

## **APPENDICES**

Appendix-1 Member List of Survey Team

1. 総括／鈴木 康次郎                      J I C A無償資金協力調査部調査審査課  
Leader, Mr. Yasujiro SUZUKI,  
Study Review and Coordination Division, Grant Aid Study and Design Department, JICA
2. 工業標準化制度／奥野 陽              通商産業省通商産業検査所検査部高圧ガス設備課  
主任検査員  
Industrial Standardization System, Mr. Yoh OKUNO,  
Chief Inspector, High Pressure Vessel Division, International Trade and Industry Inspection  
Institution, Ministry of International Trade and Industry
3. 計量制度／桑山 重光                  通商産業省工業技術院計量標準管理官  
標準管理専門職  
Metrology System, Mr. Shigemitsu KUWAYAMA,  
Professional Officer of Standards and Traceability, Senior Officer of Standards Dissemination,  
National Research Laboratory of Metrology, Ministry of International Trade and Industry
4. 業務主任者／呉 信二                  ユニコ インターナショナル株式会社  
Project Manager of the Consultants, Mr. Sinji KURE  
UNICO International Corporation
5. 機材計画1／富澤 一行                  財団法人 日本電気用品試験所  
Equipment Planning, Mr. Kazuyuki TOMIZAWA,  
Japan Electrical Testing Laboratory
6. 機材計画2／山内 伯文                  ユニコ インターナショナル株式会社  
Equipment Planning, Mr. Hirofumi YAMAUCHI,  
UNICO International Corporation

## Appendix-2 Schedule of the Field Survey

	Date		Study Schedule	
			Group A: Mr. Kure, Tomizawa, Yamauchi	Group B: Suzuki (Leader), Mr. Kuwayama, Mr. Okuno
1	12/03	SAT	TG-641	
2	12/04	SUN	TG-307 Arrival of Colombo	
3	12/05	MON	JICA, Japan Embassy, SLSI	
4	12/06	TUE	E. E. Lab, Library, Textile lab, Microbio Lab, Training Center	
5	12/07	WED	SLSI Lab SLSI Lab, Min. of Industry	Arrival of Colombo
6	12/08	THU	SLSI Lab JICA, Japan Embassy, SLSI	JICA, Japan Embassy, SLSI Meeting at SLSI
7	12/09	FRI	SLSI Lab.	SLSI Lab
8	12/10	SAT	Private companies	Private companies
9	12/11	SUN	Private companies	Data compile, Prep. of M/M
10	12/12	MON	MSSD, TT&SC, SLSI head quarter SLSI Lab, Min. of Industry, SLSI H. office	MSSD, TT&SC, SLSI H. quarter
11	12/13	TUE	SLSI Lab, SLSI H. office	SLSI H. office
12	12/14	WED	SLSI H. office, Soign on M/M	SLSI H. office, Sign on M/M
13	12/15	THU	SLSI Lab.	Return to Japan
14	12/16	FRI	SLSI Lab., JICA, SLSI H. office Publishing Center, B O I, SLSI, JICA	
15	12/17	SAT	Return to Japan: Colombo-Bangkok	
16	12/18	SUN	Bangkok-Narita	



### **Appendix-3 Member List of Party Concerned in Sri Lanka**

#### **SLSI(Sri Lanka Standards Institution)**

Dr.N.R. DE SILVA Chairman of the Sri Lanka Standards Institution  
Mr.SANATH P. MENDIS Deputy Director General of SLSI  
Mr.C.D.R.A. JAYAWARDENE Director General of SLSI  
Mr. SUNIL LIYANARACHCHI Acting Director of Laboratory Service  
Mr.SUNIL AMARAWANSA Assistant Director of Material Testing Lab.  
Ms.NIMALA RATNASEKARA Assistant Director of Chemical Lab.  
Mr.B.S.DE SILVA Assistant Director of Food Lab.  
Mr. R.G. PERERA Officer in Charge of Metrolory and Calibration Lab.  
Mr.M.C.FERNANDO Officer in Charge of Electric and Electronic Lab.  
Mr.B.D.ARIYARATNE Assistant Officer in Charge of Electric and Electronics Lab.  
Mr.BEN.S.FERNANDO Engineer of Workshop  
Mr.S.K. HAROLD SILVA Officer in Charge of Micro-biology Lab.

#### **Ministry of Science, Technology and Human Resources Development**

Mr.H.A.WIMALAGUNAWARDHANA Secretary of the Ministry  
Mrs.P.G.P.ABEYRATNE Senior Assitant Secretary of the Ministry

#### **Ministry of Industrial Development**

Mr.M.SUSIRIWARDANA Director, Industrial Economics  
Mr.LUXMAN SIRIWARDENA Director of Investment

#### **Ministry of Finance**

Ms.D.D.J.KUDALIGAMA Director of the Department of External Resources

#### **Other Organizations**

Mr.S.A. KARUNARATNE Director General of Department of National Planning  
Mr.N.PATHMANATHAN Additional Director Genaral of Department of National Planning  
Mr.H.L.R.W. MADANAYAKE Deputy Commisioner of Internal Trade  
Mr.U.SENARATNE Assistant Commisioner of Internal Trade  
Mr.R.H.TENNEKOON Director of Textile Training & Services Centre  
Mr.D.D.KODAGODA Factory Manager of Central Industries Limited  
Mr.RANJITH GOONATILAKE Management Consultant of Rhunu Cables Limited  
Mr.NELSON SAMARASINGHE Factory Manager of Rhunu Cables Limited

Mr.K.DHAMMIKA GUNARTNE Managing Director of Daintee Limited

**Embassy of Japan**

Mr.YASUO NOGUCHI Ambassador of Japan

Mr.TAKESHI KAMITANI Minister

Mr.KUNIHIRO DOI First Secretary Economic Cooperation

**JICA Sri Lanka Office**

Mr.KINKOU NAKAMURA Representative

Mr.JIRO IIDA Assistant Representative

## Appendix 4 Minutes of Discussions

### MINUTES OF DISCUSSIONS ON BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INDUSTRIAL STANDARDIZATION & METROLOGY EQUIPMENT OF THE SRI LANKA STANDARDS INSTITUTION IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

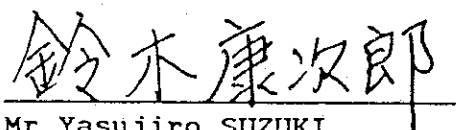
In response to the request from the Government of Sri Lanka, the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Industrial Standardization & Metrology Equipment of the Sri Lanka Standards Institution (hereinafter referred to as "the Project") and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent to Sri Lanka a study team headed by Mr. Yasujiro SUZUKI, Study Review & Coordination Division, Grant Aid Study & Design Department, JICA (hereinafter referred to as "the Team"), to stay in the country from December 4 to 17, 1994.

