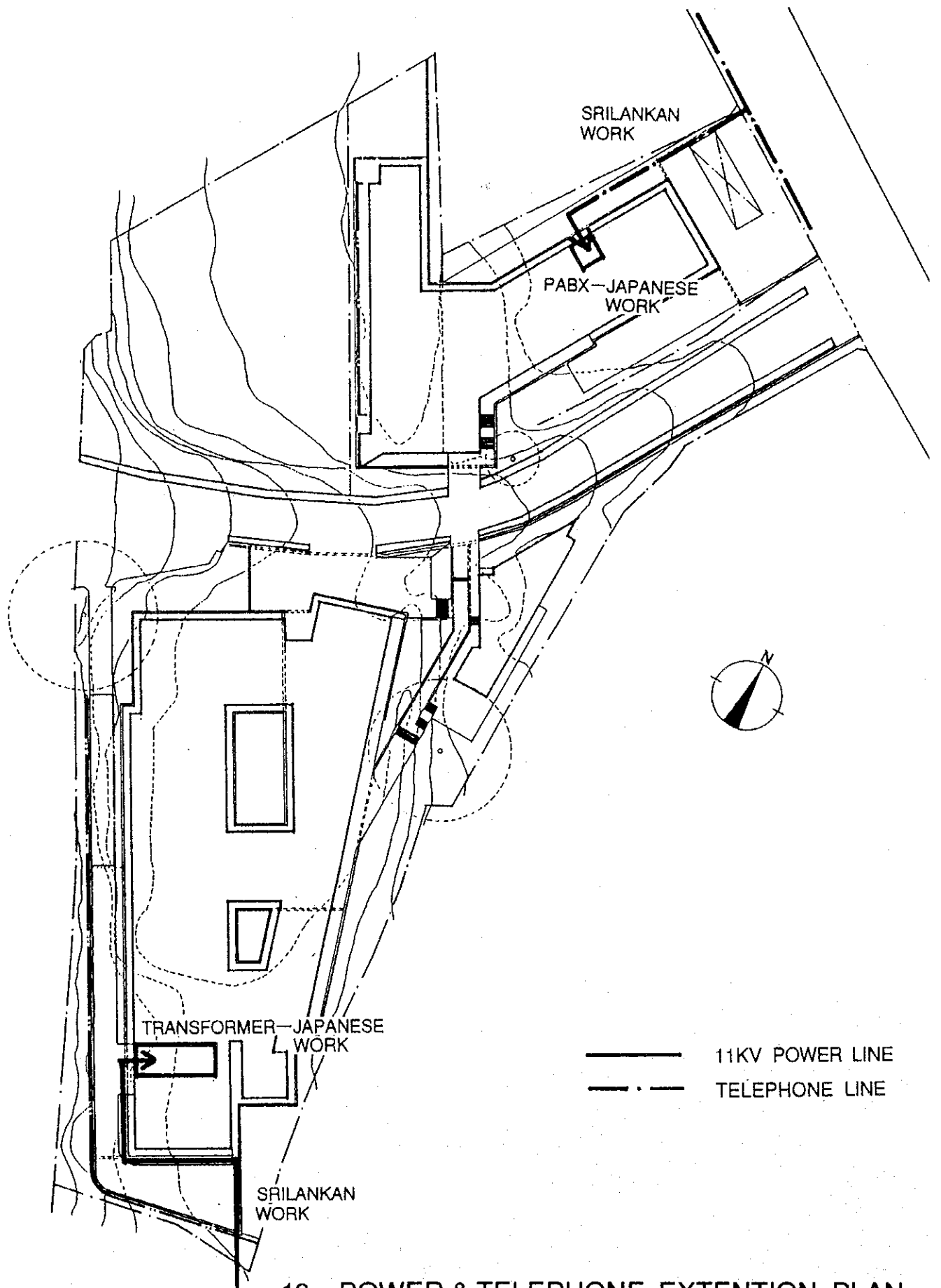




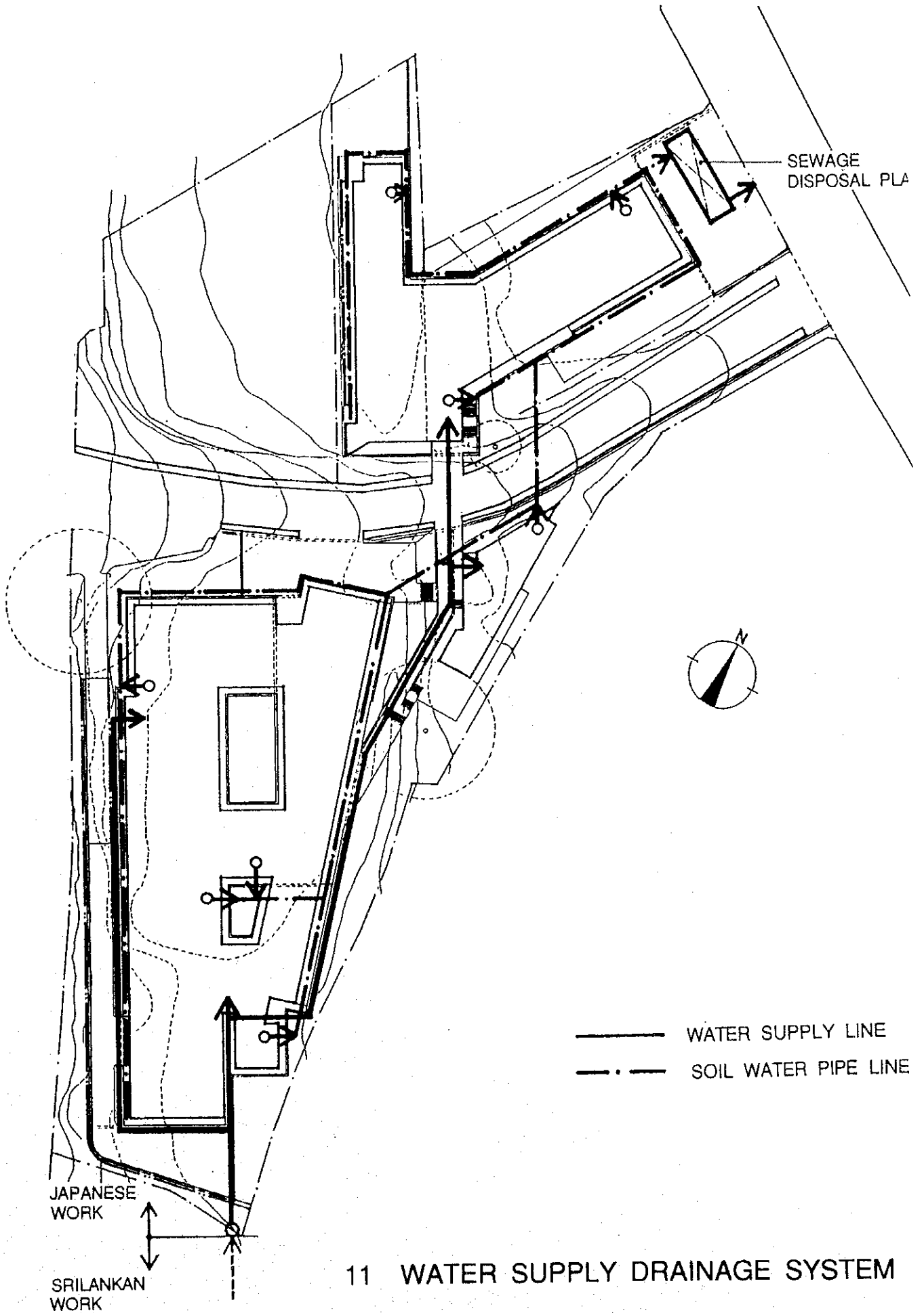
- A: BASIC MEDICAL EDUCATION BUILD.
- B: CLINICAL EDUCATION BUILD.
- C: CANTEEN BUILD.

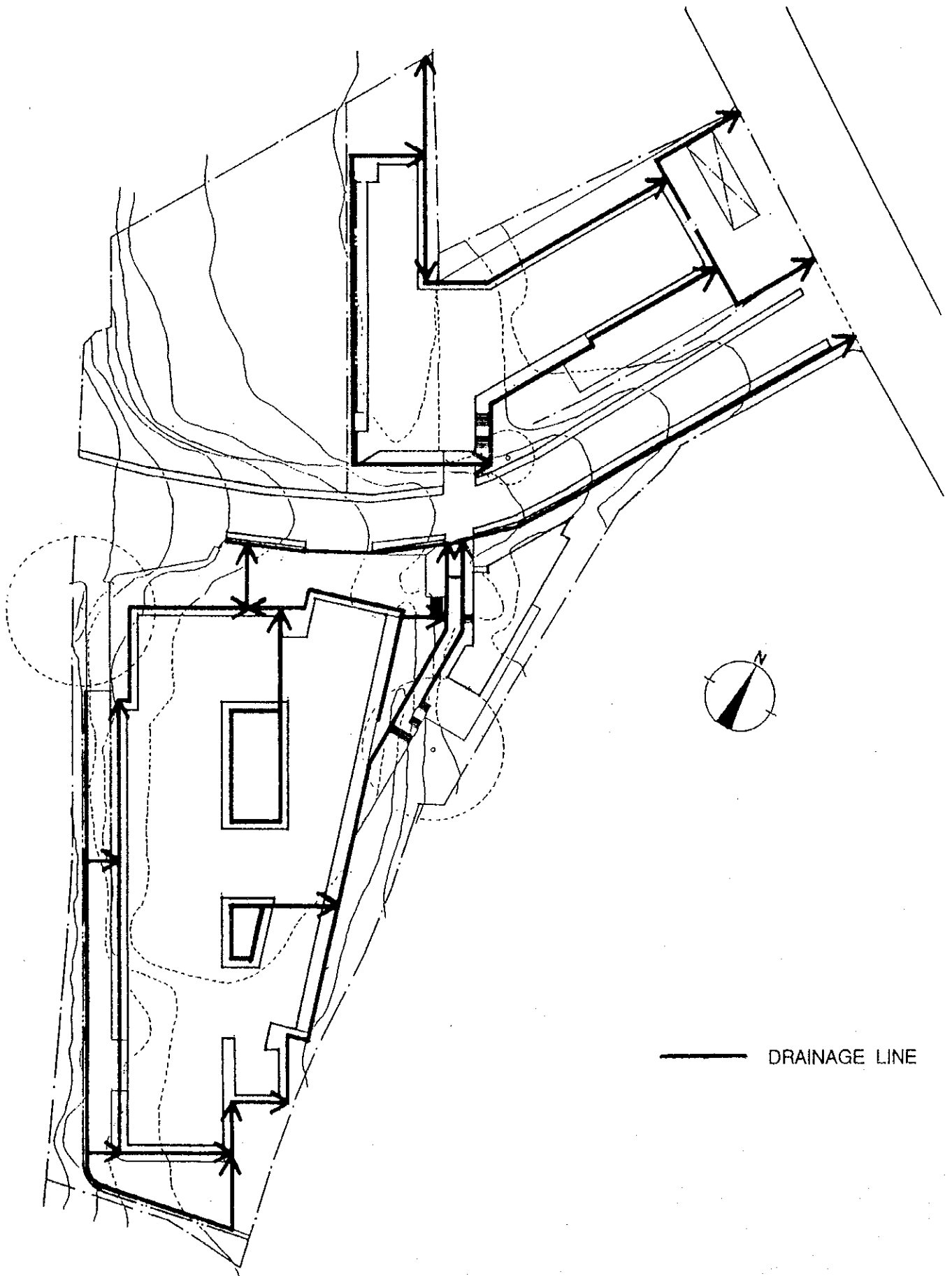
SCALE 0 5 10 20 30m

01 SITE PLAN



10 POWER & TELEPHONE EXTENTION PLAN





12 STORM WATER DRAINAGE PLAN

## **CHAPTER 3**

# **IMPLEMENTATION PLAN**





## **CHAPTER 3 IMPLEMENTATION PLAN**

### **3.1 Implementation Plan**

#### **3.1.1 Implementation Concept**

##### **(1) Basic Framework for Project Implementation**

The Project for Improvement of the Faculty of Dental Sciences, University of Peradeniya (the Project) will be examined by related Japanese government ministries based on this report. Following Cabinet approval of the Project, the Exchange of Notes will be signed between the Government of Japan and the Government of the Democratic Socialist Republic of Sri Lanka, followed by the selection of a consultant, a contractor and an equipment supplier, all of which will be Japanese corporations as required by Japan's grant aid system. Any agreement between these corporations and the Sri Lankan side are kindly requested to be certified by the Government of Japan.

##### **(2) Project Implementation System**

The Project will be implemented by the University of Peradeniya under the jurisdiction of the Ministry of Education and Higher Education.

The person to sign agreements such as on the project design and supervision, construction work and banking arrangements on the Sri Lankan side will be the Vice-Chancellor of the University. The Dean of the Faculty of Dental Sciences will be responsible for the coordination of technical issues under the Project, acting as a de facto project coordinator on the Sri Lankan side.

The Department of External Resources of the Ministry of Finance and Planning will be responsible for bilateral agreements.

The Maintenance Department of the University of Peradeniya will be responsible for the arrangement and supervision of utility extension work, involving the supply of electricity, water and telephones, etc. to the project sites, as part of the work to be undertaken by the Sri Lankan side.

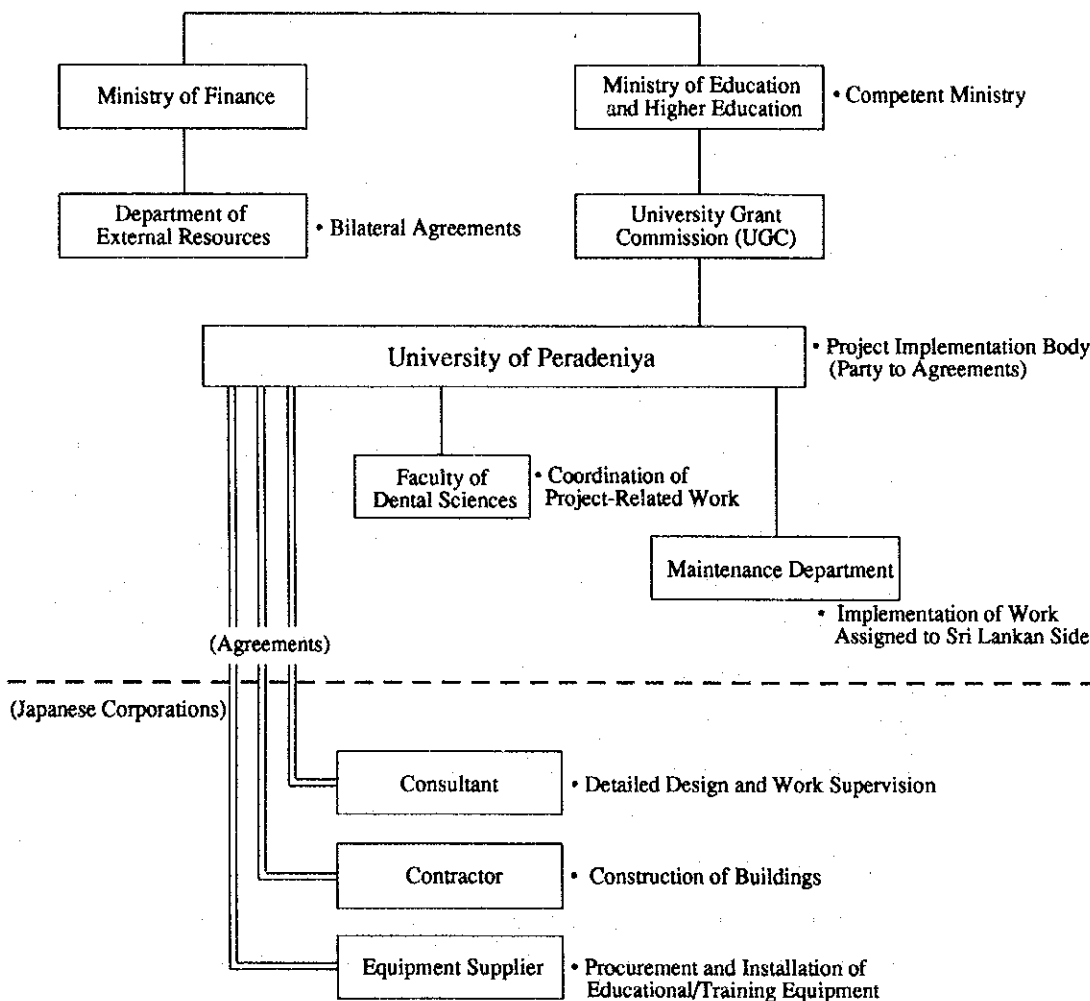


Fig. 3-1 Project Implementation System

### (3) Consultant

Following the signing of the E/N between the two governments, the University of Peradeniya will conclude a consultancy agreement on the detailed design and work supervision for the Project with the Consultant involved in the Basic Design Study for the Project and will request the Government of Japan to certify the agreement.

It is important that this agreement be swiftly completed after the signing of the E/N for the smooth implementation of the Project. Following the signing of the agreement, with the University authority the Consultant will prepare the detailed design and tender documents for authorisation by the University authority based on the Basic Design Study Report. Based on the approved detailed design and tender documents, the Consultant will conduct the tender process on behalf of the University and supervise the construction work.

(4) Contractor

The works under the Project consists of the construction of buildings and equipment procurement and there installation.

The Contractor for the construction work will be selected from among qualified Japanese corporations through open competitive bidder with pre-qualification. The lowest qualified bidder will, in principle, be declared the successful bidder and will conclude a construction contract which are to be certified by the Government of Japan.

In the case of equipment procurement and installation, the Equipment Supplier will be selected from among Japanese trading companies using the same procedure described above for the selection of the Contractor.

Both the Contractor and Equipment Supplier will be required to complete their respective work within a set time and hand over the buildings and equipment to the University after final inspection.

(5) Use of Local Consultant and Construction Companies

There are several small consultancy firms (employing some 10 people) in Sri Lanka, mainly in Colombo, and some of their staff have an excellent background, including overseas education. The local staff of those firms are fully capable of conducting the supervision work under the guidance of a Japanese supervisor. Therefore, their use as assistant supervisors should be considered for the Project.