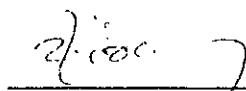
The Team held discussions with the officials concerned of the Government of Sri Lanka and conducted field surveys at the study area.

In the course of discussions and field surveys, both sides have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study report.

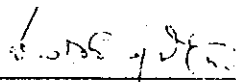
Colombo, December 14, 1994



Mr. Yasujiro SUZUKI  
Leader  
Basic Design Study Team  
JICA



Mr. H.A. Wimalagunawardhana  
Secretary  
Ministry of Science,  
Technology and Human Resources  
Development



Ms. D.D.J. Kudaligama  
Director  
Department of External  
Resources, Ministry of Finance  
( Witness )

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to enhance the quality of Sri Lankan products and services in general and to improve their marketability in both domestic and international markets, and to protect the safety and health of consumers through the development of the SLSI laboratory equipment capability.

### 2. Project Site

The map of the Project site is attached as ANNEX-1.

### 3. Responsible and Executing Agency of the Project

3-1 Ministry of Science, Technology and Human Resources Development is the responsible agency for the Project.

3-2 Sri Lanka Standards Institution ( SLSI ) is the executing agency of the Project. SLSI is established under the purview of the Ministry of Science, Technology and Human Resources Development.

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

The final items requested by the Sri Lanka side after discussions with the Team and SLSI officials are shown with priority in ANNEX-2. However the items to be included in the Project under Japan's Grant Aid will be decided after further studies in Japan subject to the budgetary provision and specifications.

### 5. Japan's Grant Aid Scheme

The Sri Lanka side has understood the system of Japan's Grant Aid explained by the team as shown in ANNEX-3.

### 6. Necessary Measures to be taken by the Sri Lanka Side

6-1 The Government of Sri Lanka will take necessary measures described in ANNEX-4 for the smooth implementation of the Project



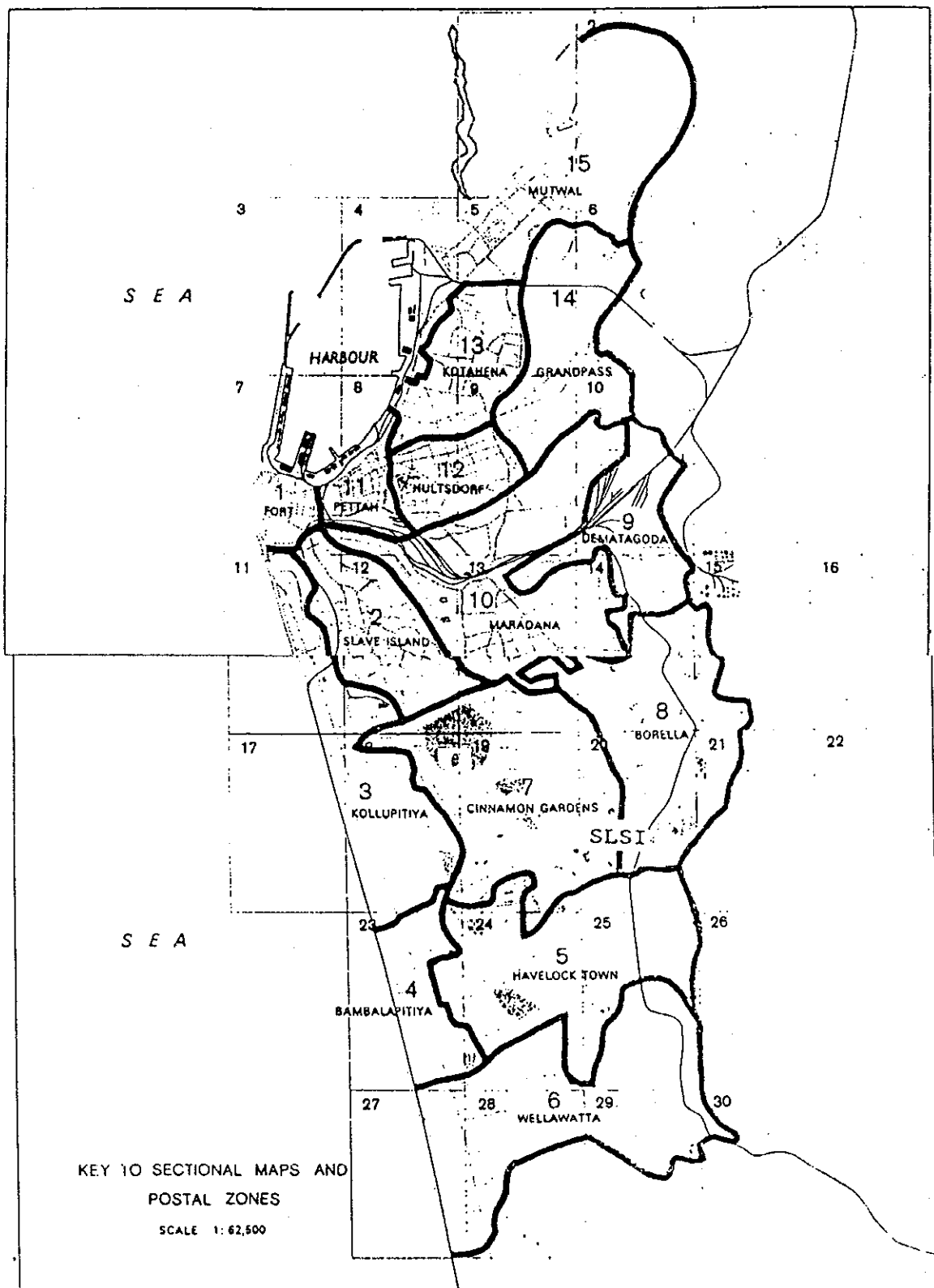
on condition that the Grant Aid by the Government of Japan is extended to the Project.

- 6-2 The Sri Lanka government will make necessary financial provision to meet the local costs which include BTT (Business Turn-over Tax ), customs duties, internal transportation costs.

7. Further Schedule of the Study

- 7-1 The consultants will undertake further studies in Sri Lanka until December 17, 1994.
- 7-2 JICA will complete the final report in English and send it to the Government of Sri Lanka by March, 1995.

ANNEX-1.



*Handwritten signature and initials*

ANNEX-2.

EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- . Materials Testing (MT)				
1 Helmet Testing equipment	1	A 1	15	(CI,D1,NI)
2 Cement/Concrete testing equipment	1	A 2	16	(CI,CD,D1,NE)
3 Mini -lathe machine	1	A 3	18	(CI,D1,NI)
4 Profile projector with accessories	1	A 4	17	(CI,D2,NI)
5 Plastic rubber testing equipment	1	B 1	5	(CD,D1,NI)
6 Paint testing equipment	1	B 2	4	(CD,D1,NI)
7 Paper/Packaging material test equipment	1	B 3	3	(D2,NI)
8 Reference hardness blocks	1	B 4	10	(D1,R)
9 Mini Load hardness tester	1	B 5	19	(D2,R)
10 NDT Equipment-Industrial X-ray Machine	1	C 1	2	(D1,R)
11 Distill water plant	1	C 2	13	(D2,R)
12 Metallographic equipment	1	C 3	6	(D3,NE)
13 Set of equipment required for viscosity measuremen	1	C 4	8	(D3,NI)

# EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- . Electrical/E_nic (EE)				
1 Continuously variable DC power supply	1	A 1	1	(CI,CD,D1,NI)
2 Voltage stabilizer (10 kvA) 3 nos.	3	A 2	17	(CI,CD,D1,NE)
3 Equipment to test 13 A plugs and socket outlets	1	A 3	2	(CI,CD,D2,NI)
4 Inductive load for switch testing	1	A 4	13	(CI,CD,D1,NI)
5 Tracking test apparatus	1	A 5	3	(CI,CD,D1,NI)
6 Glow wire test apparatus	1	A 6	4	(CI,CD,D2,NI)
7 One set of Test Fingers & Test Pins	1	A 7	19	(CI,CD,D2,NE)
8 2 nos. of Torque tester (for screws)	2	A 8	22	(CI,CD,D1,NE)
9 Endurance Test Machine for Switchese	1	A 9	0	(CI,CD,D1,NI)
10 Shutter Endurance Testing Machine for Socket Outlet	1	A 10	0	(CI,CD,D1,NI)
11 Multi-Channel Temperature Recorder	1	A 11	0	(CI,CD,D2,NE)
12 Flexing Machine for Cables	1	A 12	3	(CI,D2,NI)
13 2 nos. of chart recorders	2	B 1	15	(CI,CD,D1,NE)
14 Impact test apparatus (Pendulum type)	1	B 2	18	(CI,CD,D2,NI)
15 Digital Thermometer	1	B 3	0	(CI,CD,D2,NE)
16 Push pull gauge	1	B 4	20	(CI,CD,D2,NE)
17 Resisting load	1	B 5	14	(CI,CD,D2,NE)
18 Earth leakage circuit break tester	1	B 6	21	(D2,NI)

EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
19 Integrating photometer and standard lamps	1	B 7	16	(D2,NI)
20 Climatic chamber	1	B 8	5	(D3,NI)
21 Earth Resistance Measuring Equipmente	1	B 9	0	(D3,NI)
22 Chart Recorder (Flat bed type)	1	B 10	0	(D2,NE)
23 Battery Charger	1	B 11	0	(D2,NE)
24 Spray test apparatus	1	C 1	7	(D3,NI)
25 Splash test apparatus	1	C 2	8	(D3,NI)
26 Radio frequency interference measuring equipment	1	C 3	6	(D3,NI)
27 DC powder supply constant voltage 0-20 V,0-200 A	1	C 4	12	(D3,NE)
28 Vertical rain test apparatus	1	C 5	9	(D3,NI)
29 Needle flame test apparatus	1	C 6	10	(D3,NI)
30 Hot mandrel test apparatus	1	C 7	11	(D3,NI)

# EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- . Food and Chemical (FC)				
1 Atomic absorption spectrophotometer with the	1	A 1	1	(CI,CD,D1,R)
2 Capillary gas chromatograph	1	A 2	9	(CI,CD,D1,NE)
3 Carbon/Sulphur Analyser	1	A 3	5	(CI,CD,D1,NI)
4 IR spectrophotometer	1	A 4	2	(CI,CD,D1,NI)
5 Ionlizer (digital)	1	A 5	11	(CD,D1,R)
6 Flame photometer	1	B 1	12	(CI,CD,D1,R)
7 anlytical balance	1	B 2	13	(D1,NE)
8 Polarograph	1	B 3	6	(D1,NI)
9 Microwave oven	1	B 4	7	(D2,NI)

# EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- . Microbiology (ML)				
1 Top loading autoclave - 70 L	1	A 1	4	(CI,CD,D1,R)
2 pH meter	1	A 2	6	(CI,CD,D1,NE)
3 Horizontal laminaflow cabinet	1	A 2	1	(CI,CD,D2,NI)
4 Air sampler	1	A 4	10	(D1,NI)
5 Precision pressure gauge	1	A 5	13	(D1,NI)
6 Multichannel temperature recorder	1	A 6	14	(D1,NI)
7 Sterilizing Oven	1	A 7	0	(D1,NE)
8 Top Pan Electronic Balance	1	A 8	0	(D1,NE)
9 Vortex Mixer	1	A 9	0	(D1,NE)
10 Stomacher Laboratory Blender	1	A 10	0	(D2,NE)
11 Refrigerator/Freezer	1	A 11	0	(D3,NE)
12 Laboratory glassware washing machine	1	B 1	11	(D2,NE)
13 Binocular microscope	1	B 2	3	(D2,NE)
14 Stainless steel blender with 50-250 ml	1	B 3	7	(D1,NE)
15 Colony counter	1	B 4	2	(D1,NE)
16 Bench centrifuge complete with heads	1	C 1	5	(D3,NI)
17 Pipette plugging machine	1	C 2	8	(D3,NE)
18 Bench top pipette deplugging unit	1	C 3	9	(D3,NE)