As Sri Lanka is a democratic socialist country, all aspects of large-scale public projects, ranging from planning and design to procurement and construction, are conducted by the Sri Lanka Engineering Corporation and/or the Building Department. Most private construction companies in Sri Lanka work as subcontractors which are responsible for the supply of labourers and/or partial construction work for large public projects or large construction works ordered by a foreign affiliate. While their technical skills are generally satisfactory, their experience for the management in the areas of procurement, schedule control and quality control, etc. are not equal, considerably vary from one contractor to another.

If the Japanese Contractor uses local construction companies for the Project, it will be necessary to select suitable companies in terms of specific types of work and work quantities. Moreover, careful guidance will be required regarding both schedule control and quality control. In the case of those types of work which are rare in Sri Lanka, local workers and engineers do not have the necessary skills, necessitating the dispatch of Japanese engineers. For the Project, the special plumbing work involving the installation of medical gas supply systems is a case in point.

### **3.1.2 Implementation Conditions**

#### **(1) General Conditions of Local Construction Industry**

As common construction materials in Sri Lanka are either domestically produced or imported, local procurement is possible. However, many of them have quality problems and the supply tends to be unstable to the point of actual shortages from time to time.

Large construction projects using such machinery as tower cranes have been conducted by foreign construction companies in and around Colombo in recent years but there are exceptions to the dependence on manual labour.

Although heavy machinery can be leased, most such machinery is old and liable to breakdowns. The operation rate is also small. The technical levels of both structural and finishing work are rather low. Together with the use of low quality construction materials, the construction industry in Sri Lanka can be described as having a certain room for development and improvement.

The situation in Kandy is judged to be inferior to that in Colombo and, therefore, it will be more realistic to recruit engineers and to procure construction materials in Colombo.

General building regulations are in force and the Urban Development Authority (UDA) of the Ministry of Construction has the authority to afford planning permission. In practice, UDA officers appear to have much discretionary authority.

## (2) Points to Note

Judging from the present state of the proposed construction site (project site) and conditions of the local construction industry, the following points must be noted in relation to the construction of the planned buildings.

- 1) The project site is located along the Colombo-Kandy Road (A1 trunk road) and is divided into the north site and south site by the approach road to the Peradeniya Teaching Hospital. The traffic on this A1 trunk road is very heavy and the approach road is busy with patients. This situation makes the introduction of carefully planned temporary facilities essential, paying particular attention to avoiding any accident which may occur due to the intersection of the line of flow of construction materials and the line of flow of patients and others who are related to the Teaching Hospital.
- 2) Because of the proximity of the Teaching Hospital to the construction sites, the construction plan and temporary work plan must incorporate measures to minimise noise, vibration and dust. And also the construction schedule must be carefully prepared as not to be rush work throughout the day and night due to the restriction on overtime and night work.
- 3) The local procurement of construction materials is not without problems in Sri Lanka in general and in Kandy in particular. Some materials have a quality problem while others are in short supply from time to time. It is essential that the Contractor carefully study the situation and to place orders as early as possible.
- 4) Because of the relatively small size of the construction sites vis-a-vis the planned size of the buildings, it is impossible to secure a plot for temporary structures. It will be necessary to request the Government of Sri Lanka's assistance to secure empty land for the Contractor near the sites throughout the construction period.

### **3.1.3 Scope of Works**

The project will be implemented in accordance with Japan's grant aid system. The Government of Japan and the Government of Sri Lanka will be required to undertake the following works.

(1) Work to be Undertaken by Government of Japan

1) Buildings

- Construction of the buildings referred to in the Basic Design Study Report
- Work related to such building services as electricity supply, air-conditioning and sanitary services

2) Equipment

- Procurement of equipment
- Installation of equipment

3) Other Building Services

- Power receiving and transforming facilities
- Water supply and drainage systems on the construction sites
- Telephone switchboard

4) External Works

- On-site roads
- Waste water treatment facility

5) Related Procedural Work

- Transportation of materials and equipment from the places of procurement to the construction sites

(2) Work to be Undertaken by Government of Sri Lanka

1) Land Preparation and External Work

- Removal of all existing structures and trees which obstruct the construction work from the sites and land preparation
- Construction of such exterior structures as perimeter fences and gate(s)

2) Building Services

- Extension of water supply to the sites
- Construction of drainage channels outside the sites
- Extension of electricity supply to the transformer room in Building B
- Extension of telephone lines to the faculty's administration office in Building A

### 3) Fixtures and Furniture

- Provision of fixtures and furniture not included in the scope of the Japan's grant aid

The Project cost to be borne by the Government of Sri Lanka is estimated as per the attached Appendix 5 at the end of this report.

#### **3.1.4 Consultant Supervision**

Following the principles of Japan's grant aid system and the findings of the Basic Design Study, the Consultant will organize a permanent project team for the detailed design and construction work supervision stages and will coordinate the opinions of related organizations to ensure the smooth progress of the Project. At the supervision stage, the Consultant will dispatch a full-time supervisor with appropriate technical knowledge and skills to Sri Lanka to supervise the on-site construction work for the purposes of guidance and liaisoning. In addition, the Consultant will also dispatch technical experts in accordance with the work progress for inspection and further instruction purposes.

##### (1) Principles of Supervision

- 1) A close communication link will be established between the Consultant and the responsible personnel of the project-related organizations in both Japan and Sri Lanka so that the planned buildings are constructed on time.
- 2) Priority will be given to constructing the planned buildings using local construction methods and local materials as long as their use is justified.
- 3) Appropriate advice and guidance will be provided to the Sri Lankan side after the completion and handing over of the buildings for the proper running and maintenance of the buildings.

##### (2) Components of Supervisory Work

###### 1) Assistance for Conclusion of Construction Agreement

- Decision on the type of construction agreement; preparation of a draft construction agreement; study of the contents of the scope of work; selection of the Contractor (pre-qualification; public announcement of tender; evaluation of bids; contract negotiation; witnessing of agreement)



- 2) **Inspection and Approval of Shop Drawings, etc.**
  - Inspection and approval of shop drawings, construction plans, samples of materials and finishes and building service equipment and materials submitted by the Contractor.
- 3) **Supervision of Construction Work**
  - Supervision of the Contractor in terms of work plans and processes, etc.
- 4) **Reporting of Work Progress**
  - Reporting of the work progress to the owner of the Project.
- 5) **Assistance to Facilitate Payments**
  - Assistance to facilitate payments to be made to the Contractor, etc. during and after the construction work through the checking of invoices and payment processes.
- 6) **Inspection**
  - Inspection of completed work throughout the construction period.
- 7) **Inspection for Final Handing Over and Test Operation**
  - Inspection of the buildings, building services and equipment for final handing over and test operation to confirm their conformity with the design specifications.
- 8) **Training on Equipment Maintenance**

Some of the equipment to be procured under the Project demand that the maintenance and repair technicians possess a fair amount of relevant knowledge and skills. It will be necessary to provide training for the technical staff of the University of Peradeniya during the installation, adjustment and test operation periods to ensure the proper functioning of the equipment, the early detection of problems and proper repair if required. The Consultant will provide both advice and guidance on this training.

### (3) Work Supervision System

In view of the scope of the Project, it appears appropriate for the Consultant to dispatch one full-time engineer to Sri Lanka throughout the construction period to conduct the supervisory work described in (2) above. In addition, the dispatch of technical experts will be required in accordance with the work progress to conduct the necessary inspection, guidance and/or adjustment. Meanwhile, an engineer will be appointed in Japan to be responsible for close communication with the site office to provide the necessary back-up for work supervision. The Consultant will also report to the Ministries of Government of Japan on such issues as work progress, payments and handing over to the Ministries of Government of Japan. The work supervision system within the framework of the implementation of the Project is shown in Fig. 3-2.

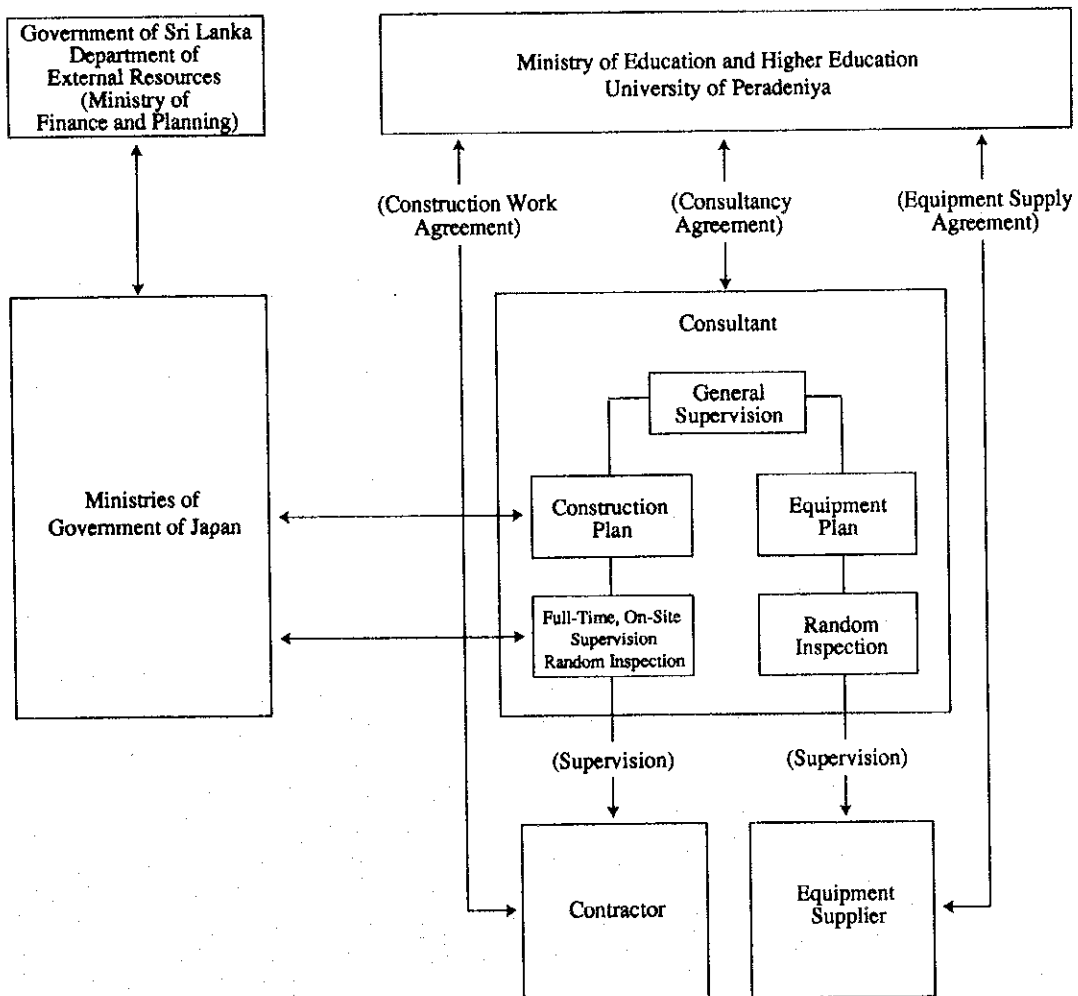


Fig. 3-2 Work Supervision System

### **3.1.5 Procurement Plan**

The procurement priority of construction materials is given to local materials as mentioned earlier but these materials must be carefully checked prior to procurement in terms of the supply capacity, durability, quality, workability, cost and ease of maintenance, etc.

The planned procurement of construction materials under the Project is described in (1) below. No special problems are anticipated regarding the import of some materials as the Project is sponsored by the Government of Sri Lanka. The import of such materials will be made by sea to Port Colombo, then by road to the construction sites.

(1) Construction Materials and Building Service Equipment Procurement List

Item	Source			Remarks
	Sri Lanka	Third Country	Japan	
<b>Construction Work</b>				
Cement: Structural	-	○	-	While a local joint venture with a Japanese company in Colombo supplies fresh concrete, the supply volume is inadequate. For structural purposes, local cement is slow to achieve initial strength, making it difficult to shorten the construction period.
Cosmetic	○	-	-	
Sand	○	-	-	River sand from Mahaweli River. Supply shortage due to flooding in the rainy season.
Gravel	○	-	-	Crushed mountain stones.
Reinforcing Bars	-	○	-	Imported from a third country as no domestic product is available.
Structural Steel	-	○	-	As above.
Forms	-	○	-	No plywood forms are locally available.
Concrete Blocks	○	-	-	No light weight blocks are produced locally but the existing product is acceptable for use for partition walls.
Bricks	○	-	-	Major Local product is sun dried type brick. Fair faced brick is not available. Supply shortage during rainy season. Acceptable for use for partition wall.
Stone	○	-	-	There is a problem with the supply capacity. Stone can be imported.
Terrazzo Tiles	○	-	-	Although there is little variety in terms of design and size, local tiles are commonly used for flooring with proven durability and workability.
Ceramic Tiles	○	○	-	Ceramic tiles are manufactured by a public corporation and the supply volume depends on the given delivery schedule.
Plywood	-	○	-	Local products have a high cost and quality problems.
Rockwool Slates	-	○	-	As above.
Timber	○	○	-	Due to the current prohibition of felling, there is a local supply problem. It is difficult to obtain sufficiently dried timber.
Metal Doors and Windows	-	○	-	No local products are available.
Wooden Doors and Windows	○	○	-	It is difficult to locally procure a sufficient volume of well dried timber and the supply volume depends on the given delivery schedule.
Metal Ware	-	○	○	Local products have quality and variety problems.
Glass	○	○	-	Local products are limited to thin plate glass in small sizes.
Paint	○	-	-	While local products are comparatively expensive, they must be used for maintenance purposes.
Asphalt Waterproofing	-	○	-	Local experience is limited to simplified waterproofing work.
Roofing Slates	○	-	-	Both the quality and supply are reliable.
Roofing Tiles	○	-	-	While local products are fragile due to the low burning temperature, they are the traditional roofing materials in Sri Lanka.
Fixtures and Furniture	○	○	-	Selection of the supply source depends on the quality, purpose of use and delivery time.
<b>Building Services</b>				
Vinyl Pipes	-	○	-	Locally available products are weak due to thin walls.
Steel (Iron) Pipes	-	○	-	Local cast iron pipes have a problem of measurement precision.
Valves	-	○	-	Local products vary in terms of quality.
Pumps	○	-	-	Local products are preferred for maintenance purposes.
Sanitary Ware	○	○	-	Local products have a problem on imprecise joints which may make maintenance difficult. Imported sanitary ware will be used in selected places.
Air-Conditioning Equipment	-	○	-	No local product is available.
<b>Electrical Installation</b>				
Transformer	-	○	-	No local product is available.
Distribution Panel	-	○	-	As above.
Telephone Switchboard	-	○	-	As above.
Electric Wire and Cable	-	○	-	As above.
Lighting Fixtures	-	○	-	As above.
Light Electrical Equipment	-	○	-	As above.

## (2) Educational Equipment

Most of the equipment to be procured under the Project is specially designed medical equipment for dentistry (dental education) and is not manufactured in Sri Lanka. This equipment must, therefore, be imported from Japan or third countries. The following points should be noted in the planning of the selection of those equipment.

- 1) Medical equipment constantly requires the supply of spare parts and consumables. Therefore, the equipment to be selected should be easy access for the procurement of such items locally for the Faculty. In view of the convenience of maintenance, procurement priority should be given to equipment manufactured in neighbouring countries, particularly Thailand.
- 2) As imported computers and copiers, etc. are readily available in the local market, those sold in Sri Lanka should be selected in view of the convenience of maintenance.
- 3) Japanese or Thai engineers will be dispatched to Sri Lanka to supervise the installation and adjustment of equipment which requires special skills. If possible, however, the equipment installation and adjustment should generally be planned in such a way as to be handled by local labour.
- 4) Some of the equipment is vulnerable to external impact, humidity and/or high temperature and, therefore, special care must be taken in their packaging and transportation.

The planned supply sources for the main equipment are described below.

### 1) High Pressure Steam Sterilisers (Japan)

All high pressure steam sterilisers so far procured to Sri Lanka under Japanese grant aid projects are made in Japan. As manufacturer's agents and service centres are locally available, the supply of spare parts and consumables poses no problem.

### 2) Dental Units (Third Country)

While the most popular units in the world are made in Japan, the US and Germany, those units manufactured in neighbouring countries of Sri Lanka,

such as Thailand, are less expensive and offer good quality due to Japanese technical assistance. Consequently, the importation of dental units from a neighbouring country, possibly Thailand, is deemed appropriate.

3) Copiers and Computers

There are local agents for copiers and the sales and after-service systems are well established. Together with their inexpensive prices, their procurement in Sri Lanka is deemed preferable. The situation is similar for computers where those currently in use were procured locally. The local agents and service centres promise a reliable supply of spare parts and consumables.

4) Vehicles (Japan)

There are local dealers and service centres providing a reliable supply of spare parts and consumables. Nevertheless, the procurement of vehicles in Japan is preferable as the vehicle price in Sri Lanka is quite high due to the high tariff rate.

### 3.1.6 Implementation Schedule

The Project will be implemented by Japan's grant aid. If the Project is classified as a Type A project with treasury funding, the signing of the E/N by the two governments will be followed by a consultancy agreement to proceed to the detailed design stage (4 and a half months). The actual construction of the planned buildings will commence in the fiscal year 1996 and will be conducted in two stages, i.e. the tender and construction agreement stage (3 months) and the construction work stage (including equipment procurement and installation) (18 months).

(1) Detailed Design

The tender documents will be prepared based on the basic design. These documents will consist of the detailed design drawings, specifications and cost estimate, etc. The maximum difference between the above cost estimate and the cost estimate at the basic design stage should be  $\pm 10\%$ . At an appropriate time during the detailed design period, a meeting will be held with the Sri Lankan ministry responsible for the Project to obtain approval of the detailed design results. The entire work is expected to take 4 and a half months to complete.