# EQUIPMENTS REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Quantity	Priority	old Ref.	Status
** Laboratory Unit :- . Textile Testing				
1. Flammability tester (vertical)	1	A 1	6	(D1, NI)
2. Flammability tester (45.)	1	A 2	7	(D1, NI)
3. Flammability tester (horizontal)	1	A 3	5	(D1, NI)
4. Flammability tester (hot nut)	1	A 4	8	(D1, NI)
5. Bundesman water repellancy tester	1	A 5	1	(D2, NI)
6. Air permeability tester	1	A 6	11	(D2, NI)
7. Seam slippage tester	1	A 7	9	(D2, NI)
8. Elemendorf tear resistance tester	1	A 8	10	(D3, NI)
9. Yarn evenness tester complete with mperfection	1	A 9	2	(D2, NI)
10. Microprocessor controller colour matching/measurin	1	A 10	3	(D3, NI)
11. Fibrograph	1	A 11	18	(D3, NI)
12. Weatherometer	1	B 1	4	(D3, NI)
13. Pilot knitting machine	1	B 2	16	(D3, NI)
14. Drape tester	1	C 1	14	(D3, NI)
15. Precision microtome	1	C 2	13	(D3, NI)
16. Zip tester	1	C 3	12	(D3, NI)
17. X-type viscometer	1	C 4	15	(D3, NI)
18. Trash analyzer	1	C 5	17	(D3, NI)



# EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- . Calibration/M_logy (MC)				
1 3 D Coordinate measuring machine	1	A 1	6	Introduction
2 Fixed point temperature calibration system	1	A 2	53	Introduction
3 Automatic gauge block calibrating system	1	A 3	13	Introduction
4 Air conditioned vehical-mobile calibration purpose	1	A 4	45	Introduction
5 Four terminal resistance bridge	1	A 5	55	Enhancement
6 Portable dry bath for Calibration	1	A 6	23	Introduction
7 Horizontal Universal length measuring machine	1	A 7	11	Introduction
8 Portable microcomputer with printer	1	A 8	7	Introduction
9 Surface Texture measuring equipment	1	A 9	54	Introduction
10 Mass comparator (0-100 kg)	1	A 10	15	Introduction
11 High Accuracy analytical balance	1	A 11	33	Introduction
12 Set of proving rings	1	A 12	18	Enhancement
13 Thermocouples	1	A 13	57	Replacement
14 General purpose reference hydrometer set	1	A 14	31	Introduction
15 Dead-weight pressure gauge tester	1	A 15	59	Enhancement
16 Direct indicating standards test gauges (Pressure)	1	A 16	17	Introduction
17 Specific gravity balances	1	A 17	29	Introduction

*Jan 28 1974*

# EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
18 Autocollimator	1	A 18	5	Introduction
19 Ceramic gauge blocks	1	A 19	1	Enhancement
20 Laser interferometer	1	A 20	10	Introduction
21 Load cell systems to cover the range	1	A 21	19	Enhancement
22 Slotted weight OIML-Class F1 (1kg-100kg)	1	A 22	16	Introduction
23 Volume calibration test equipment	1	A 23	27	Introduction
24 Precision Multimeters	1	A 24	38	Enhancement
25 Reference hydrometer set.	1	A 25	30	Introduction
26 PRT 100 (02 nos)	2	A 26	22	Introduction
27 Set of reference alcohol meters	1	A 27	32	Introduction
28 Standard Rockwell hardness tester	1	A 28	34	Introduction
29 Variable AC/DC power supply.	1	A 29	48	Introduction
30 Drying oven	1	A 30	44	Introduction
31 Stabilized power supply	1	A 31	39	Introduction
32 Temperature and humidity recorder	1	A 32	47	Introduction
33 8 channel temperature recorder	1	A 33	49	Enhancement
34 Deep freezer for storage of precision thermo.	1	A 34	21	Introduction
35 X-Y plotter with IEEE-488 interface 3 colour	1	B 1	46	Introduction
36 Tachometer calibrator	1	B 2	37	Introduction
37 Torque wrench calibrator	1	B 3	35	Introduction

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EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
38 Precisions bench center	1	B 4	12	Introduction
39 Dead-weight/Lever Force calibrating machine	1	B 5	52	Introduction

EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- . Mech. Workshop (EW)				
1 Lathe machine	1	A 1	5	(D1,R)
2 <sup>Metal</sup> Sheet working Machine	1	A 2	4	(D1,R)
3 Shaping machine	1	A 3	1	(D1,R)

EQUIPMENT REQUESTED UNDER THE JAPANESE AID PROGRAMME

Equipment	Qty.	Priority	Old Ref.	Status
** Laboratory Unit :- General.(GL)				
1 Computer Systems (5 Computers and Printers)	5	A 1	0	NE
2 Standard Reference Material	1	A 1	0	(NI,R)

#### BASIS FOR PRIORITY

- (1) Critical Compulsory Standards Import-Inspection - CI
  - Compulsory Standards-Product Certification - CD
  - (Domestic)
- (2) Demand (based on statistics)
  - D1 - High Demand
  - D2 - Medium Demand
  - D3 - Low Demand
- (3) Replacement - R
- (4) New-Expansion - NE
- (5) New-Introduction-NI

#### Priority comparison between laboratories

##### Priority

- |   |                |
|---|----------------|
| 1 | CI,CD,D1,R     |
| 2 | CI,CD,D1,NE    |
| 3 | CI,CD,D1,NI    |
| 4 | CI,CD,D2,NI/NE |
| 5 | D1,NI/NE       |
| 6 | D2,NI/NE       |
| 7 | D3,NI/NE       |

It is agreed that thirty percent (30%) of the total budget be allocated for equipment for the Metrology and Calibration Laboratory on condition that Japan's Grant aid is extended to the project.

ANNEX-3

Japan's Grant Aid Scheme

1. *Grant Aid Procedures*

- 1) 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	(The Notes exchanged between the Governments
Implementation	of Japan and the recipient country)

- 2) 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).

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 by 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") 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) firms(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*

#### 1) What is Grant Aid ?

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.

#### 2) 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.

#### 3) "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 be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

#### 4) 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.)

5) 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 the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) 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.

7) "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.

8) "Re-export"

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

9) 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.

#### ANNEX-4

Following necessary measures shall be taken by the Government of Sri Lanka on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. To provide data and information necessary for the Project.
2. To provide the following incidental facilities to the Project:
  - (1) Electricity distribution line to the site,
  - (2) City water distribution main to the site,
  - (3) Drainage main to the site,
  - (4) Telephone trunk line to the site,
  - (5) General furniture such as carpet, curtain and others, and
  - (6) Other incidental facilities necessary for the Project realization.
3. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission.
4. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in Sri Lanka and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid.
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Sri Lanka and stay therein for the performance of their work.
6. To exempt Japanese juridical and physical nationals engaged in the Project from custom 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.
7. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary.
8. To maintain and use properly and effectively all the equipment

provided under the Grant Aid.