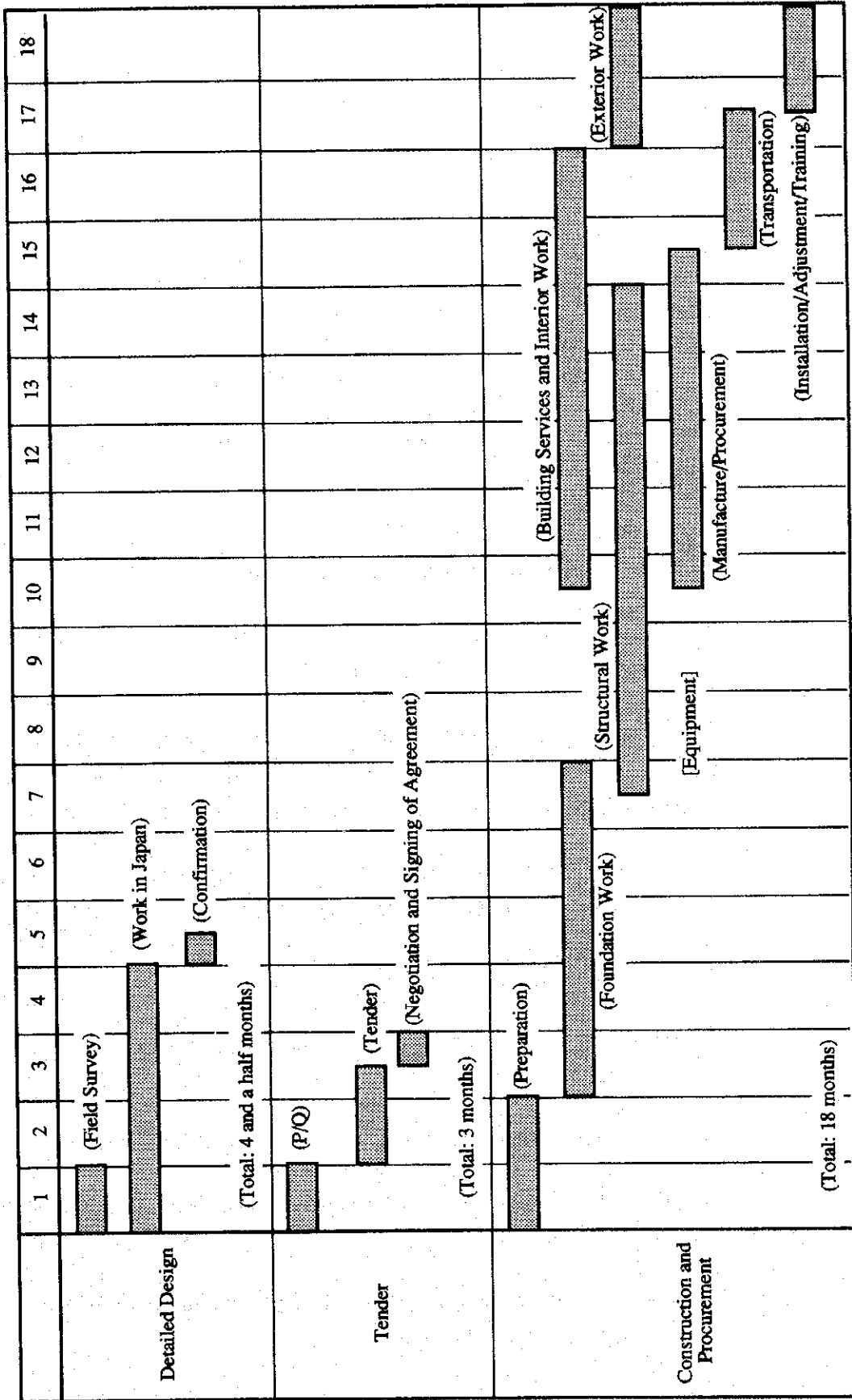
(2) Tender

Following the signing of the E/N for building construction, equipment procurement and supervision, applications for the preliminary qualification examination will be invited through public announcement in Japan. Based on the examination results, the project implementation body will invite the qualified bidders for open tender and all bids will be opened in Japan with the attendance of all related parties. It is hoped that an official of the Sri Lankan ministry responsible for the Project will also attend this occasion. As the tender will comprise open competitive bidding, the tenderer with the lowest bid will be announced as the successful tenderer and will conclude a construction agreement with the Government of Sri Lanka. Approximately 3 months will be required to complete the entire process from pre-qualification to tender and signing of the agreement.

(3) Construction Work and Equipment Procurement/Installation

Following the signing of the construction agreement, the Contractor will commence the work on receipt of the certification by the Government of Japan. In view of the size and contents of the buildings to be constructed, the time required to complete this stage is expected to be approximately 18 months provided that the procurement of construction materials and the work to be undertaken by the Government of Sri Lanka are smoothly conducted. Such equipment-related work as manufacture, procurement, transportation, installation and adjustment will be conducted in accordance with the progress of the construction work and the final handing over will coincide with the final handing over of the buildings.

Table 3-1 Project Implementation Schedule





### **3.1.7 Obligations of the Government of Sri Lanka**

Necessary Measures to be taken by the Government of Sri Lanka in case Japanese Grant Aid is extended

1. To secure the land for the site of the Project.
2. To demolish the present facilities including substructure, together with clearance and reclamation of the site prior to the commencement of the construction.
3. To construct gates and fences in and around the site.
4. To provide the land for a temporary site office, warehouse and stock yard during the implementation of the Project.
5. To provide facilities for the Project site such as the distribution of electricity, water supply, drainage and other incidental facilities.
6. To bear the commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
7. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Sri Lanka with respect to the supply of the products and services under the verified contracts.
8. To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contracts, such facilities as may be necessary for their entry into Sri Lanka and stay therein for the performance of their works.
9. To bear all expenses, other than those to be borne by the Grant Aid necessary for the execution of the Project.
10. To assign exclusive counterpart engineers/technicians for the project.
11. To use and maintain the facilities constructed under the Grant Aid properly and effectively.
12. To allocate adequate budget for operation and maintenance of the facilities constructed and equipment therein.

## **3.2 Operation and Maintenance Plan**

### **(1) Maintenance Plan**

While the Faculty of Dental Sciences of the University of Peradeniya is responsible for the maintenance of the facilities to be established under the Project, discussions are in progress with the Ministry of Health for inter-sectoral partnership with a view to achieving the efficient management of the University's dental hospital which constitutes part of the planned facilities. The idea is that the Ministry of Health will dispatch a hospital administrator, nursing staff and ancillary staffs and bear recurrent costs of the consumables and drugs, etc. which are essential for the daily operation of the hospital. In addition, it is planned to assign an external caterer to manage the canteen as part of the welfare arrangements. The general maintenance system vis-a-vis the buildings and equipment to be constructed or installed under the Project and to be implemented by the University and the Faculty is described below.

#### **1) Maintenance of Buildings**

The daily maintenance of the buildings will be conducted by the assigned staff of the Faculty with the technical assistance of the Building Maintenance Department of the University. The planned buildings will conform to the standard levels required of similar educational facilities in Sri Lanka and, in principle, all the requirements relating to the construction method, construction materials and building service equipment will be locally met. Consequently, no technical impediment in terms of the building maintenance is anticipated.

#### **2) Maintenance of Equipment**

Given the fact that there is not a strong after-service network provided by agents in Sri Lanka, an exclusive maintenance workshop to serve the Faculty of Dental Sciences will be established together with full-time maintenance staff to conduct a self-reliant maintenance and repair system. This entails an increase of the maintenance staff from the current one to 3 by the time that the new facilities are opened and the initial technical training required for the maintenance work will have been conducted by the time of the handing over of the planned facilities to the Sri Lankan side.

## (2) Personnel Cost

## 1) Basic Salaries

Table 3-2 shows the number of personnel by salary scale and total personnel cost. Based on the fiscal 1994 salary scale, the grand basic salary total is Rs 9,012,410/year.

Table 3-2 Number of Personnel by Salary Scale

(Unit: Rs/Year)

Designation	Salary Scale	No. (1998)	Annual Salary	Total
<b>Executive Grades</b>				
Dean		(1)		
Assistant Registrar	A-04	1	78,800	78,800
<b>Academic and Allied Grades</b>				
Professor Grade II	B-01	4	144,000	576,000
Associate Professor	B-02	-	-	-
Senior Lecturer Grade I	B-03 (a)	-	-	-
Senior Lecturer	B-03	37	96,550	3,572,350
Lecturer (Prob.)	B-04	31	56,100	1,739,100
Assistant Lecturer	B-05	7	46,800	327,600
Provision for Temporary Assistant Lecturers (5)			46,800	
<b>Clerical and Allied Grades</b>				
Technician Supra Grade	A-05	1	42,000	42,000
Technician Grade I	A-06	5	37,260	186,300
Technician Grade II Seg. B	A-08	20	27,500	550,000
X-Ray Technician Grade II Seg. B	A-08	4	25,020	100,080
Clerk Grade I	A-06	1	37,560	37,560
Clerk Grade III	A-09	2	23,700	47,400
Matron Special Grade	A-04	1	52,200	52,200
Nurse Grade I	A-06	6	35,760	214,560
Nurse Grade II	A-08	21	27,550	578,550
Shroff Grade II	A-07	1	34,500	34,500
Telephone Operator Cum Receptionist Grade II	A-09	1	28,500	28,500
Stenographer Grade I	A-06	-	-	-
Stenographer Grade II	A-08	2	26,460	52,920
<b>Skilled Grades</b>				
Laboratory Attendant Higher Grade	A-12	12	27,660	331,920
Female Attendant	A-13	2	21,300	42,600
<b>Semi-Skilled Grades</b>				
Laboratory Attendant Lower Grade	A-13	3	22,490	67,470
Labourer Grade I	A-12	2	24,440	48,880
Labourer Grade II	A-13	4	22,740	90,960
Sanitary Labourer Lower Grade	A-13	3	21,300	63,900
<b>Unskilled Grades</b>				
Labourer Grade III	A-14	7	21,180	148,260
<b>Total Permanent Positions and Salaries</b>		<b>178</b>		<b>9,012,410</b>

## 2) Allowances

Several types of allowances, including over-time, holiday and travelling allowances, are provided at an average rate of approximately 90% of the basic salary level. Together with these allowances, the annual personnel cost of the Faculty is approximately Rs 17,123,579 (Rs 9,012,410 × 1.9). When the Faculty of Dental Sciences is opened with new facilities at the new sites in the fiscal year 1998 with increased number of personnel, the annual personnel cost will be approximately Rs 26,944,000 (Rs 17,123,579 × 1.12<sup>4</sup>), allow for an annual pay increase rate of 12%.

## (2) Operation and Maintenance Cost

The tentative calculation results for the operation and maintenance cost of the Faculty after its re-opening at the new sites are shown in Table 3-3.

Table 3-3 Estimated Annual Operation and Maintenance Cost

(Unit: Rs)

Item	Estimate for Fiscal 1995	Fiscal 1998	Fiscal 1999 Onwards	Remarks
(1) Electricity	2,882,000	4,035,000	4,519,000	Annual increase of 12%
(2) Telephone	93,000	130,000	146,000	Annual increase of 12%
(3) Fuel for Generator	72,000	101,000	113,000	Annual increase of 12%
(4) LPG	28,000	39,000	44,000	Annual increase of 12%
(5) Consumables (General Education and Administration)	1,890,000	3,266,000	3,917,000	Annual increase of 20%
(6) Clinical Education Materials	1,836,000	3,173,000	3,808,000	Annual increase of 20%
(7) Consumables (Clinical Education)	974,000	1,683,000	2,020,000	Annual increase of 20%
(8) Operating and Ward Materials	2,770,000	3,878,000	4,343,000	Annual increase of 12%
(9) Building Maintenance	650,000	650,000	650,000	Average for 20 years
(10) Equipment Maintenance	3,905,000	2,985,000	6,143,000	Annual increase of 12%
(11) Vehicle Maintenance	80,000	138,000	166,000	Annual increase of 20%
Total	15,180,000 (12,298,000)	20,078,000 (16,043,000)	25,869,000 (21,350,000)	Lower figures exclude the electricity charge

## 1) Electricity Bill

The electricity bill is paid from the University's budget rather than from the Faculty's budget. The required budgetary appropriation to cover the electricity bill for the Faculty of Dental Sciences is estimated below.

a) Power Load Capacity

① General Load

- Lighting and Socket Outlet	130 KVA
- Training and Laboratory Work	375 KVA
- Air-Conditioning	90 KVA
- Lift	4 KVA
- X-Ray Equipment and Boiler	180 KVA

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Total 779 KVA

② 24 Hour Operation Load

- Waste Water Treatment Plant	18 KVA
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b) Maximum Power Consumption

A maximum power consumption level of 40% of the total power load capacity for the Faculty's facilities is assumed for the purpose of estimating the electricity bill.

$$779 \text{ KVA} \times 0.4 = 319 \text{ KW}$$

c) Estimation of Electricity Bill

① Basic Charge (Demand Charge)

$$319 \text{ KW} \times \text{Rs } 239/\text{KW}/\text{month} = \text{Rs } 76,241/\text{month}$$

② Unit Charge

$$779 \text{ KVA} \times 0.2 \times 8 \text{ hours} \times 20 \text{ days} \times \text{Rs } 5/\text{KWH} = \text{Rs } 124,640/\text{month}$$

$$18 \text{ KVA} \times 0.6 \times 24 \text{ hours} \times 30 \text{ days} \times \text{Rs } 5/\text{KWH} = \text{Rs } 38,880/\text{month}$$

③ Fixed Charge = Rs 408/month

$$\text{Monthly Bill} : \quad \text{①} + \text{②} + \text{③} = \text{Rs } 240,169$$

$$\text{Annual Bill} : \quad \text{Rs } 240,169 \times 12 = \text{Rs } 2,882,000$$

2) Telephone Bill

The telephone bill is estimated based on the assumption that the current annual telephone budget of Rs 83,210 for the Faculty is increased by 12% a year.

$$\text{Telephone Bill for the Fiscal year 1995: } \text{Rs } 83,210 \times 1.12 = \text{Rs } 93,195 \approx \text{Rs } 93,000$$

### 3) Generator Fuel Cost

The estimation conditions are 5 power failures/month, each lasting for 3 hours, and a fuel consumption rate of 32 litres/hour to operate the 150 KV generator.

Monthly Fuel Consumption :

$$32 \text{ litres/hour} \times 3 \text{ hours} \times 5/\text{month} = 480 \text{ litres/month}$$

Fuel Cost :

$$480 \text{ litres/month} \times 12 \text{ months} \times \text{Rs } 12.4/\text{litre} = \text{Rs } 71,424/\text{year} \approx \text{Rs } 72,000/\text{year}$$

### 4) LPG Cost

#### a) Consumption by Bunsen Burners for Testing and Research Purposes

The estimation condition is the use of 108 Bunsen burners (96 in Building A and 12 in Building B) for 30 minutes/day.

$$300 \text{ Kcal/hour} \times 108 + 12,000 \text{ Kcal/kg} = 2.7 \text{ kg/hour}$$

$$2.7 \text{ kg/hour} \times 0.5 \text{ hours/day} \times 5/7 \times 365 \text{ days} = 352 \text{ kg/year}$$

$$359 \text{ kg/year} + 40 \text{ kg/cylinder} \times \text{Rs } 894/\text{cylinder} = \text{Rs } 7,864/\text{year} \approx \text{Rs } 8,000/\text{year}$$

#### b) Consumption by Blow Pipes Used by Technicians and Students

The estimation condition is the use of 70 blow pipes (Building B) for one hour/day.

$$600 \text{ Kcal/hr} \times 70 + 12,000 \text{ Kcal/kg} = 3.5 \text{ kg/hr}$$

$$3.5 \text{ kg/hour} \times \text{one hour/day} \times 5/7 \times 365 \text{ days} = 913 \text{ kg/year}$$

$$913 \text{ kg/year} + 40 \text{ kg/cylinder} \times \text{Rs } 894/\text{cylinder} = \text{Rs } 20,405/\text{year} \approx \text{Rs } 20,000/\text{year}$$

#### c) Consumption by Gas Ranges in Canteen Kitchen

The estimation condition is the preparation of 400 meals/day.

$$400 \text{ meals/day} \times 200 \text{ Kcal/meal} + 12,000 \text{ Kcal/kg} = 6.7 \text{ kg/day}$$

$$6.7 \text{ kg/day} \times 5/7 \times 365 \text{ days} = 1,747 \text{ kg/year}$$

$$1,747 \text{ kg/year} + 40 \text{ kg/cylinder} \times \text{Rs } 894/\text{cylinder} = \text{Rs } 43,675/\text{year} \approx \text{Rs } 44,000/\text{year}$$

As operation of the canteen will be subcontracted to an external caterer, the LPG cost to run the canteen is excluded from the Faculty's operation cost. Therefore, the estimated LPG cost (a) + b)) is Rs 28,000/year.

5) Consumables for General Education and Administration

The relevant budget size of the Faculty for the fiscal year 1994 (Rs 1,574,810) is increased by an annual rate of 20%.

$$\text{Rs } 1,574,810 \times 1.2 = \text{Rs } 1,889,772 \approx \text{Rs } 1,890,000 \text{ (for fiscal 1995)}$$

6) Clinical Education Materials

The relevant budget size of the Faculty for the fiscal year 1994 (Rs 1,530,000) is increased by an annual rate of 20%.

$$\text{Rs } 1,530,000 \times 1.2 = \text{Rs } 1,836,000 \text{ (for fiscal 1995)}$$

7) Consumables for Clinical Education

The budgetary appropriation for consumables in the fiscal year 1995 budget of the Faculty is as listed below. The cost for the fiscal year 1998 (the year of the opening of the new facilities) is calculated based on an annual increase of 20%.