9. To bear all expenses, other than those to be borne by the Grant Aid, necessary for the execution of the Project.

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## Appendix-5 Social and Economic Conditions of Sri Lanka

Name of Country	Democratic Socialist Republic of Sri Lanka
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General Index					
Form of Government	Republic	*1	Area of land	65 thousand km2	*1
Sovereign	Pres ident: Chandrika Kumaratunga	*1	Population	17,838 thousand (1993)	*1
Independent day	February 4, 1948	*1	Capital city	Sri Jayawardenepura Kotte	*1
Nation	Sinhalese:74%, Tamils:18%	*1	Principal cities	Galle, Jaffna, Matara	*1
		*1	Poulation of Production	6,600 thousand (1985)	*1
Language	Sinhala, Tamil, English	*1	Compulsory education	7 years (1992)	*2
Religion	Buddhism:69%, Hindu:15%	*1	Enrolment ratio	— %	*2
Joining U. N.	December 1955		Literacy ratio	88.0% (1990)	*1
World Bank, IMF	August 1950	*1	Population density	268.0 persons/km2 (1992)	*2
			Population increase rate	1.11% (1993)	*2
			Average span of life	Av. 71.7 m. 68.9 f. 74.2	*1
			Decease rate of infant	22.8/1,000 (1993)	*1
			Calorie of food	2,250.0 cal/d/person (1990)	*2

Economic Index					
Currency	Sri Lanka Rupee (Rs.)	*1	Trade		(1993) *3
Exchange Rate	1US\$=49.43 in November 1994	*3	Export	2,859.0 mil\$	*2
Financial Year	January - December	*1	Import	3,974.0 mil\$	*2
National Budget	(1992)	*2	Import cover rate	2.8%	(1992) *4
Income	1,939.4 mil\$	*2	Principal exports	Textile, Tea, Oil Products, Rubber	*1
Expenditure	2,710.6 mil\$	*2	Principal imports	Food, Beverage, Textile, Oil	*1
Balance of Trade	223.9 mil\$ (1992)	*2	Export to Japan	151.0 mil\$ (1992)	*5
ODA Acceptance	658.0 mil\$ (1992)	*2	Import from Japan	359.0 mil\$ (1992)	*5
GDP	9,623.0 mil\$ (1992)	*4			
GDP per Capita	526 \$ (1991)	*4	Foreign money holdings	1,990.0 mil\$ (1994)	*1
GDP per Sector	Agriculture 27.0%		Debt	6,401.0 mil\$ (1992)	*4
	Industry 25.0%		Payment rate of debt	15.5%	(1992) *4
	Service 48.0%		Inflation rate	10.1%	(1992) *2
Employment per sector	Agriculture 49.0%	*2			
	Industry 21.0%				
	Service 30.0%		National Development Plan	Fourteenth Public Investment (1992)	*5
Economic growth rate	4.1% (1992)	*4			

Weather conditions (average of 1954 - 1979 : Colombo (above sea level 7 m))													
Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Av. /Total
Max. Temp.	30.0	31.0	31.0	31.0	31.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.7°C
Min. Temp.	22.0	22.0	23.0	24.0	26.0	25.0	25.0	25.0	25.0	24.0	23.0	22.0	23.8°C
Av. Temp.	26.0	26.5	27.0	27.5	28.5	27.0	27.0	27.0	27.0	26.5	26.0	25.5	26.7°C
Precipi.	89.0	69.0	147.0	231.0	371.0	224.0	135.0	109.0	160.0	348.0	315.0	147.0	2,345.0mm
Wet/Dry	rainy rainy rainy, rainy rainy,												

\*1 The World Factbook (C.I.A)

\*2 Human Development Report (UNDP)

\*3 International Financial Statistics (IMF)

\*4 World Debt Tables (WORLD)

\*5 The newest world country summary (Tokyo shoseki)

\*6 World Weather Guide

\*7

ODA supplied by Japan (Million Yen)				
Sect. \ F. Year	1989	1990	1991	1992
Grant	204,346	238,247	25,153	269,997
Technical Assistance	214,674	198,963	20,507	219,495
Loan	516,142	567,639	736,447	585,205
Total	935,162	1,004,849	782,107	1,074,697

\*7

ODA from Japan to Sri Lanka (Million \$)				
Sect. \ Year	1989	1990	1991	1992
Grant	75.84	74.39	48.05	43.78
Technical Assistance	17.79	16.58	19.23	20.97
Loan	91.57	85.10	188.86	31.31
Total	185.20	176.07	256.14	96.06

\*8

Economic cooperation by ODA countries (Million \$)						
	Grant (1)		Loan (2)	ODA (1)+(2)=(3)	Others (4)	Total (3)+(4)
		Tech. Assis.				
Direct (Principal)	227.30	106.00	21.50	354.80	0.90	355.70
1. Japan	64.80	21.00	31.30	117.10	0.00	117.10
2. USA	48.00	23.00	4.00	75.00	0.00	75.00
3. U. K.	18.30	10.30	-2.10	26.50	-4.80	21.70
4. Germany	18.20	12.20	-14.20	16.20	-0.90	15.30
Indirect (Principal organization)	44.90	25.10	353.50	423.50	-10.70	412.80
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Others	69.30	35.80	-14.30	90.80	-6.70	84.10
Total	341.50	166.90	360.70	869.10	-16.50	852.60

\*9

Organization in charge of accepting aid	
Technology	Public corporation → Ministry concerned
Grant	Public corporation → Ministry concerned
Cooperator	Public corporation → Ministry concerned

\*7 Japan's ODA (Annual Report)

\*8 Geographical Distribution of Financial Flows of  
Developing Countries (OECD/OCDE)

\*9 Information of cooperation with each country (JICA)



## **Appendix-6 Cost Estimation Borne by Sri Lanka**

Expected costs borne by Sri Lanka when implemented the Project are suggested in the below.