(Unit: Rs)

Description	Quantity	Unit Price	Amount
1. Modelling Clay - 500 gm	170 packs	400	68,000
2. Denture Base Material (450 g powder, 275 ml liquid, 110 ml cold mould seal)	72 packs	750	54,000
3. Impression Compound - 250 gm	50 packs	860	43,000
4. Alginate Impression Material - 454 gm	200 packs	270	54,000
5. Artificial Acrylic Teeth - Full Set (set of 28 teeth)	720 full sets	235	169,200
6. Artificial Acrylic Teeth - Upper Anterior (set of 6)	340 sets	58	19,720
7. Artificial Acrylic Teeth - Lower Anterior (set of 6)	100 sets	58	5,800
8. Artificial Acrylic Teeth - Lower Posterior (set of 6)	340 sets	58	19,720
9. Artificial Acrylic Teeth - Upper Posterior (set of 6)	340 sets	58	19,720
10. Plaster of Paris (soft) - 30 kg bag	50 bags	750	37,500
11. Rapid Repair Powder - 110 gm	24 bottles	245	5,880
12. Rapid Repair Liquid - 110 ml	36 bottles	245	8,820
13. Cotton Wool - 500 gm	200 rolls	99	19,800
14. Vivalloy HR - 30 gm	84 bottles	575	48,300
15. X-Ray Film Periapical (box of 150 sheets)	40 boxes	1,575	63,000
16. X-Ray Film Occlusal (box of 25 sheets)	36 boxes	1,365	49,140
17. Colour Slide Film - 36 Exp.	40 boxes	360	14,400
18. Colour Print Film - 36 Exp.	36 boxes	164	5,904
19. Local Anaesthetic (Xylestesin-s) - 50 cartridges	140 tins	645	90,300
20. Disposable Surgical Gloves - Medium (box of 100)	75 boxes	400	30,000
21. Disposable Surgical Gloves - Large (box of 100)	25 boxes	400	10,000
22. Disposal Surgical Gloves - Small (box of 100)	50 boxes	400	20,000
23. Dental X-Ray Developer - 500 ml (to make 2.5 litres)	24 bottles	160	3,840
24. Dental X-Ray Fixer - 500 ml (to make 2.5 litres)	24 bottles	142	3,408
25. Disposable Dental Cartridge Needles - Long (box of 100)	50 boxes	550	27,500
26. Disposable Dental Cartridge Needles - Short (box of 100)	75 boxes	550	41,250
27. Gauze - 100 yards	30 rolls	795	23,850
28. Savlon - 5 litres	6 cans	1,510	9,060
29. Surgical Spirit - 5 litres	8 cans	335	2,680
30. Methylated Spirit - 625 ml	150 bottles	40	6,000
<b>Total Amount</b>			<b>973,792</b>



#### 8) Operations and Ward Cost

The estimated cost by item for the fiscal year 1995 based on 1,600 operations/year is given below with the cost for the fiscal year 1998 and the subsequent year calculated on the basis of an annual increase of 12%.

(Unit: Rs/year)

Item	Operations	Ward	Total
1. Pharmaceuticals	605,000	711,000	1,316,000
2. Disposable Items	405,800	125,000	530,800
3. Other Consumables	217,700	149,400	367,100
4. Medical Gas			
- N2O (475 kg)	100,000	-	100,000
- O2 (35,000 ft <sup>2</sup> )	300,000	-	300,000
5. Meals for In-Patients	-	80,000	80,000
6. Laundry	76,000	-	76,000
Total	1,704,500	1,065,400	2,769,900

#### 9) Building Maintenance Cost

The building maintenance cost consists of the building and building services maintenance cost and the fixture and furniture maintenance cost. Although the actual maintenance cost level greatly alters with the passing of time, the common practice in Sri Lanka is to use an average annual maintenance cost of Rs 50/m<sup>2</sup> for a 20 year period.

$$\text{Rs } 50/\text{m}^2/\text{year} \times 12,177 \text{ m}^2 = \text{Rs } 608,850/\text{year} \approx \text{Rs } 600,000/\text{year}$$

In the case of the lift, a maintenance agreement will be concluded with an agent at a fixed price.

Annual maintenance cost of lift: Rs 50,000

The total building maintenance cost is, therefore, Rs 650,000/year.

#### 10) Equipment Maintenance Cost

The annual maintenance cost for the 8 major equipment (cost value: more than ¥1 million of each) will be approximately ¥7,216,000 (Rs. 3,905,000) based on 1995 cost estimation as shown in Table 4-4, 5.

① Cost for the Fiscal Year 1998

When the Faculty is opened at new site in the fiscal year 1998, all equipment is guaranteed by the maker for the period of 1 year after handing over the equipment. And consumables for the equipment is also supplied by the maker for the period of three months by no charge after handing over the equipment. Therefore, the cost for the fiscal year 1998 is estimated with annual increased rate of 12% as below.

Charge for Maintenance Contract (0) + Cost for Spare parts (0)

$$\text{Consumable Cost (¥5,236,000)} \times \frac{9}{12} \times (1.12)^3 = ¥5,517,000 \doteq \text{Rs. 2,985,000}$$

② Fiscal Year 1999 Onwards

The cost for the fiscal year 1999 is estimated with annual increased rate of 12% as below.

$$¥7,126,000 \times (1.12)^4 = ¥11,355,000 \doteq \text{Rs. 6,143,000}$$

③ Renewal Expenses for Equipment

It is estimated that an approximate durable length of time for the major equipment is applied as 8 years as average. Depreciation reserves for the equipment renewal in the future is calculated by the following formulation

$$\text{Depreciation Reserves} = \frac{\text{Equipment Cost } 90\%}{\text{Depreciation Period (Durable Year)}}$$

Therefore, it is necessary to provide the certain depreciation reserves in the Faculty's annual budget for the future equipment renewals.

11) Vehicle Maintenance Cost

The relevant items in the Faculty's budget for the fiscal year 1994 are the petrol cost (Rs 25,000) for official cars and the maintenance cost (Rs 41,640), totalling Rs 66,640. The vehicle operation and maintenance cost for the coming years is calculated based on an annual increase of 20% using the fiscal year 1994 as the base year.

$$\text{Rs } 66,640 \times 1.2 = \text{Rs } 79,968/\text{year} = \text{Rs } 80,000/\text{year (fiscal 1995)}$$

## 12) Water Bill

As water is supplied by the University, each department's water bill shall not be included in the department budgets, but shall be treated as part of the operating expenses of the University headquarters. The trial calculation of the water bill shall, therefore, be performed based on the basic charge (3.6 Rs/m<sup>3</sup>) collected from each of the current on-campus residents (4,000 people as of 1995). The water consumption levels and water rates at the time of the opening of the new facilities are estimated in the following manner.

### ① Water Consumption Estimate

Staff	178	×	100 litres/person/day	=	17,800 litres/day
Students	400	×	90 litres/person/day	=	36,000 litres/day
Out-Patients	200	×	10 litres/person/day	=	2,000 litres/day
Ward	40	×	200 litres/person/day	=	8,000 litres/day
<hr/>					
	Total				63,800 litres/day
					≐ (= 64 m <sup>3</sup> /day)

$$\begin{aligned} \text{Annual water consumption} &= (64 \text{ m}^3/\text{day} \times 30 \text{ days} \times 9 \text{ months}) \\ &+ (64 \text{ m}^3/\text{day} \times 0.7 \times 3 \text{ months}) = 21,312 \text{ m}^3/\text{year} \end{aligned}$$

### ② Average Hourly Consumption

$$\begin{aligned} &(17,800 \text{ litres} + 8 \text{ hours}) + (36,000 \text{ litres} + 6 \text{ hours}) + (2,000 \text{ litres} + 4 \text{ hours}) \\ &+ (8,000 \text{ litres} + 12 \text{ hours}) = 9,392 \text{ litres/hour} (= 157 \text{ litres/minute}) \end{aligned}$$

### ③ Peak Consumption Level

$$157 \text{ litres/minute} \times 2 = 314 \text{ litres/minute}$$

### ④ Annual Water Bill

- At time of estimation in 1995 =  
 $21,312 \text{ m}^3/\text{year} \times 3.6 \text{ Rs/m}^3 = 76,723 \text{ Rs/year} \approx 77,000 \text{ Rs/year}$
- At time of opening in 1988 =  $77,000 \text{ Rs/year} \times (1.12)^3 \approx 109,000 \text{ Rs/year}$   
(Annual increase of 12%)

At present, the water consumption level is estimated to be approximately 48 m<sup>3</sup>/day for 140 staff members, 353 students and 150 out-patients. It is estimated that this will rise by roughly 30% following the opening of the new facilities.

Table 3-4 Breakdown of Main Equipment Maintenance Costs (1)

No.	Equipment	Maintenance Contract			Maintenance Parts			Expendable Items				Total (\$1,000)	Depreciation Service Life	Remarks
		Unit/Times	Times	Amount (\$1,000)	Part name	Unit Price	Quantity	Amount (\$1,000)	Part name	Unit Price	Quantity			
1	Anaesthesia machine (vaporizer only) Operating days : 260 days Patients : 2/day Equipment cost : \$3,600,000	Annual contract		75				0	Anesthetic (Halothane) (Isoprene)	1.50 25.50	100 35	150 893	8 years	• Not including power cost
		Total		75	Total			0	Total			1,043	405	
2	Electrocardiograph Operating days : 260 days Patients : 30/day Record paper : 1 roll/50 patients Equipment cost : \$940,000	Annual contract		80	Thermal bed	31	1	31	Record paper	0.01	7,800	78	8 years	• Not including power cost
		Total		80	Others	212	1	212	Throwaway electrodes Paste	0.13 0.001	260 17,800	338 1	106	
3	Electromyograph Operating days : 260 days Patients : 5/day Record paper : 1 roll/50 patients Equipment cost : \$3,040,000	Annual contract		120	Power supply	223	1	223	Record paper	0.25	1,300	325	8 years	• Not including power cost
		Total		120	Others	184	1	184	Electrodes Paste	0.90 0.001	260 1,300	234 1	342	
4	Orth-Phantom X-Ray machine Operating days : 260 days Patients : 10/day Equipment cost : \$1,821,000	Annual contract		150	Film cassettes	19	6	114	X-Ray film	0.15	5,200	780	8 years	• Not including power cost
		Total		150	Others	92	1	92	Developer/Fix solution	0.001	5,200	52	205	
					Total			206	Total			832		
					Total			206	Total			1,188		

Table 3-5 Breakdown of Main Equipment Maintenance Costs (2)

No.	Equipment	Maintenance Contract			Maintenance Parts			Expendable Items				Total		Depreciation		Remarks
		Unit/Times	Times	Amount (¥1,000)	Part name	Unit Price	Quantity	Amount (¥1,000)	Part name	Unit Price	Quantity	Amount (¥1,000)	Amount (¥1,000)	Service Life		
5	Polygraph Operating days : 260 days Investigations : 5 patients/day Record paper : 1 roll/50 patients Equipment cost : ¥4,131,000	Annual contract		100				0	Record paper	0.02	1,300	26		8 years	• Not including power cost	
		Total		100	Total			0	Total			26	126	465		
		Annual contract		58	Minor parts	22	1	22			0.02	3,900	780			8 years
6	Automatic blood cell counter Operating days : 260 days Specimens : 15/day Equipment cost : ¥2,150,000	Total		58	Total			22	Total			780	860	242	• Case where all items are investigated • Minor parts refers to lamps, switches etc. and account for 1% of the equipment cost	
		Annual contract		64	Film cassettes	35	6	210	Film	0.38	2,600	988		8 years		
		Total		64	Others	165	1	165	Developer-Fix solution	0.01	2,600	26		8 years		
7	X-Ray Unit Operating days : 260 days Investigations : 10 patients/day Equipment cost : ¥8,547,000	Annual contract		64	Total			375	Total			1,014	1,453	962	• Not including power cost	
		Total		64	Total			375	Total			1,014	1,453	962		
		Annual contract		80				0	Gasoline	0.03	15,600	468		5 years		
8	Mini-bus Operating days : 260 days Travelling distance : 60km/day Equipment cost : ¥4,922,000	Total		80	Total			0	Total			6	644	886		
		Annual contract		80				0	Oil	2.00	3	6		886		
		Total		727	Total			1,253	Tires	30	3	90	564	3,613		
Total (1 - 8)												5,236	7,216			

Annual equipment maintenance cost      ¥7,216,000      (Rp. 3,905,000)

Annual total equipment depreciation      ¥3,613,000      (Rp. 1,955,000)

(¥1 = Rs. 0.541)

## **CHAPTER 4**

# **PROJECT EVALUATION AND RECOMMENDATIONS**



## **CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATIONS**

### **4.1 Project Effect**

#### **(1) Verification of Project Suitability**

The implementation of the Project with Japan's grant aid is deemed appropriate due to the following reasons.

- 1) The Project is strongly linked to the promotion of manpower resources development in the social infrastructure field which is one of the priority tasks of the 13th 5-Year Investment Programme of the Government of Sri Lanka and is in line with such major government policies as expansion of university facilities, qualitative improvement of teaching staff, rectification of the inter-regional gap in medical services, consolidation of the PHC and increase the number of medical personnel, etc. Consequently, it is judged that the Project will significantly contribute to the development and progress of such policies.
- 2) The main objective of the Project is to achieve a comprehensive improvement of all educational functions of the Faculty of Dental Sciences, University of Peradeniya through the construction and improvement of the relevant facilities and equipment so that the Faculty can further contribute to the above mentioned policies of the Government of Sri Lanka. As the Faculty plays an important social role as the only public training institution for dental education in the country, the urgent implementation of the Project is sought.
- 3) The components of the request for Japanese grant aid made by the Faculty do not include items which ignore the current reality of the local socioeconomic conditions, higher education and dental services, the effects of which cannot be expected to endure because of such indifference to the current reality. All the components of the request are designed to improve the quality of education and training and, therefore, are highly viable.
- 4) The examination results of the Faculty's budgetary requirements in the future based on the past performance suggest that the required budget to effectively and efficiently run the new facilities and equipment is likely to be met. The Project is judged to be the type of project whereby the project implementation body (the Faculty) can continue to develop the maintenance and operation levels following the Project's completion.



- 5) The Project will ensure higher clinical and diagnostic skills on the part of dentists graduating from the Faculty in the future. As a result, the early detection and treatment of oral diseases will be facilitated. Together with improved education and training on dental hygiene, the level of preventive oral health care in Sri Lanka will be much improved and the achievement of oral health will lead to improved health care of the entire body. The beneficiaries of the Project are judged to be the entire population of Sri Lanka which will be the final beneficiaries of the country's improved health care.

## (2) Benefits of the Project

The implementation of the Project is expected to have the following benefits vis-a-vis the current conditions and problems of the Faculty of Dental Sciences, University of Peradeniya, the sole dental training institution in Sri Lanka, and general oral health care throughout the country.

### 1) Basic Medical Educational Facilities and Equipment for Exclusive Use by the Faculty

So far, the Faculty has been obliged to use the facilities of the Faculty of Medicine for its general medical education. With the increased student intake by the latter in the Faculty of Medicine, however, it has become difficult to continue to receive assistance from the Faculty of Medicine because of the shortage of its facilities. The implementation of the Project will provide basic medical educational facilities and equipment, which form the basis for dental education, for exclusive use by the Faculty of Dental Sciences to improve the level of basic medical education.

### 2) Fully Functioning Facilities and Equipment for Clinical Education

The new establishment of the Division of Dento-Maxillofacial Radiology, pathological, physiological and biochemical testing functions, the pharmacy and the CSSD together with modern medical equipment will establish a full clinical function and will a drastic qualitative and quantitative improvement of the present conditions, making it possible to achieve a qualitative and quantitative improvement of clinical education (practical training of clinical skills).

3) Expanded Operations and In-Patient Facilities at the Department of Oral and Maxillofacial Surgery

The implementation of the Project will qualitatively and quantitatively improve the clinical training of students in terms of surgical operations and in-patient treatment which have so far been inadequate. The number of operations will be increased by some 1,100% from 142 cases (in 1994) to 1,600 cases/year. The establishment of an oral surgery ward with 40 beds will provide an adequate in-patient treatment capacity.

4) Introduction and Development of New Teaching and Training Methods

The provision of audio-visual educational equipment and medical cameras and video cameras, etc. for the production of teaching materials will facilitate the development of new teaching and training methods and techniques to improve the Faculty's under-graduate and post-graduate education systems. The opportunity for staff to fully utilise their abilities will help to prevent the brain drain.

5) Planned Increase of Student Intake

The Faculty plans to gradually increase the annual intake of under-graduate students from the current 75 to 100 in the fiscal year 1999. As the Project will provide the necessary facilities to accommodate an increase number of students, its possible effect in terms of consolidating the educational infrastructure to meet the national demand for more dentists will be invaluable.

6) Post-Graduate and Technical Training Courses

The improved educational facilities will be able to provide post-graduate courses (which commenced in 1986), consultant degree courses (use of the facilities at the request of the Colombo Dental Research Institute), technical training courses (for dental technicians and dental hygienists) and refresher courses for practicing dentists to respond to the demand for post-graduate courses (currently 2 - 4 students/year), diploma courses (currently 18 students), consultant degree courses (currently 15 students) and technical training courses (currently 39 students).

#### 7) Increased Number of Dentists in 10 Years

At present, Sri Lanka has 690 practicing dentists and the ratio of dentists per 100,000 people is 3.9 which is much lower than the average of 30 in industrialised countries. If the implementation of the Project improves the Faculty's social reputation, preventing the troubling trend of a brain drain to other countries and facilitating the education of dentists practicing in Sri Lanka, the number of the country's practicing dentists can be doubled in the next 10 years.

In the 10 year period from 1995 to 2004, the Faculty will be able to produce a maximum of approximately 860 new dentists. If some 80% of these commence work as dentists (the drop-out rate is 20% due to repetition of the same year and other reasons), Sri Lanka will have 690 new dentists, rivalling the total number of dentists practicing today. Assuming that the total number of practicing dentists in the year 2004 is 1,250 (690 at present  $\times$  0.9 (10% reduction due to retirement, etc. in 10 years) + 690 new dentists), the dentist ratio per 100,000 people will improve to 6.25 (estimated population of Sri Lanka of 20 million based on an annual population increase rate of 1.11% recorded in 1993). Based on the same assumption, the target level of 1,050 practicing dentists by the year 2000 in the national health plan can be achieved.

#### 8) Improved Dental Care

The implementation of the Project will undoubtedly consolidate the manpower development basis for dentistry. As secondary facilities of the Department of Oral and Maxillofacial Surgery, the expanded oral surgery and ward facilities will deal with many more clinical cases than at present, possibly from all corners of the country. This will further consolidate the status of the Department of Oral and Maxillofacial Surgery as a referral facility for all oral surgeons in Sri Lanka, thereby improving the nationwide referral system for dental care in general and oral surgery in particular. The consolidation of the post-graduate courses planned by the Faculty will contribute to the retraining of practicing dentists.

The clinical units of the Faculty's 7 departments/divisions treated some 20,000 patients in 1994 with the average daily treatment of 80 - 110 patients. The Project will enable the Faculty to provide modern dental care for some 50,000 patients/year (2.5 times more patients than at present) with the average daily

treatment of 200 - 270 patients. This is almost equivalent to one-third of the annual dental treatment of 152,366 cases in the Kandy Region in 1993.

#### 9) Improved Dental Care System in Sri Lanka

According to a report entitled Oral Health Plan 1988 - 2000, the present dental care system in Sri Lanka provides dentistry cover for only 5.5% of the country's prospective dental patients. The ratio of patients receiving restorative treatment for decayed teeth is 5.3% for those of 12 years of age and 3.3% for those aged between 33 and 44. This low dental care service level is mainly the result of the shortage of not only dentists but also the necessary facilities and equipment which cannot properly meet the needs for dental treatment.