### **1. Cost for Landing, Custom Clearance and Internal Transportation : US\$1,100**

〈Condition〉

- a. Charges of Bonded Warehouse for 2 weeks
- b. Distance between Colombo Sea Port to SLSI : 8 km
- c. Total measurements of equipment, estimated: 248.25M<sup>3</sup>
- d. Charges of trailer (within 80kms, 10hours) : Rs.2,480/20feet trailer
- e. Charges of container storage and its handling : US\$15.0/20feet container
- f. Cost of custom clearance : US\$50
- g. Landing charges : US\$70
- h. 1 US\$ = Rs. 50

### **2. Re-enforcement of Material Testing Lab. (re-enforcement of foundation and others) : US\$152**

〈Condition〉

- a. Rs.200/50kg Cement x 6
- b. River sand : Rs.920/cube x 5
- c. Worker : @Rs.300/day x 2 personnel
- d. Duration of construction : 3 days

### **3. Miscellaneous Cost (Consumable, stationery and etc.) : US\$150**

〈Condition〉

- a. Office consumable : US\$50
- b. Consumable of laboratories : US\$100

Cost source: Sri Lanka Industrial Factor Costs, January 1994 by Ministry of Industries, Science and Technology



資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

1. MATERIAL TESTING LABORATORY

No.	Description
1	Oven - (Griffin)
2	Oven - (B & T)
3	Oven - (Mommert)
4	Analytical balance - (Mettler)
5	Hardness tester (Karl frank)
6	Hardness tester (Karl frank)
7	Hardness tester (Tokyo testing)
8	Hardness tester (Tokyo testing)
9	Hardness tester (Karl frank)
10	Hydrostatic pressure tester (Wavin)
11	Metallurgical microscope with camera attachment (Olympus)
12	Universal testing machine (avery)
13	Universal impact testing machine
14	Compression testing machine (avery)
15	Climatic testing chamber
16	Miniload hardness tester (Leitz)
17	X-ray machine
18	Steel cupboards (Containing measuring tools and other accessories)

## 資料-7 既存機材リスト

### Appendix-7 Existing Laboratory Equipment

#### 2. ELECTRICAL & ELECTRONIC LABORATORY

No.	Description	No.	Description
1	Kelvin bridge	41	Travelling vernier microscope
2	High voltage test set	42	Portable current transformer
3	Transformer	43	Portable current transformer
4	Voltmeter	44	Portable current transformer
5	Signal generator	45	Portable current transformer
6	Power supply (Farnell)	46	Data logger
7	Recorder (Multi point)	47	Integrating sphere
8	Voltage probe	48	Digital anemometer
9	Digital power factor meter	49	Loading resistor (fan cooled)
10	High voltage flash tester	50	Loading resistor (fan cooled)
11	Multimeter IEEE 488	51	Digital power factor meter
12	XYT recorder (Ribandenki)	52	Digital power meter
13	Chart recorder(Ribandenki)	53	Thermo stirrer
14	Power meter (YEW)	54	Rheostat
15	Mini digital (Thermometer)	55	Hot pressure test apparatus
16	Digital multimeter	56	Portable recording meter
17	Regulator DC/power supply	57	Power meter
18	DC-power supply	58	Voltage stabilizer
19	Travelling vernier microscope	59	Digital multimeter
20	Photometer (Portable)	60	Oscilloscope
21	Digital multimeter	61	Wattmeter
22	Automatic precision bridge	62	Wattmeter
23	Vernier potentiometer	63	Oscilloscope
24	Resistance bridge		
25	Voltage ratio box		
26	Standards cell bank		
27	Standard cell		
28	Standard cell		
29	Standard cell		
30	Standards resistance		
31	Standards resistance		
32	Standards resistance		
33	Nonovoltmeter		
34	Nonovoltmeter		
35	Nonovoltmeter		
36	Distilling apparatus		
37	Oven		
38	Oven		
39	Computer - Epson PC		
40	Hygrothermograph		

資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

3. FOOD & CHEMICAL LABORATORY

No.	Description	No.	Description
1	Spectrophotometer (Perkin Elmer)	41	UV cabinet (Caamag)
2	Recorder (Perkin Elmer)	42	Muffle furnace (Enret)
3	Beckmann pH meter	43	Furnace (Carbolite)
4	Carbondioxide pressure gauge	44	Furnace (Townson Mercer)
5	Hand refractometer (Sugar scale)	45	Furnace
6	Digital refractometer (Atago)	46	Furnace
7	Oven (Memmert)	47	Multi extraction heater
8	Vacuum oven	48	Rotacevaporator (Buchi)
9	Universal oven	49	Flame photometer (Eel)
10	Universal oven	50	Karl Fishre titrator (Stantohm)
11	Universal oven	51	Reporting integrator (Hewlett Packard)
12	Balance - (Stranton)	52	Digestor unit (Buchi)
13	Balance - Analytical (Mettler)	53	Distillation unit (Buchi)
14	Balance - Analytical (Mettler)	54	Turbidity meter
15	Universal oven (Memmert)	55	Conductivity meter
16	Balance universal (Sartorius)	56	Laboratory sample mill (Cemotec)
17	Balance universal (Sartorius)		Tecator
18	Centrifuge - (Minor)	57	Lab grinding mill
19	Centrifuge - MSE	58	Lab grinding mill
20	Centrifuge	59	Sample mill (ajelotec) Tecator
21	Polarimeter, (Research Type)	60	Melting point apparatus
22	Polarimeter (Atago)	61	Fibertec system (Zecator)
23	Water pump	62	Immersion cooler
24	Atomic absorption spectrophotometer (Varian 1275)	63	H. P. L. C (Waters)
25	Strip chart recorder (Varian)	64	Flash point apparatus
26	Ionalyzer (Orion)	65	Reverse osmosis system (Millipore)
27	Hot plate (Ceran)	66	Flash point
28	Water bath (Memmert)	67	Flask shaker (B & T)
29	Water bath	68	Deionizer
30	Water bath	69	Moisture meter
31	Water bath	70	Soxtec Fat extraction apparatus
32	Stirrer (Gallenkamp)		Tecator
33	Seive shaker	71	Heating mantles (10 nos.)
34	Oil bath (Memmert)	72	Vacuum cleaner (Hoover)
35	Tintometer (Lovibond)	73	Refrigerator (National)
36	G. L. C (Varian 3700)	74	Refrigerator (Sisil)
37	Chart recorder (Varian)		
38	Vacuum pump (43 M)		
39	Vacuum pump (Edward)		
40	Viscometer (Redwood)		