The implementation of the Project will have great benefits in terms of improving the various oral surgery facilities of the Faculty and knock-on effects on the country's dental care system in which graduates of the better equipped Faculty will work. It is hoped that the real extent of these benefits of an improved dental care system in Sri Lanka will be assessed in 10 years time vis-a-vis the following targets.

#### Improvement Targets for Dental Care System

- ① Preventive dental care for 12 year olds will be promoted to maintain the present DMF index of 1.9.
- ② The ratio of 12 year olds suffering from decayed teeth will be halved from the present 62% to 32%.
- ③ The ratio of 6 year olds suffering from initial tooth decay will be reduced from the present 78% to 68%.
- ④ With improvement of the F index for 35 - 44 year olds, the value of the M index will be reduced while maintaining the level of the DMF index.
- ⑤ The ratio of 35 - 44 year olds requiring dental treatment will be reduced from the present 80% to 55%.
- ⑥ The ratio of 12 year olds receiving scaling treatment will increase to 90% with the 100% prevention or elimination of diseases of the periodontium.
- ⑦ The ratios of 35 - 44 year olds receiving scaling treatment and periodontal treatment will improve to 60% and 80% respectively.

- ⑧ Reduce by half the loss of teeth among persons of 65 and over.
- ⑨ The number of patients suffering from oral mucosal lesions or oral tumours will be halved. (The oral cancer patient ratio will drop from 10.2 persons per 100,000 to 5.1 persons per 100,000.)

## 4.2 Recommendations

As was described in Section 4.1, the effects that can be expected from the Project are enormous, and moreover, the Project will contribute to improving the health of citizens via its impact on oral health. It is thus judged that implementation of the Project will be highly significant. However, prior to Project implementation, the following issues need to be clarified, and if such areas are dealt with, Project implementation will become smoother and more effective.

### (1) Securing of department staff and Ministry of Health support staff

It is necessary to carry out the staff increases (23 more instructors and 15 more other staff by the time the Project facilities open in 1998) required for effective Project implementation. It is necessary to obtain firm commitments regarding the necessary staff increase budget measures from the supervisory Ministry of Higher Education and the University Grants Commission (UGC). Moreover, with regard to the management of the dental hospital service, the Ministry of Higher Education and the Ministry of Health need to hold consultations with a view to obtaining the latter's assurance on the provision of support staff (40 members).

### (2) Securing of budget for facility maintenance and management

As with the above mentioned staff expansion budget, it is necessary to clarify the positioning and support setup for the Project within University of Peradeniya, and to obtain the clear commitment of the University Grants Commission (UGC) and financial authorities concerning the budget. Concerning the necessary recurrent cost to maintain the dental hospital in the new facilities, it is desirable to obtain the certain assistance from the Ministry of Health which is now under discussions among the Ministries of Health and Higher Education. Moreover, the expansion of the already existing system of collecting treatment charges from patients to encompass hospitalization charges for the ward division, and the use of such income to partially cover the facility management costs, in order to relieve the budget burden are also considered to be necessary measures.

(3) Establishment of waste treatment methods for environmental preservation

As an environmental consideration, it is important that a system is set up whereby all waste materials generated from the facilities are collected by type and treated properly. General waste, plaster and other dental waste, and syringes and other medical treatment and infectious waste are to be collected separately. It is important that combustible waste products be burned in an incinerator and that other special waste products be entrusted to disposal contractors with reliable treatment facilities by the Faculty in order to ensure the full treatment of waste away from the Project facilities.

(4) Necessity of advancement of the improvement of dental health facilities by the Ministry of Health

In order for the graduates of the Faculty which will receive modern oral health teaching materials through implementation of the Project, to establish themselves in large numbers as doctors in the field of oral health in Sri Lanka, it will be necessary for the Ministry of Health to continue promoting the improvement of each level's oral health facilities. This is because such facilities will become the work places of these doctors. The level to which oral disease rates in Sri Lanka are improved in the future is seen to be dependent on the Government of Sri Lanka's efforts in improving the oral health facilities within the health agencies on each level.

## **APPENDIX**

- 1. Member List of the Survey Team**
- 2. Survey Schedule**
- 3. List of Party Concerned in the Recipient Country**
- 4. Minutes of Discussion**
- 5. Cost Estimation Borne by the Government of Sri Lanka**
- 6. Geological Record of Boring**

## 1. Member List of the Survey Team

### 1.1 Basic Design Study Team (March 15, 1995 - April 6, 1995)

Leader	Dr. Yujiro Handa	Senior Lecturer Gifu University School of Medicine
Technical Advisor	Dr. Akitsugu Ouchi	Health & Hygiene Division Welfare and Health Department Akita Prefecture
Project Coordinator	Mr. Hiroyuki Kinomoto	First Basic Design Study Division Grant Aid Study & Design Department JICA
Architectural Planner	Mr. Taizo Shishido	Matsuda Consultants International Co., Ltd.
Architectural Designer	Mr. Akihiko Takeuchi	Matsuda Consultants International Co., Ltd.
Facilities Planner	Mr. Yasuaki Kawabe	Matsuda Consultants International Co., Ltd.
Equipment Planner	Mr. Kazuhiro Abe	Matsuda Consultants International Co., Ltd.
Cost Estimator	Mr. Kazuomi Okamura	Matsuda Consultants International Co., Ltd.

### 1.2 Basic Design Study Draft Report Explanation Team (July 23, 1995 - July 31, 1995)

Leader	Dr. Yujiro Handa	Senior Lecturer Gifu University School of Medicine
Technical Advisor	Dr. Izumi Masui	Expert on Oral Health Education Dental Health Division Health Policy Bureau Ministry of Health & Welfare
Project Coordinator	Ms. Junko Inami	First Basic Design Study Division Grant Aid Study & Design Department JICA
Architectural Planner	Mr. Taizo Shishido	Matsuda Consultants International Co., Ltd.
Equipment Planner	Mr. Kazuhiro Abe	Matsuda Consultants International Co., Ltd.



## 2. Survey Schedule

### 2.1 Survey Schedule of Basic Design Study Team

Day Order	Date	Day Week	Contents
1st	March 15th	WED	• Narita → Singapore → Colombo
2nd	16th	THU	• Market Survey, Data Arrangement
3rd	17th	FRI	• Courtesy call to JICA, Embassy of Japan • Colombo → Kandy • Courtesy call to the Faculty of Dental Sciences, University of Peradeniya (Submission & Explanation of Inception Report & Questionnaire)
4th	18th	SAT	• Discussion with the Faculty-1 (General) • Inspection of Project Site, the Faculties of Dental Sciences and Medicine • Data Arrangement (Project Coordinator joined)
5th	19th	SUN	• Inspection of Peradeniya Campus, Peradeniya Teaching Hospital • Data Arrangement
6th	20th	MON	• Discussion with the Faculty-2 (Overall Guidance) • Observation of Actual Execution of the Final BDS (Part I) Examination of the Faculty of Dental Sciences • Discussion with the Faculty-3 (Common Facilities, Schedule)
7th	21st	TUE	• Discussion with the Faculty-4 (Oral Medicine) • Discussion with the Faculty-5 (Dento-Maxillofacial Radiology)
8th	22nd	WED	• Discussion with the Faculty-6 (Oral Pathology/Community Dentistry) • Discussion with the Faculty-7 (Paedodontics/Orthodontics)
9th	23rd	THU	• Discussion with the Faculty-8 (Oral and Maxillofacial Surgery) (Architectural Planner joined) • Discussion with the Faculty-9 (Periodontology/Pharmacology/Microbiology)
10th	24th	FRI	• Discussion with the Faculty-10 (Anatomy/Physiology Common Facilities) • Discussion with the Faculty-11 (Biochemistry/Others) (Dr. Ouchi Lus. Colombo)
11th	25th	SAT	• Discussion with the Faculty-12 (Restorative/Prosthetic/Common Facilities) • Data Arrangement/Analysis/Study
12th	26th	SUN	• Data Arrangement/Analysis/Study • Internal Meeting (Cost Estimator joined) • Data Arrangement/Analysis/Study

Day Order	Date	Day Week	Contents
13th	March 27th	MON	(Member of Officers: Kandy → Colombo) In Colombo: <ul style="list-style-type: none"> <li>• Signing on Minutes of Discussion</li> <li>• Report to JICA &amp; EOJ</li> </ul> In Kandy: <ul style="list-style-type: none"> <li>• Inspection of the Site &amp; Surroundings</li> <li>• Market Survey</li> <li>• Data Analysis &amp; Study</li> </ul>
14th	28th	TUE	Inspection of the Existing Facilities of the Faculty (Basic Sciences) <ul style="list-style-type: none"> <li>• Discussion with the Faculty-13 (Facility Plan/Computer System/Planning Criteria of the Equipment)</li> <li>• Discussion with Maintenance Dept.-1 (Infra-Structure/Maintenance cost/Water, Power, Drainage &amp; Others) (Dr. Handa, Mr. Kinomoto Lvs. Colombo)</li> </ul>
15th	29th	WED	<ul style="list-style-type: none"> <li>• Discussion with the Faculty-14 (Oral Medicine/Radiology/Paedodontics/Orthodontics/Community Dentistry)</li> <li>• Discussion with the Faculty-15 (Microbiology/Pharmacology/Common Facilities)</li> <li>• Received Answer for Questionnaire</li> <li>• Discussion with Maintenance Dept.-2 (Infra-Structure/Maintenance Cost)</li> <li>• Market Survey</li> </ul>
16th	30th	THU	<ul style="list-style-type: none"> <li>• Discussion with the Faculty-16 (Oral and Maxillofacial Surgery/Oral Pathology/Dental Anatomy and Histology)</li> <li>• Discussion with the Faculty-17 (Biochemistry/Physiology/Common Facilities)</li> </ul> (Cost Estimator : Kandy → Colombo)
17th	31st	FRI	<ul style="list-style-type: none"> <li>• Discussion with the Faculty-18 (Prosthetics/Restoratives/Periodontology/Common Facilities)</li> <li>• Discussion with Maintenance Dept.-3 (Infra-Structure/Maintenance Cost)</li> <li>• Discussion with the Faculty-19 (Common Facilities/Maintenance/Annual Budget/Summary of Discussions)</li> </ul>
18th	April 1st	SAT	<ul style="list-style-type: none"> <li>• Discussion with Local Contractor (Cost Estimator Lvs. Colombo) concerning Soil Investigation</li> <li>• Inspection of PGRC/Market Survey</li> <li>• Kandy → Colombo</li> </ul>
19th	2nd	SUN	<ul style="list-style-type: none"> <li>• Data Arrangement/Market Survey (Cost Estimator Arrive Narita)</li> <li>• Internal Meeting</li> </ul>
20th	3rd	MON	<ul style="list-style-type: none"> <li>• Visiting UGC for obtaining Data/Medical Equipment's Market Survey</li> <li>• Inspection of Dental Institute, Colombo</li> <li>• Inspection of Related Facilities/Inspection of Medical Equipment's Agent (Youth Center, University of Sri Jayawardenepura)</li> </ul>
21st	4th	TUE	<ul style="list-style-type: none"> <li>• Internal Meeting</li> <li>• Report to JICA &amp; EOJ</li> </ul>
22nd	5th	WED	• Colombo → Singapore
23rd	6th	THU	• Singapore → Narita

## 2.2 Survey Schedule of Basic Design Study Draft Report Explanation Team

Day Order	Date	Day Week	Contents
1st	July 23rd	SUN	<ul style="list-style-type: none"> <li>Narita → Singapore → Colombo</li> <li>Narita → Bangkok (Equipment Planner)</li> </ul>
2nd	24th	MON	<ul style="list-style-type: none"> <li>Courtesy call to JICA, Embassy of Japan</li> <li>Courtesy call to Dept. of External Resources, UGC, Ministry of Education &amp; Higher Education, Ministry of Health</li> <li>Colombo → Kandy</li> </ul> (Equipment Planner) <ul style="list-style-type: none"> <li>Bangkok : Market Survey of Dental Chair Unit</li> <li>Bangkok → Colombo</li> </ul>
3rd	25th	TUE	<ul style="list-style-type: none"> <li>Discussion with the Faculty-1 (Explanation of Outline of Report)</li> <li>Discussion with the Faculty-2 (Layout of Basic Sciences Section)</li> </ul> (Equipment Planner) <ul style="list-style-type: none"> <li>Courtesy call to JICA</li> <li>Colombo → Kandy</li> <li>Joint to Discussion with the Faculty-2</li> </ul>
4th	26th	WED	<ul style="list-style-type: none"> <li>Discussion with the Faculty-3 (Layout of Clinical Section)</li> <li>Discussion with the Faculty-4 (Equipment Plan-1)</li> <li>Presentation to Vice Chancellor (Outline of Basic Design Report)</li> </ul>
5th	27th	THU	<ul style="list-style-type: none"> <li>Discussion with the Faculty-5 (Summary of Architectural Plan/Preparation of Minutes of Discussion)</li> <li>Discussion with the Faculty-6 (Equipment Plan-2) (Member of Officers: Kandy → Colombo)</li> </ul>
6th	28th	FRI	In Colombo: Member of Officers <ul style="list-style-type: none"> <li>Signing on Minutes of Discussion</li> <li>Courtesy call to JICA &amp; EOJ</li> </ul> In Kandy: Member of Consultants <ul style="list-style-type: none"> <li>Discussion with the Faculty-7 (Summary of Equipment Plan)</li> <li>Kandy → Colombo</li> </ul>
7th	29th	SAT	<ul style="list-style-type: none"> <li>Member of Officers : Colombo → Singapore</li> <li>Member of Consultants : Visiting Local Agent (Dental Chair)</li> </ul>
8th	30th	SUN	<ul style="list-style-type: none"> <li>Member of Officers : Singapore → Narita</li> <li>Member of Consultants : Colombo → Singapore</li> </ul>
9th	31st	MON	<ul style="list-style-type: none"> <li>Member of Consultants : Singapore → Narita</li> </ul>

### 3. List of Party Concerned in Sri Lanka

#### 3.1 Concerned Persons on the Sri Lankan side

- 1) Ministry of Education and Higher Education
  - Mr. M.D.D. Pieris Secretary
  - Mr. C. Abeygunawardena Additional Secretary
- 2) Ministry of Health, Highways & Social Services
  - Dr. Dudley Dissanayake Secretary
  - Dr. K.C.S. Dalpatadu Deputy Director General (Planning)
- 3) Department of External Resources, Ministry of Finance
  - Mrs. D.D.J. Kudaligama Director
- 4) University Grants Commission
  - Prof. S. Tilakaratna Chairman
  - Mr. Piyasena Additional Secretary, Academic
- 5) University of Peradeniya
  - Chancellor and Officers
    - Prof. C.M. Madduma Bandara Vice-Chancellor
    - Mr. Wimal Dissanayaka Register
    - Mr. M.K.S. Kumarage Bursar
    - Mr. W.B. Adikram Deputy Register
  - The Faculty of Dental Sciences
    - Core Group of Master Building Plan Committee —
    - Prof. A.N.I. Ekanayaka Dean/Community Dentistry
    - Dr. R.L. Wijeyeweera Chairman of Master Building Plan Committee/Paedodontics
    - Prof. N.A. de S. Amaratunga Oral Surgery
    - Prof. B.R.R.N. Mendis Oral Pathology

Prof. L. Tillekeratne	Restorative
Dr. A.W. Ranasinghe	Oral Medicine
Dr. A.J. Pitigala Arachchi	Physiology

— Other Departmental and Divisional Heads —

Dr. Ms. S.L. Ekanayake	Community Dentistry
Dr. T. Anandamoorthy	Prosthetics
Dr. Ms. S.P.N.P. Nagaratne	Orthodontics
Dr. Ms. P.S. Rajapakse	Periodontology
Dr. S.M.X. Corea	Pharmacology

— Other Qualified Academic Staff —

Dr. (Ms.) N.C. Wanigasooriya	Orthodontics
Dr. S.L. Herath	Community Dentistry
Dr. V. Vijayakumaran	Paedodontics
Dr. S. Premaraj	Orthodontics
Dr. J.K.D.J.A.U. Jayawardena	Paedodontics
Dr. K. Ravindran	Community Dentistry
Dr. K. Ravindran	Community Dentistry
Dr. I.W.A.P.D. Palipana	Paedodontics
Mrs. M.K. Bandranayake	Orthodontics
Dr. E.A.P.D. Amaratunga	Oral Pathology
Dr. W.M. Tilalaratne	Oral Pathology
Dr. J.U. Weerasinghe	Oral Surgery
Dr. (Ms.) S. Ranasinghe	Anesthetist
Dr. K.A. Wettasinghe	Restorative Dentistry
Dr. J.V.A.P. Jayasinghe	Prosthetic Dentistry
Dr. (Ms.) K. Ravindran	Prosthetic Dentistry
Dr. A. Chandrasekera	Periodontology
Dr. (Ms) Y. Arudehelvan	General Anatomy

Dr. P. Samaraweera	General Anatomy
Dr. (Ms) T. Ramesh	Dental Anatomy & Histology
Dr. (Ms) J.K. Chandrasekera	Physiology
Dr. W.R. Wimalasiri	Biochemistry
Dr. H.M.C. Shantha Kumara	Biochemistry
Dr. A.T.A.W. Gunewardene	General Pathology
Dr. Upul Dissanayake	General Pathology (Hospital Kegalle)
Mr. G.J. Panagoda	Microbiology

• Building Maintenance Department

Mr. Hewapathirana	Works Engineer
Mr. J.A. Gunathilaka	Electrical superintendent

6) Dental Institute, Colombo

Dr. S.F. Jayasinghe	Director Consultant in Dental & Maxillofacial Surger
Dr. R. Goonetilleke	Consultant in Dental & Maxillofacial Surger

### 3.2 Concerned Person on the Japanese side

1) Embassy of Japan

Hon. Yasuo Noguchi	Ambassador
Dr. Kaname Kanai	Second Secretary
Dr. Masakazu Furuhashi	Former Second Secretary

2) JICA Sri Lanka Office

Mr. Yoshikatsu Nakamura	Resident Representative
Mr. Akira Suzuki	Deputy Resident Representative
Dr. S.M. Punchi Banda	In charge of Research

#### 4. Minutes of Discussion

##### 4.1 Minutes of Discussion on Basic Design Study

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

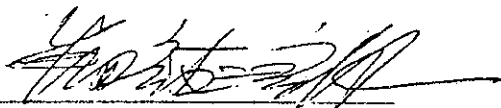
Based on the result of the Preliminary Study, the Japan International Cooperation Agency (JICA) decided to conduct a Basic Design Study on the Project for Improvement of the Faculty of Dental Sciences, University of Peradeniya in the Democratic Socialist Republic of Sri Lanka ( hereinafter referred to as " the Project ").

JICA sent a study team, which is headed by Dr. Yujiro Handa, Senior Lecturer, Gifu University School of Medicine to the Democratic Socialist Republic of Sri Lanka. The team was scheduled to stay in the country from 15th March to 5th April, 1995.

Several meetings were organized by the team to have discussions on the project design with the relevant Sri Lankan officials. A field survey was also conducted by the team in the study area during the said period.

During the course of the discussions and field survey, both parties have confirmed the main items described on the attached sheets. The team will further proceed to work and prepare the Basic Design Study report.


Colombo, 27th March 1995



Dr. Yujiro Handa  
Leader  
Basic Design Study Team  
JICA

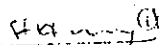


Mr. M.D.D. Pieris  
Secretary  
Ministry of Education  
and Higher Education

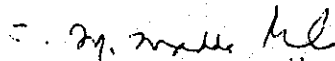


for Professor W.I. Siriweera  
Chairman  
University Grants Commission

witnessed by;



for Mrs. D.D.J. Kudaligama  
Director, Department of  
External Resources  
Ministry of Finance



Professor C.M. Madduma Bandara  
Vice-Chancellor  
University of Peradeniya

## ATTACHMENT

### 1. Concept

Overall Goal, Purpose, Outputs and Activities of the Project are summarized in Annex I.

### 2. Project site

The site of the Project is located in University of Peradeniya. (See Annex (1).)

### 3. Responsible Ministry and Executing Agency

- 3.1 Responsible Ministry : Ministry of Education and Higher Education
- 3.2 Executing Agency : University of Peradeniya

### 4. Items requested by the Government of Sri Lanka

After discussions made by the Basic Design Study Team and the representatives of the Faculty of Dental Sciences, University of Peradeniya, the items described in Annex III were finally requested by the Government of Sri Lanka to the Government of Japan.  
However, the final components of the Project will be decided after further studies.

### 5. Japanese Grant Aid System

- 5.1 Sri Lankan side has sufficient knowledge and understanding of the system of Japanese Grant Aid as explained by the Team and described in Annex V.
- 5.2 Based on the conditions of Grant Aid Assistance extended by the Japanese Government, the Government of Sri Lanka will take necessary measures and action for the smooth implementation of the Project.

### 6. Study Schedule

- (1) The consultants will further proceed with their studies in Sri Lanka until 5th April, 1995.
- (2) JICA will prepare a draft of the final report in English in Japan and dispatch a mission to explain the contents at around June, 1995. SKP
- (3) In case the contents of the report are accepted in principle by the Sri Lankan side, JICA will complete the final report and send it to the Government of Sri Lanka by August, 1995.



7. Other Relevant Issue

- (1) Sri Lankan side has fully acknowledged necessity of the sustainability of the Project and will secure necessary budget for operation and maintenance continuously.
- (2) The Ministry of Education and Higher Education will discuss with the Ministry of Health regarding to functional cooperation between the University of Peradeniya and the Ministry of Health in specific areas relevant to implementation of the Project, including:
  - (a) Input of seconded officers,
  - (b) Access to the blood bank of Peradeniya Teaching Hospital,
  - (c) Provision of catering services by the kitchen of Peradeniya Teaching Hospital,
  - (d) Provision of appropriate number of nursing staff and supporting staff to service of the operating theatre and ward of the maxillo facial unit.
  - (e) Possibilities for other counterpart support by the Ministry of Health.

✓

SP

SP      *Handwritten initials*      *Handwritten initials*

ANNEX 1 Concept of the Project

OVERALL GOAL

Prevention and treatment of oral diseases(\*) in Sri Lanka is promoted.

(\*) Oral disease means all diseases of the mouth (including diseases of the teeth, oral mucosal lesions and other soft tissue diseases of the mouth), as well as related conditions of the head and neck region.

PROJECT PURPOSE

The teaching quality of dental personnel in Sri Lanka is improved by developing the Faculty of Dental Sciences of the University of Peradeniya.

OUTPUTS

1. Modern and appropriate physical facilities for under-graduate and post-graduate training in dentistry are provided.
2. Modern and appropriate facilities / equipment in all specialities (\*) for theoretical, practical and clinical training are introduced to the Faculty.

(\*) Specialities of dentistry include :

- (1) Prosthetic Dentistry
- (2) Restorative Dentistry
- (3) Oral 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

3. Facilities and programmes for Oral Health Research and teaching methodology, which directly contributes to the training, are further developed in the Faculty.

4. Additional well-trained teaching, technical and supportive manpower is provided to the Faculty, to enable optimum utilization of the modern facilities being provided.
5. Provision of continuing education for dental surgeons by the faculty will be expanded.

#### ACTIVITIES

Output 1. Modern and appropriate physical facilities for under-graduate and post-graduate training in dentistry are provided.

- 1- 1 Land for the new facilities is secured by the University of Peradeniya.
- 1- 2 Survey of the land is carried out.
- 1- 3 The basic concept underlying the facilities to be provided is discussed and agreed among the related sectors / agencies.
- 1- 4 The basic design of the new facility for dental training and related clinical activity is discussed and agreed among the related sectors / agencies.
- 1- 5 The basic plan of the physical facilities is determined.
- 1- 6 Finance for the construction work is secured by the Japanese Government.
- 1- 7 The planning of each department / division is finalized.
- 1- 8 The total construction planning is finalized.
- 1- 9 Construction work is carried out.
- 1-10 A maintenance system for the routine maintenance of physical facilities is developed.
- 1-11 An appropriate cadre of maintenance technicians is provided by the University.
- 1-12 Training of maintenance technicians is carried out.
- 1-13 Funds for routine maintenance are borne by the local counterpart.

Output 2. Modern and appropriate facilities / equipment in all specialities for theoretical, practical and clinical training are introduced to the Faculty.

- 2- 1 Assessment of the existing facilities / equipment is carried out.
- 2- 2 A policy of using appropriate technology for training is adopted by teaching staff in all specialities.

- 2- 3 A functional concept of the new faculty in terms of centralization of relevant departmental activities is adopted by the teaching staff in all specialities.
- 2- 4 Centralized facilities / equipment are defined and planned.
- 2- 5 Facilities / equipment allocation for each speciality is planned by the teaching staff.
- 2- 6 Consensus on facilities / equipment selection is obtained through consultations between the Japanese team and the teaching staff.
- 2- 7 Finance is secured for the input of facilities / equipment by the Japanese Government.
- 2- 8 A system of routine maintenance utilizing a workshop for the facilities / equipment is established.
- 2- 9 Maintenance manpower with appropriate basic educational qualification is allocated to the faculty by the University of Peradeniya.
- 2-10 The facilities and equipment with minimum consumables for initial operation are set in the new faculty building.
- 2-11 Proper training for the maintenance manpower with appropriate basic educational qualification is provided.
- 2-12 Appropriate training for the proper utilization of the facilities / equipment is organized and provided to the teaching staff and students and other users.
- 2-13 Technical assistance for the training of maintenance technicians is provided.
- 2-14 Material provision and the running costs of the facilities / equipment will be the continuing responsibilities of the University of Peradeniya.

Output 3. Facilities for teaching methodology development and research, which directly contributes to the quality and quantity of the training, are further provided to the faculty teaching staff.

- 3- 1 An appropriate curriculum to suit the improved facilities is developed.
- 3- 2 Training is provided to the teaching staff in each speciality to upgrade skills and knowledge in teaching and academic research.
- 3- 3 The skills and knowledge of teaching staff are upgraded by developing appropriate and sustainable dental technology (incl. treatment methods, instruments / material development) for Sri Lanka. STP
- 3- 4 Technical assistance in dental / medical education to supervise facility / equipment usage, teaching method development and research is provided.

Output 4. Additional well-trained teaching, technical and supportive manpower is provided to the Faculty.

- 4- 1 The assessment of the need for additional manpower is carried out for each speciality in the Faculty.
- 4- 2 Requests for additional staff as required is conveyed to the University of Peradeniya.
- 4- 3 Additional manpower required to sustain the faculty will be provided by the University of Peradeniya.

Output 5. Provision of continuing education for dental surgeons by the faculty will be expanded.

- 5- 1 A committee to plan new continuing education programmes is set up by the Faculty.
- 5- 2 Target group of the programmes is defined by the committee.
- 5- 3 Participation in continuing education programmes by dental officers, dental technicians and dental nurses both in public and private sectors is provided by the Ministry of Health and relevant Professional Colleges and Associations.
- 5- 4 The continuing education programmes are made available to dental surgeons of the private sector too.
- 5- 5 Appropriate areas of continuous dental education for Sri Lanka will be determined by the faculty in consultation with the Sri Lanka Dental Association and other Professional Organizations.
- 5- 6 The venue and content for the courses is finalized.
- 5- 7 The curriculum of the courses is developed.
- 5- 8 The courses are advertised and given adequate publicity nationally.
- 5- 9 The courses are implemented.

ANNEX II Site Map

DEPARTMENT OF LANDS & SURVEY  
COMMISSIONER & VALUER  
KULLA, KIRIBATTIKUMBUWA

Premises Bearing  
Assessment No. 1151 & 1151/1 -  
Sirimavo Bandaranayaka Mawatha  
Claimed by Peradeniya University  
& Leased to Bank of Ceylon

Premises Bearing  
Assessment No. 1157 -  
Sirimavo Bandaranayaka Mawatha  
Claimed by Peradeniya University  
& Leased to K.P.C.

Balance Area of  
the land Claimed by  
the Department of Agriculture  
(Cont. 1/2)

Teaching Hospital Premises  
Claimed by  
The Health Department

Scale 1: 1000

REFERENCE

- CP = Concrete Foot
  - EF = Electrical Foot
  - TF = Telegraph Foot
  - LS = Boundary Stone
  - L = Landmark
  - DS = Drain Gully
  - ST = Drainage Pit
  - MS = Masonry Stone
  - FS = Earth Sign
  - FU = Fingerprint
  - R = Undefined
  - ST = Street
- Note: Buildings are Coloured in Pink

Lot No.	Caten In			Remarks
	Hectares	A.	R.	
1	0.059999	0	0	Lot 1 in my Plan 1243
2	0.206130	0	2	
3	0.095970	0	0	
4	0.585070	1	1	Lot 2 in my Plan 1243
Total	0.967469	2	1	

PLAN

of Four Allotments of Land Required by the University of Peradeniya  
for Construction of a Building for the Dental Faculty  
SITUATED AT ...Kulula, Peradeniya... VILLAGE

...KORALE...MATTUWA  
Within the Municipal Council Limits of Kandy  
...G.A.B. DIVISION & Kandy... DISTRICT

CENTRAL PROVINCE

A - 15

SURVEYED & MATTHEW...14th of March 1992...

*[Handwritten signatures and initials]*  
LICENSED SURVEYOR & VALUER

ANNEX III

Items requested by the Government of Sri Lanka

1. Construction of physical facilities for the following activities of the Faculty of Dental Sciences, University of Peradeniya.

1.1 Theoretical and practical training

1.2 Patient care-related training

1.3 Research-related training

2. Provision of equipment related to the above 1.

2- 1 Equipment for Prosthetic Dentistry

- Dental Chair with Unit
- Autoclave (Table top)
- Dental Instruments, etc.

2- 2 Equipment for Restorative Dentistry

- Dental chair with unit
- Phantom-heads
- Autoclave (Table top), etc.

2- 3 Equipment for Oral Surgery

- Operating Table
- Anaesthesia Apparatus
- Operating Light, etc.

2- 4 Equipment for Oral Pathology and General Pathology

- Laboratory Table
- Autoclave
- Microtome
- Water-Bath. etc.

2- 5 Equipment for Periodontology

- Dental Chair with Unit
- Dental X-Ray Apparatus
- Autoclave (Table top), etc.

2- 6 Equipment for Community Dentistry

- Computer with Printer
- Slide Projector
- Dental Instruments Set, etc.

2- 7 Equipment for Orthodontics

- Dental Chair with Unit
- Autoclave (Table top)
- Refrigerator, etc.

2- 8 Equipment for Paedodontics

- Dental Chair with Unit
- Dental X-Ray Apparatus
- Autoclave (Table top), etc.

2- 9 Equipment for Oral Medicine

- Dental Chair with Unit
- Distilled Still Apparatus
- Autoclave (Table top), etc.

2-10 Equipment for Dento-Maxillofacil Radiology

- Intra Oral X-Ray Unit
- X-Ray Film Viewer
- Manual X-Ray Developer, etc.

2-11 Equipment for Generaal and Dental Anatomy

- Autopsy Table
- Autopsy Light
- Dissecting Instrument Set, etc.

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2-12 Equipment for Physiology

- Laboratory Table
- Microscope
- Centrifuge
- Balance, etc.

2-13 Equipment for Biochemistry

- Laboratory Table
- Incubator
- Microscope
- Balance, etc.

2-14 Equipment for Microbiology and Pharmecology

- Laboratory Table
- Microscope
- Balance
- Centrifuge, etc.

2-15 Equipment for Others

- Computer with Printer
- Copy Machine
- Typewriter
- Slide Projector
- Overhead Projector, etc.

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ANNEX IV

Necessary Measures to be taken by the Government of Sri Lanka  
in case Japanese Grant Aid is extended.

1. To secure the land for the site of the Project.
2. To demolish the present facilities including substructure, together with clearance and reclamation of the site prior to the commencement of the construction.
3. To construct gates and fences in and around the site.
4. To provide the land for a temporary site office, warehouse and stock yard during the implementation of the Project.
5. To provide facilities for the Project site such as the distribution of electricity, water supply, drainage and other incidental facilities.
6. To bear the commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
7. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Sri Lanka with respect to the supply of the products and services under the verified contracts.
8. To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contracts, such facilities as may be necessary for their entry into Sri Lanka and stay therein for the performance of their works.
9. To bear all expenses, other than those to be borne by the Grant Aid necessary for the execution of the Project.
10. To assign exclusive counterpart engineers / technicians for the Project.
11. To use and maintain the facilities constructed under the Grant Aid properly and effectively.
12. To allocate adequate budget for operation and maintenance of the facilities constructed and equipment therein.

## Japan's Grant Aid Scheme

### 1) Japan's Grant Aid Procedures

- a. Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

- b. Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s). The firm(s) carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

### 2) Basic Design Study

- (1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project")

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is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows :

- a) Confirmation of the background, objectives, and benefits of the requested project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project
- e) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry (ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

### 3) Japan's Grant Aid Scheme

- a. The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.
- b. Exchange of Notes (E/N)  
Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.
- c. "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.  
However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.
- d. Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.  
When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.  
However the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)
- e. Necessity of "Verification"  
The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.
- f. Undertakings required of the Government of the Recipient Country  
In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following :

- (1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- (2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- (3) To secure buildings prior to the procurement in case the installation of the equipment.
- (4) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- (5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- (6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

g. "Proper Use."

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

h. "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

i. Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

4) Recipient Country's Obligation

The recipient country is required to undertake such necessary measures as following in case Japanese Grant Aid is extended.

- (1) To secure the land for the site of the Project.
- (2) To demolish the present facilities including substructure, clear, and reclaim the site prior to the commencement of the construction.
- (3) To construct gates and fences in and around the site.
- (4) To provide the land for a temporary site office, warehouse and stock yard during the implementation of the Project.
- (5) To provide facilities for the Project site such as the distribution of electricity, water supply, drainage and other incidental facilities.
- (6) To bear the commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
- (7) To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Sri Lanka with respect to the supply of the products and services under the verified contracts.
- (8) To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contracts such facilities as may be necessary for their entry into Sri Lanka and stay therein for the performance of their works.
- (9) To bear all expenses, other than those to be borne by the Grant Aid necessary for the execution of the Project.
- (10) To assign exclusive counterpart engineers / technicians, for the Project.
- (11) To use and maintain properly and effectively the facilities constructed under the Grant Aid.

## 4.2 Minutes of Discussion on Consultation on the Draft Report

MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY  
ON  
THE PROJECT FOR  
THE IMPROVEMENT OF THE FACULTY OF DENTAL SCIENCES,  
UNIVERSITY OF PERADENIYA  
IN  
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA  
(CONSULTATION ON THE DRAFT REPORT)

In March 1995, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the Project for the Improvement of the Faculty of Dental Sciences, University of Peradeniya (hereinafter referred to as "the Project") and prepared a draft report based on further studies conducted in Japan after thorough discussions, field surveys in the University during the mission and technical studies.

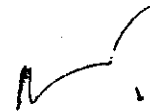
In order to explain the draft basic design and have related consultation with relevant officials of the Government of the Democratic Socialist Republic of Sri Lanka, JICA has sent a study team to Sri Lanka (hereinafter referred to as "the Team") headed by Dr. Yujiro Handa, Senior Lecturer, School of Medicine, Gifu University, in order to carry out further studies in the country from 23rd to 30th July, 1995.

As a result of these discussions, both parties confirmed the main items described on the attached sheets.

Colombo, 28th July, 1995

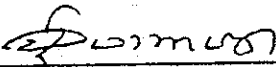


Dr. Yujiro Handa  
Leader  
Basic Design Study  
Draft Report Explanation Team  
JICA



Mr. M. D. D. Pieris  
Secretary  
Ministry of Education and Higher Education

Witnessed by:

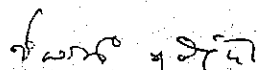


Dr. Dudley Disanayake  
Secretary  
Ministry of Health, Highways & Social Services

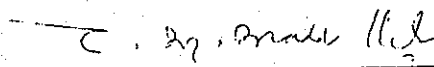


Professor S. Tilakaratna  
Chairman  
University Grants Commission

Witnessed by:



Mrs. D. D. J. Kudaligama  
Director  
Department of External Resources  
Ministry of Finance



Professor C. M. Madduma Bandara  
Vice-Chancellor  
University of Peradeniya



## ATTACHMENT

### 1. COMPONENTS OF THE DRAFT REPORT

1-1 The Sri Lankan side has agreed with, and accepted in principle the components of the draft report proposed by the Team, with certain additions and modifications.