資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

4. MICROBIOLOGY LABORATORY

No.	Description
1	Autoclave (Griffin)
2	Autoclave (Portable)
3	Autoclave (B & T)
4	Balance (Digital)
5	Refrigerator
6	Incubator (Gallenkamp)
7	Incubator (B & T)
8	Incubator (Memmert)
9	Balance (Mettler)
10	Water bath (B & T)
11	Water bath
12	Water bath (Gallenkamp)
13	Microscope
14	Water bath (Techne)
15	Sterilising oven
16	Water still
17	Autoclave (Gallenkamp)
18	Thermoconstanter
19	Water bath
20	Membrane filtraion system (Millipore)
21	Nephelometer
22	Unigalvo
23	Dip cooler
24	Safety cabinet
25	Membrane filter system
26	Gaspack anaerobic system
27	Microscope (Nikon)
28	Oven (Memmert)
29	Water bath (Coliform)
30	Blender (Stomaclur)
31	Deep freezer
32	Water bath (Memmert)
33	pH Meter

資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

5. TEXTILE LABORATORY

No.	Description
1	Air Humidifier
2	Abrasion testing machine
3	Automatic balance
4	Torsion balance
5	Platform electronic balance
6	Analytical balance with data interface
7	Bursting strength tester
8	Burst tester
9	Crimp tester
10	Crease recovery tester
11	Crock metre
12	Computer
13	Cloth thickness tester
14	Colour comparision
15	Extenso meter
16	Incubater
17	Light fastness tester
18	Projecting microscope
19	Oven
20	Perspirometer
21	Pressly tester
22	Staple diagram
23	Twist tester
24	Tensile testing instrument
25	Tensile testing machine T 5002
26	Thread counter
27	Wrap reel
28	Wrap reel
29	Wash wheel
30	Washing machine
31	Wire cotton fineness tester
32	Yarn examining machine
33	Yarn strength testing
34	Hygrothermo graph

資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

6. CALIBRATION LABORATORY

No.	Description	No.	Description
1	Certified weights set	51	Dead-weight pressure gauge tester
2	Certified weights set	52	Piston & cilinder unit
3	Certified weights set	53	Oil scaler (for PGT)
4	Certified weights set	54	Hg-in-glass thermometer
5	Certified weights (2 x 10 kg)	55	Hg-in-glass thermometer
6	Certified weights (1 x 10, 1 x 5)	56	Hg-in-glass thermometer
7	Certified weight (50 kg)	57	Hg-in-glass thermometer
8	Certified weight (20 kg)	58	Hg-in-glass thermometer
9	Weight (100 g)	59	Hg-in-glass thermometer
10	Weight (200 g)	60	Hg-in-glass thermometer
11	Weight (500 g)	61	Hg-in-glass thermometer
12	Weight (1 kg)	62	Hg-in-glass thermometer
13	Weight (2 kg)	63	Hg-in-glass thermometer
14	External Mic.	64	Hg-in-glass thermometer
15	Ext. micrometer (0 - 1")	65	Hg-in-glass thermometer
16	Ext. micrometer (1 - 2")	66	Hg-in-glass thermometer
17	Ext. micrometer (2 - 3")	67	Hg-in-glass thermometer
18	Screw thread mic.	68	Hg-in-glass thermometer
19	Screw thread mic.	69	Hg-in-glass thermometer
20	Screw thread mic.	70	Hg-in-glass thermometer
21	Screw thread micrometer	71	Hg-in-glass thermometer
22	Screw thread micrometer	72	Hg-in-glass thermometer
23	Screw thread micrometer	73	Hg-in-glass thermometer
24	Measuring anvil set (uni/met)	74	Hg-in-glass thermometer
25	Measuring anvil set (whitworth)	75	Hg-in-glass thermometer
26	Digital micrometer	76	Hg-in-glass thermometer
27	Digital mic (Spherical anvil)	77	Hg-in-glass thermometer
28	Depth micrometer	78	Hg-in-glass thermometer
29	Depth micrometer	79	Hg-in-glass thermometer
30	Depth micrometer	80	Hg-in-glass thermometer
31	Depth micrometer	81	Hg-in-glass thermometer
32	3-PT. bore gauge	82	Hg-in-glass thermometer
33	3-PT. bore gauge	83	Hg-in-glass thermometer
34	Bore gauge (Split anvil type)	84	Hg-in-glass thermometer
35	Bore gauge (Split anvil type)	85	Hg-in-glass thermometer
36	Bore gauge (Split anvil type)	86	Faden thermometer / 165 mm
37	Bore gauge (Split anvil type)	87	Faden thermometer / 64 mm
38	Bore gauge (Split anvil type)	88	Precision thermo. SR4 - 11
39	Bore gauge (Split anvil type)	89	Precision thermo. SR4 - 11
40	Bore gauge (Split anvil type)	90	Precision thermo. SR4 - 11
41	Bore gauge (Split anvil type)	91	Precision thermo. SR5 - 20
42	Bore gauge (Split anvil type)	92	Precision thermo. SR5 - 20
43	Bore gauge (Split anvil type)	93	Precision thermo. SR5 - 20
44	Dial gauge service kit	94	Precision thermo. SR5 - 30
45	Micrometer stand	95	Precision thermo. SR5 - 30
46	Digital multimeter	96	Precision thermo. SR5 - 30
47	Digital multimeter	97	Precision thermo. SR5 - 40
48	Digital multimeter	98	Precision thermo. SR5 - 40
49	Dead-weight pressure gauge tester	99	Precision thermo. SR5 - 40
50	Dead-weight pressure gauge tester	100	Precision thermo. SR5 - 50