The Team will re-examine some details of the basic design with reference to the comments made by the Sri Lankan side in the series of discussions.

1-2 The Sri Lankan side has strongly emphasised that Japan's grant aid assistance should be extended to all physical facilities including those with a welfare component in the basic design, since each facility is essential in order to establish the most favorable environment for the education of the students.

The Team acknowledged the above position and will consult with the relevant officials of the Government of Japan on the issues concerned.

1-3 JICA will complete the final report in accordance with the confirmed items and send it to the Government of Sri Lanka in and around September, 1995.

### 2. JAPAN'S GRANT AID SYSTEM

2-1 The Sri Lankan side has understood Japan's grant aid system explained by the Team.

2-2 The Sri Lankan side will take such necessary measures as described in ANNEX I and the draft report, without delay for the smooth implementation of the Project in case Japan's grant aid is extended.

### 3. INTER-SECTORAL PARTNERSHIP BETWEEN THE MINISTRY OF EDUCATION & HIGHER EDUCATION AND THE MINISTRY OF HEALTH, HIGHWAYS & SOCIAL SERVICES

3-1 High level consultations have been held between the Ministry of Education & Higher Education and the Ministry of Health, Highways & Social Services, under the Chairmanship of the Deputy Minister of Education & Higher Education to finalize a framework of inter-sectoral partnership aiming at ensuring the efficient management and sustainability of the clinical service units in the new facility.

3-2 Broad agreement has been reached on the basic framework of an appropriate inter-sectoral management modality for the outpatient (OPD) and inpatient area of the new facility. Additional details are summarized in ANNEX II, and further discussions between the two ministries are proceeding.

ANNEX I

NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA IN CASE JAPAN'S GRANT AID ASSISTANCE IS EXTENDED TO THE PROJECT:

1. To secure the land for the site of the Project.
2. To demolish the present facilities including substructure, together with clearance and reclamation of the site prior to the commencement of the construction.
3. To construct gates and fences in and around the site.
4. to provide enough space for construction of such items as temporary site office, warehouse and storage yard for equipment and materials during the implementation period.
5. To provide facilities for the Project site such as the distribution of electricity, water supply, drainage and other incidental facilities.
6. To bear the commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
7. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Sri Lanka with respect to the supply of the products and the services under the verified contracts.
8. To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contracts, such facilities as may be necessary for their entry into Sri Lanka and stay therein for the performance of their work.
9. To bear all the expenses other than those to be borne by the Grant, necessary for the implementation of the Project.
10. To assign exclusive counterpart engineers / technicians for the Project.
11. To use and maintain the facilities constructed under the Grant properly and effectively.
12. To allocate adequate budget for operation and maintenance of the facilities constructed and equipment therein.

ANNEX II

MINUTES OF THE CONSULTATION MEETING BETWEEN THE HIGHER EDUCATION  
- DENTAL HOSPITAL PROJECT PERADENIYA HELD ON 10TH JULY 1995  
AT THE MINISTRY OF HIGHER EDUCATION

Present:

1. Prof. W.A. Wisva Warnapala, Deputy Minister of Education and Higher Education
2. Mr. C. Abeygunawardena, Addl. Secretary, Higher Education
3. Prof. S. Tilakaratna, Chairman, UGC
4. Dr. V. Jeganathan, Deputy Director General, Health Ministry
5. Dr. K.C.S. Dalpatadu, Deputy Director General (Planning), Health Ministry
6. Dr. G.G. Thurusinghe, Director/Planning, Health Ministry
7. Dr. S. Abayaratna, Director/Dental Services,
8. Dr. (Mrs). C. Gunathilaka, Director/Teaching Hospital, Peradeniya
9. Prof. A.N.I. Ekanayake, Dean, Faculty of Dental Science
10. Prof. M.A. de S. Amaratunga, Head/Department of Oral Surgery, Faculty of Dental Science
11. Prof. B.R.R.W. Mendis, Head, Department of Oral Pathology Faculty of Dental Science
12. Dr. A.W. Ranasinghe, Head, Oral Medicine, Faculty of Dental Science

At the outset, Hon. Deputy Minister, Prof. Wisva Warnapala, welcomed the officials of the Ministry of Health, University Grants Commission and the University.

Prof. A.N.I. Ekanayake the Dean, Faculty of Dental Science presented three diagrammatic representations (annexed), depicting the existing management structure relating to medical and dental education in Sri Lanka, and the two alternative modalities of intersectoral cooperation that were identified at the previous meeting.

It was agreed that intersectoral partnership between the health and education sectors to ensure efficient operation of the new University dental hospital should proceed on the basis of management modality Number 2, as recorded in the minutes of the previous meeting.

Accordingly there was unanimous consensus that the routine administration of the OPD and inpatient sections of the University dental

hospital would be by the Ministry of Health through an appropriate hospital administrator appointed by that Ministry. The precise designation of such an officer whether hospital director, dental surgeon in charge or any other, will be determined in due course having regard to the degree of administrative responsibility involved.

Such a hospital administrator will function alongside an appropriate Board of Management, the precise composition of which will be decided after due consideration. However it was recognised that such a Board may include the 6 clinical Heads of departments of the Dental Faculty, and other relevant representatives from the Health and Higher Education Sectors.

Within the framework of such an administrative arrangement the Ministry of Health will maintain and bear the recurrent costs of the OPD and inpatient facilities. The Ministry of Health will also provide relevant support staff and services as required for the day to day operation of the OPD and inpatient facilities. The University will maintain and bear the recurrent costs of the academic, administrative and pre and para clinical sectors of the Faculty, while also being responsible for the salaries of University employees of the Faculty. Students are to be supervised by the University teachers staff.

The University will provide the Ministry of Health with details regarding the number and type of support staff required (eg. general nurses, dental surgeon house officers, other theatre staff etc.) before April 1996 to enable cadre provision to be obtained before the new hospital becomes operational in approximately mid 1997.

It was recognised that from the perspective of the Ministry of Health, its administrative role in relation to the OPD and inpatient sectors of the new University facility, would be conceptually similar to the existing administrative commitments of the Ministry of Health to the Colombo Dental Institute, and DNTS Maharagama.

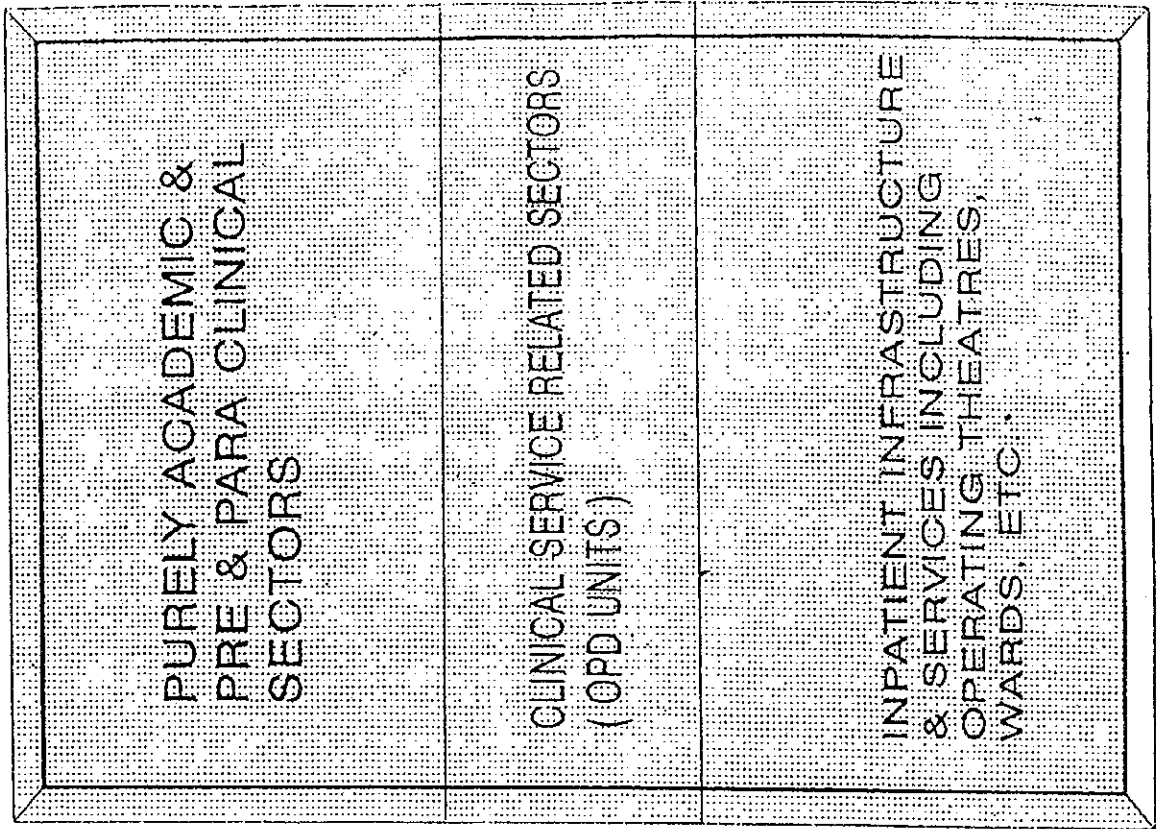
It was decided that the University and Health Ministry representatives present at the meeting would now proceed to function as a sub-committee in order to finalise a detailed plan for the efficient management of the new University dental hospital - on the basis of the agreed policy.

When this task is complete the sub-committee will report back at a further meeting to be convened by the Hon. Deputy Minister of Higher Education.

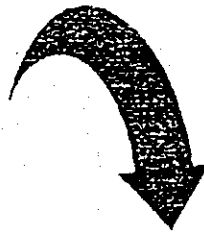
G. Abeygunawardena  
Addl. Secretary

# EXISTING FUNCTIONAL MODEL

## MEDICAL EDUCATION

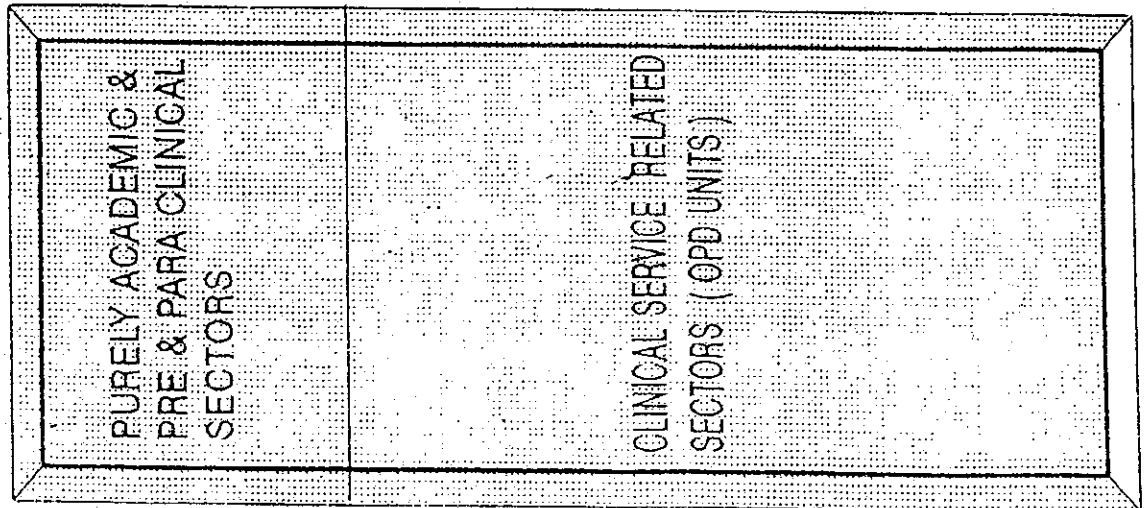


ADMINISTERED & FUNDED BY MINISTRY OF EDUCATION



ADMINISTERED & FUNDED BY MINISTRY OF HEALTH

## DENTAL EDUCATION

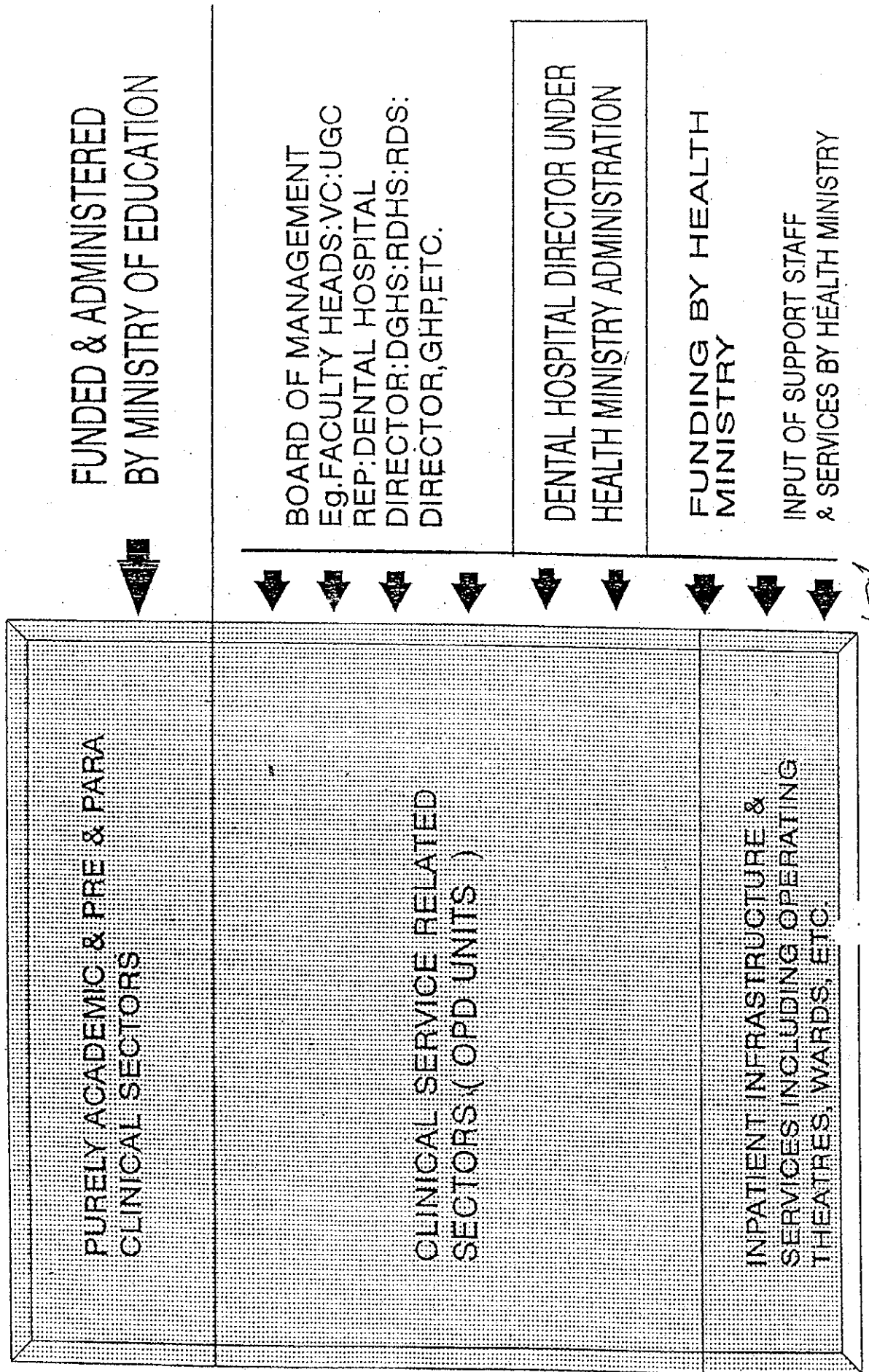


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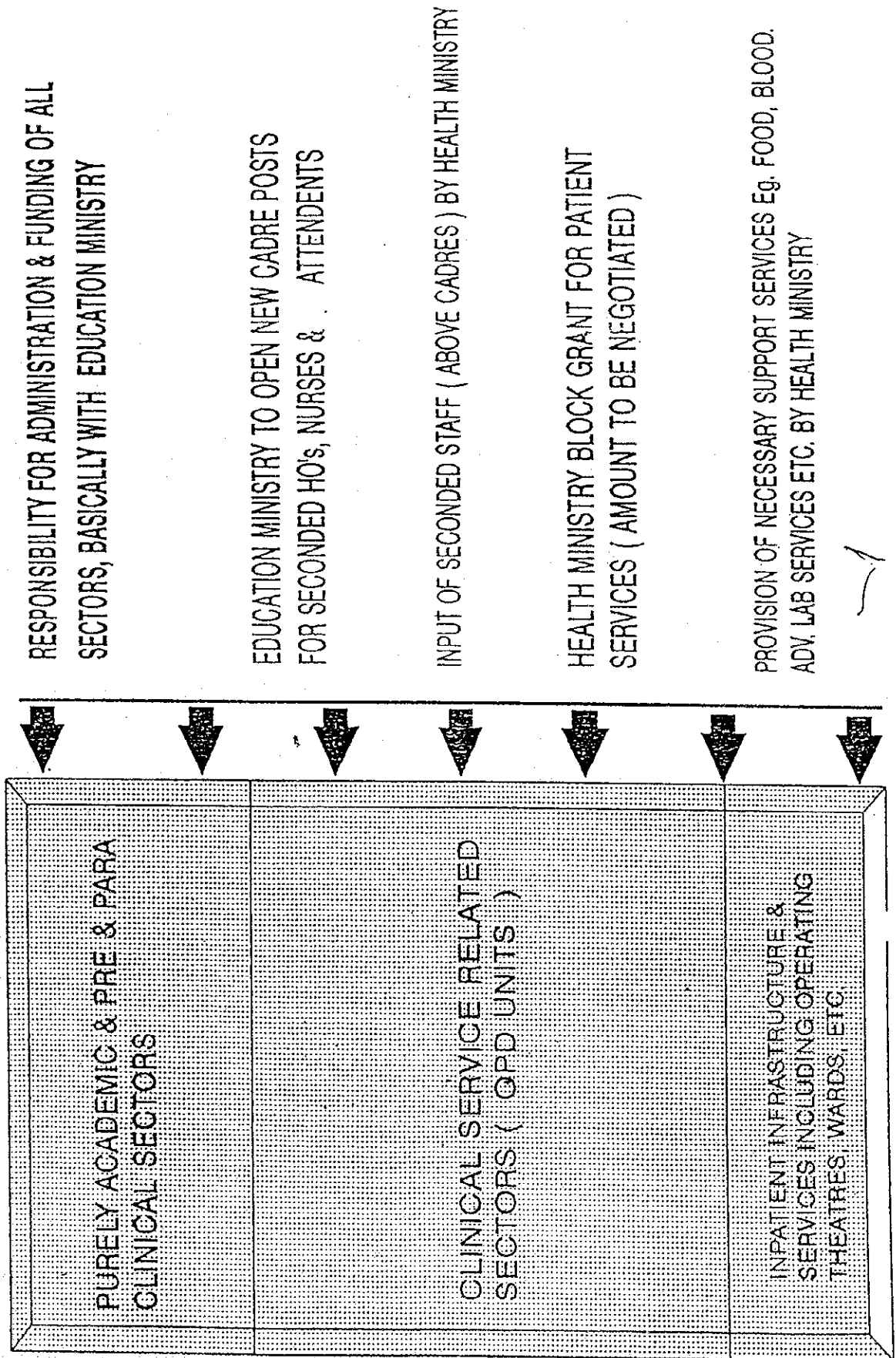
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# PREFERRED MODEL



*Handwritten signatures and initials:*  
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 [Signature]

# ALTERNATIVE MODEL



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*Handwritten signature and date*



## 5. Cost Estimation Borne by the Government of Sri Lanka

(1) Extension of main power line to the building ..... Rs. 7,258,000

Work Item	Q'ty	Unit Rate	Cost
1. Laying cable (3 $\phi$ 3W 11Kv) under the ground	2,100m	1,850	3,885,000
2. Control box I	3 Nos.	325,000	975,000
II	1 No.	688,000	688,000
3. Connection charge to transformer	Item	-	210,000
4. Overhead & Profit			1,500,000
<b>Total Cost</b>			<b>7,258,000</b>

(2) Extension of main water line to the site ..... Rs. 1,008,000

Work Item	Q'ty	Unit Rate	Cost
1. Laying pipe ( $\phi$ 75 VSP) under the ground			735,000
2. Connection pipe, stop valve & meter			50,000
3. Control box			15,000
4. Overhead & Profit			208,000
<b>Total Cost</b>			<b>1,008,000</b>

(3) Extension of telephone trunk line to the building ..... Rs. 1,500,000

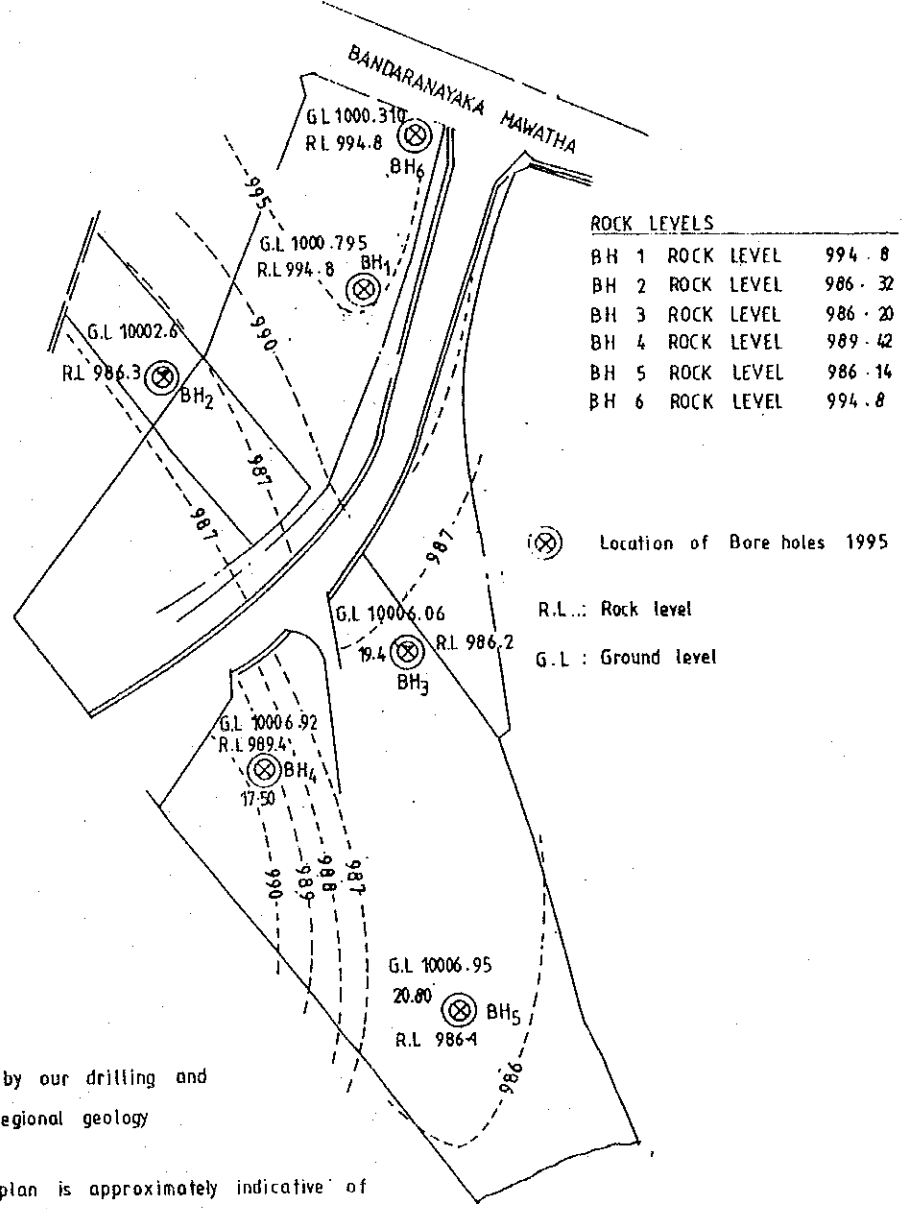
Work Item	Q'ty	Unit Rate	Cost
1. Laying cable (6 line) under the ground			
2. Control box			
3. Connection charge to terminal box			
4. Overhead & Profit			
<b>Total Cost</b>			<b>1,500,000</b>

Maximum estimate for budgetary purposes

(4) Application cost for obtaining the building permit ..... Rs. 20,000

Work Item	Q'ty	Unit Rate	Cost
1. Erection of buildings	900 m <sup>2</sup>	Rs. 1,250	Rs. 1,250
	(12,177m <sup>2</sup> - 900m <sup>2</sup> )	Rs. 50	Rs. 6,265
	90m <sup>2</sup>		
2. Preliminary planning clearance	1	Rs. 100	Rs. 100
3. Certificate of conformity	270 m <sup>2</sup>	Rs. 100	Rs. 100
	(12,177m <sup>2</sup> - 270m <sup>2</sup> )	Rs. 1	Rs. 11,010
4. Others	1 lot		Rs. 1,275
<b>Total Cost</b>			<b>Rs. 20,000</b>

# 6. Geological Record of Boring



Rock contours as shown by our drilling and interpreted from the regional geology

Please note that this plan is approximately indicative of rock levels and should be confirmed by actual drilling

Scale 1:1000

## PERADENIYA DENTAL PROJECT INTERPRETED ROCK CONTOURS



**SAMITAR LIMITED**

103 Siri Dhamma Mawatha Colombo 10  
 Tele : 697985, 698817.  
 Fax : 697801

Managing Director  
*[Signature]*  
 29-04-05

GEOLOGICAL RECORD OF BORING				HOLE No. BH - 1			
PROJECT	Faculty of Dental Science,			LOCATION	Peradeniya, Sri Lanka		
GROUND ELEVATION	1000.795m	DEPTH OF HOLE	10.0m	ANGLE FROM VERTICAL	0		
DIAMETER OF HOLE	3" (NX)	MACHINE	Joy Heary Drill	DATE OF DRILLING	05/04/95 TO 07/04/95		
CORE RECOVERY	-	DEPTH TO GROUND WATER LEVEL IN HOLE	See page No. 18				
DRILLED BY N.T.P.G. Siripala				LOGGED BY Ms. P. Senaratne.			

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST										
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N									
										(N)	0	10	20	30	40	50	60		
	0.00		1.00	SC	Brown	Coarse to fine sands with around 35% plastic fines loose in place													
	1.00								1.0	21									
			2.45	SM	Reddish brown	coarse to fine sub angular to sub rounded sands with 40% very slightly plastic fines and gravels and cobbles upto 10mm in size, medium dense in place.			2.0	20									
	3.45								3.0	69									
			1.55	SC/GC	Dark reddish brown	coarse to fine sands & gravels with 30% plastic fines and cobbles upto 10mm in size very dense in place			4.0	100									
	5.00								5.0	100									
			1.05	SC/SM	Greyish brown	coarse to fine sands with 25% very slightly plastic fines, very dense in place			6.0	100									
	6.05																		
			2.65	Calc-Granulite	Dark greyish black	Very highly to moderately weathered, fine grained calc-granulite Core Recovery=30% R.Q.D. = 0%													
	8.70																		
			1.30	Calc-Granulitic Gneiss	Dark greyish black	Moderately to faintly weathered Calc-Granulitic Gneiss Core Recovery=50% R.Q.D. = 10%													
	10.00																		
						HOLE TERMINATED ON ROCK AT 10.00M													



GEOLOGICAL RECORD OF BORING				HOLE No. 2	
PROJECT	Faculty of Dental Science		LOCATION	Peradeniya, Sri Lanka	
GROUND ELEVATION	1002.420M	DEPTH OF HOLE	21.10m	ANGLE FROM VERTICAL	0
DIAMETER OF HOLE	3"	MACHINE	Joy	DATE OF DRILLING	19/04/95 TO 21/04/95
CORE RECOVERY	-	DEPTH TO GROUND WATER LEVEL IN HOLE	See page no. 18		
DRILLED BY			N.T.P.G. Siripala	LOGGED BY	
				Ms. P. Senaratne	

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST							
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N						
									(N)	0	10	20	30	40	50	60
	0.00			CL/SC	Dark greyish brown	Slightly plastic clays with 30% fine sands, loose in place.			1.0	7						
	1.70	1.70		CL/ML	Dark yellowish brown	Slightly plastic silty clays stiff in place.			2.0	10						
	2.00	1.30		SC	Dark yellowish brown	medium to fine sands with 35% fines, dense in place.			3.0	11						
	3.00	2.00		SC	Dark yellowish brown	medium to fine sands with 35% fines, dense in place.			4.0	39						
	3.00			SC/GC	Dark yellowish to reddish brown	coarse to fine, sub angular to sub rounded sands and gravels with 20% plastic fines dense in place.			5.0	44						
	8.00	3.00		SC/GC	Dark yellowish to reddish brown	coarse to fine, sub angular to sub rounded sands and gravels with 20% plastic fines dense in place.			6.0	46	Complete loss of water					
				SC/CL	Dark yellowish brown to whitish grey	coarse to fine sub angular to sub rounded sands and gravels with 50% plastic fines and some cobbles upto 20mm in size medium dense in place.			7.0	38						
	15.00	7.00		SC/CL	Dark yellowish brown to whitish grey	coarse to fine sub angular to sub rounded sands and gravels with 50% plastic fines and some cobbles upto 20mm in size medium dense in place.			8.0	38						
	16.10	1.10		SC/GC		Same as above with lots of black iron minerals			9.0	9						
	18.10	2.00		Limestone		faintly weathered to fresh limestone Core Recovery=40% R.Q.D. = 0%			10.0	11	Complete loss of water					
	20.10	2.00		Limestone	Dark brown	- do - Core Recovery=65% R.Q.D. = 40%			11.0	22						
	21.10	1.00		Limestone		Fresh, Limestone Core Recovery=100% R.Q.D. = 100%			12.0	21						
						HOLE TERMINATED ON ROCK AT 21.10m			13.0	11						
									14.0	14						
									15.0	15						
									16.0	48						



GEOLOGICAL RECORD OF BORING				HOLE No. BH 3		
PROJECT	Faculty of Dental Science		LOCATION	Peradeniya, Sri Lanka		
GROUND ELEVATION	1006.060m	DEPTH OF HOLE	22.45m	ANGLE FROM VERTICAL	0	
DIAMETER OF HOLE	3"	MACHINE	Toho Chikakoki	DATE OF DRILLING	21/04/95 TO 24/04/95	
CORE RECOVERY	-	DEPTH TO GROUND WATER LEVEL IN HOLE	See page No. 18			
DRILLED BY			Nimal Keerthi		LOGGED BY	Ms. P. Senaratne

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST								
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N							
									(N)	0	10	20	30	40	50	60	
	0.00																
	2.00	2.00		SC/CL	Dark reddish brown.	Medium to fine sands with around 45% plastic fines loose in place			1.0	9							
									2.0	25							
									3.0	22							
									4.0	21							
		8.45		SC/GC	Reddish brown	coarse to fine sub angular to sub rounded sands and gravels with around 30% plastic fines with lots of black iron minerals, medium dense to very dense in place.			4.7	Complete loss of water							
									5.0	46							
									6.0	71							
									7.0	66							
									8.0	53							
									9.0	32							
	10.45								10.0	47							
		1.55		CL/CH	Reddish brown	Moderately to highly plastic clays with 15% sand hard in place.			11.0	97							
	12.00								12.0	21							
									13.0	26							
		3.00		MH/CH	Yellowish brown	Moderately to highly plastic silty clays, with 10% coarse to fine sands, very stiff in place.			14.0	22							
	15.00								15.0	30							
									16.0	31							
		4.40		SC	Dark greyish brown	coarse to fine sands with lots of decomposed rock fragments and black iron minerals and 30% plastic fines, medium dense in place.			17.0	9							
	19.40								18.0	10							
		2.00		Limestone	Yellowish white	Very slightly to fairly weathered Limestone Core Recovery=30% R.Q.D. = 0%			19.0	10							
	21.40																
		2.00		Limestone	Greyish brown	very highly weathered limestone Core Recovery=0% R.Q.D. = 0%											
	23.40																
		1.05		Limestone	Yellowish white	Faintly to moderately weathered limestone Core Recovery=45% R.Q.D. = 0%											
	24.45																
HOLE TERMINATED ON ROCK AT 24.45M																	



GEOLOGICAL RECORD OF BORING				HOLE No. BH - 5	
PROJECT	Faculty of Dental Science,		LOCATION	Peradeniya, Sri Lanka	
GROUND ELEVATION	1006.94m	DEPTH OF HOLE	25.70m	ANGLE FROM VERTICAL	0
DIAMETER OF HOLE	3"	MACHINE	Tone Drill	DATE OF DRILLING	17/04/95 TO 20/04/95
CORE RECOVERY	-	DEPTH TO GROUND WATER LEVEL IN MILE	See Page No. 18		
DRILLED BY			H.A.T.S. Sudath Kumara.	LOGGED BY Ms. P. Senaratne.	

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION			CORE RECOVERY		STANDARD PENETRATION TEST								
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOR	DESCRIPTION	%	m	DEPTH (m)	NUMBER OF BLOWS N						
								(N)	0	10	20	30	40	50	60	
	0.00															
		(3.45)		SC CL	Dark brown	Coarse to fine sub angular to sub rounded sands with around 50% plastic fines, dense in place			1.00	32						
	3.45								2.00	31						
	4.00			SC/GC	Reddish brown	Gravelly sands			3.00	100						
		(7.00)		ML CL	Reddish brown to yellowish brown	Slightly to moderately plastic silty clays with around 15% fine sands with lots of black iron minerals, hard in place.			4.00	36						
	11.00								5.00	51						
		(5.45)		MH CH	Dark Reddish to greyish brown	Moderately to highly plastic silty clays with around 15% very fine sands with lots of mica and black iron minerals, hard to very stiff in place.			6.00	42						
	16.45								7.00	57						
		(4.32)		SM ML	Greenish grey.	Greenish grey, mainly fine sands with around 45% slightly plastic silty clays with lots of mica & black iron minerals, medium dense in place			8.00	24						
	20.77								9.00	34						
		(2.97)		Limestone	Grey to greenish grey	Very highly weathered Limestone Core Recovery=20% R.Q.D. = 0%			10.00	21						
	23.70			Limestone	Grey to greenish grey	Faintly weathered to fresh Limestone Core Recovery=35% R.Q.D. = 10%			11.00	44						
	25.70								12.00	32						
									13.00	38						
									14.00	30						
									15.00	21						
									16.00	20						
									17.00	18						
									18.00	17						
									19.00	30						
									20.00	46						
									HOLE TERMINATED ON ROCK AT 25.70M							

GEOLOGICAL RECORD OF BORING				HOLE No. BH 6	
PROJECT	Faculty of Dental Science		LOCATION	Peradeniya, Sri Lanka	
GROUND ELEVATION	1000-310m	DEPTH OF HOLE	19.50m	ANGLE FROM VERTICAL	0
DIAMETER OF HOLE	3"	MACHINE	Joy	DATE OF DRILLING 24/4/95 to 28/4/95	
CORE RECOVERY	-	DEPTH TO GROUND WATER LEVEL IN HOLE	See Page No. 19		
DRILLED BY Nimal Keerthi			LOGGED BY D.V.A. SENARATNE		

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST							
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N						
								(N)	0	10	20	30	40	50	60	
	0.00	2.00		SM/SC		coarse to fine residual sands with 20% plastic fines, medium dense			1.00	13						
	2.00								2.00	48						
	3.50			Very Highly weathered Calc-Granulite		Highly weathered Garneti-ferrous Calc-Granulite broken into cobbles & gravels with little fines, dense to very dense in place.			3.00	55						
	4.00			- do -		Very highly weathered Calc-Granulite powdered to medium to fine sands & Cobbles			4.00	42						
	5.50								5.00	47						
	9.50	4.00				Core Recovery=0% R.Q.D. =0%										
	11.50	2.00		Highly weathered Garneti-ferrous Calc-Granulite		Core Recovery=10% R.Q.D. =0%										
	16.50	4.00		- do -		Core Recovery=0% R.Q.D. =0%										
	18.00	1.50		- do -		Core Recovery=10% R.Q.D. =0%										
	19.00	1.00		Garneti-Ferrous Calc-Granulitic Gneiss		Core Recovery=35% R.Q.D. =0%										
	19.50	0.50				Core Recovery=90% R.Q.D. =11%										
								HOLE TERMINATED ON ROCK AT 19.50M								



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