資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

6. CALIBRATION LABORATORY

No.	Description	No.	Description
101	Precision thermo. SR5 - 50	151	Gauge block
102	Precision thermo. SR5 - 50	152	Gauge block
103	Precision thermo. SR5 - 60	153	Gauge block
104	Precision thermo. SR5 - 60	154	Gauge block
105	Precision thermo. SR5 - 60	155	Gauge block
106	Precision thermo. SR5 - 70	156	Gauge block
107	Precision thermo. SR5 - 70	157	Gauge block
108	Precision thermo. SR5 - 70	158	Gauge block
109	Precision thermo. SR5 - 80	159	Gauge block accessory kit
110	Precision thermo. SR5 - 80	160	Gauge block service kit
111	Precision thermo. SR5 - 80	161	Angle gauge block set
112	Precision thermo. SR5 - 90	162	Profile projector
113	Precision thermo. SR5 - 90	163	Lens set
114	Precision thermo. SR5 - 100	164	Lens set
115	Precision thermo. SR5 - 100	165	Lens set
116	Precision thermo. SR5 - 100	166	lens set
117	Precision thermo. SR8 - 151	167	Swivel center support
118	Precision thermo. SR8 - 151	168	V-Block/Clamp
119	Precision thermo. SR8 - 151	169	Glass graticule
120	Precision thermo. SR8 - 201	170	Glass graticule
121	Precision thermo. SR8 - 201	171	Rotary table
122	Precision thermo. SR8 - 201	172	Digital thermometer
123	Precision thermo. SR8 - 251	173	Resistance bridge
124	Precision thermo. SR8 - 251	174	Selector switch
125	Precision thermo. SR8 - 251	175	Selector switch
126	SPRT	176	Junction box
127	SPRT	177	Calibration tester
128	SPRT	178	Calibration tester acc.
129	Na-Lamp	179	Tube furnace
130	Dial lens meter	180	Thermocouple
131	Snap meter	181	Thermocouple
132	Transfer stand	182	Thermocouple
133	Transfer stand	183	Thermocouple
134	Mu-Checker (differential meas.)	184	Thermocouple
135	Cartridge head (metric)	185	Thermocouple
136	Cartridge head (inch)	186	Ice making machine
137	Lever head	187	Fluidized alumina bath
138	Sine bar	188	Digital temperature recorder
139	Sine bar	189	Ice - Cell
140	Internal dial caliper	190	Tintometer
141	Internal dial caliper	191	Proving ring (100 kg)
142	Internal dial caliper	192	Proving ring (250 kg)
143	Dial test indicator	193	Proving ring (500 kg)
144	Bath, refrigerated	194	Proving ring (1,000 kg)
145	Bath, refrigerated	195	Proving ring (2,500 kg)
146	Electronic level	196	Proving ring (5,000 kg)
147	Talyvel block base-300 mm	197	Proving ring (10,000 kg)
148	Talyvel box frame	198	Load cell (2,000 kN)
149	Gauge block set (BS/G-11)	199	Micro jack
150	Gauge block set (BS/G-1)	200	Vacuum gauge tester

資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

6. CALIBRATION LABORATORY

No.	Description	No.	Description
201	Gauge stand	251	Surface plate acc.
202	Reading lens	252	Surface plate acc.
203	Reading lens stand	253	Surface plate acc.
204	Reading lens stand	254	Surface plate acc.
205	Optical flat (60 mm)	255	Surface plate acc.
206	Optical flat (45 mm)	256	Universal bevel protractor
207	Optical parallels (set of 4)	257	Universal bevel protractor
208	Optical parallels (set of 4)	258	Voltage stabiliser
209	Bore gauge set frame	259	V-Blocks & clamps
210	Bore gauge ext. rod	260	V-Blocks
211	Sine plate		
212	Dial indicator set		
213	Dial gauge		
214	3-wire unit gauge		
215	3-wire unit gauge		
216	3-wire unit gauge		
217	Bath, precision calibration		
218	Vernier heightGauge (600 mm)		
219	Center probe		
220	Depth measuring attachment		
221	Depth measuring attachment		
222	Contact sensor		
223	Dial indicator (0-5/0.01 mm)		
224	Dewar flask & stirrer		
225	Optical pyrometer		
226	Data processor		
227	Pyrometer close-up lens		
228	Pyrometer close-up lens		
229	Pyrometer close-up lens		
230	Pyrometer close-up lens		
231	Pyrometer protec. lens		
232	DC power supply		
233	Digital scanner		
234	Pipe vernier caliper		
235	Vernier caliper		
236	Vernier caliper		
237	Height master		
238	Console		
239	Stand		
240	Reverse reading block		
241	Standard block (25 mm)		
242	Instrument welder		
243	Pressure gauge (precision)		
244	Std. resistor		
245	Std. resistor		
246	Std. resistor		
247	Steel straight edge		
248	Surface table		
249	Surface plate acc.		
250	Surface plate acc.		

資料-7 既存機材リスト

Appendix-7 Existing Laboratory Equipment

7. ENGINEERING WORKSHOP

No.	Description
1	Lathe machine
2	Universal milling machine
3	Power saw
4	Vertical drilling machie
5	Air compressor
6	Welding trasformer



資料-8 要請機材リスト

Appendix-8 Requested Equipment under the Japanese Grant Aid Program

Code No.	Equipment	機材名	Q'ty
<b>A. MATERIAL TESTING LABORATORY</b>		<b>材料試験実験室</b>	
1	Helmet testing equipment	ヘルメット試験装置	1
2	Cement / Concrete testing equipment	セメント・コンクリート試験装置	1
3	Micro-lathe machine	マイクロ旋盤	1
4	Profile projector with accessories	投影装置	1
5	Plastic/Rubber testing equipment	プラスチック/ゴム試験機材	1
6	Paint testing equipment	塗装試験機材	1
7	Paper/Packaging material test equipment	紙/包装材料試験機材	1
8	Reference hardness blocks	硬度測定標準ブロック	1
9	Mini load hardness tester	小型硬度試験機	1
10	NDT equipment - industrial X-ray machine	非破壊検査装置	1
11	Distill water plant	蒸留水製造装置	1
12	Metallographic equipment	金属試験用機材	1
13	Set of equipment required for viscosity measurement	粘性試験機材	1
<b>B. ELECTRICAL AND ELECTRONIC LABORATORY</b>		<b>電気・電子実験室</b>	
1	Continuously variable DC power supply	連続直流電源	1
2	Voltage Stabilizer	電源安定化装置	3
3	Plugs and socket outlets test equipment	プラグ・ソケット試験装置	1
4	Inductive load for switch testing	スイッチ試験用誘導負荷器	1
5	Tracking test apparatus	トラッキング試験装置	1
6	Glow wire test apparatus	グローワイヤー試験装置	1
7	Test fingers & test pins	感電試験ピン	1
8	Torque tester	ネジ用トルクテスター	2
9	Endurance test machine for switches	スイッチ用耐久試験装置	1
10	Shutter endurance testing machine for socket outlet	ソケット用耐久試験装置	1
11	Multi-channel temperature recorder	多チャンネル温度記録計	1
12	Flexing machine for cables	ケーブル屈曲試験機	1
13	Chart recorders	記録計	2
14	Impact test apparatus	衝撃試験装置	1
15	Digital thermometer	デジタル温度計	1
16	Push pull gauge	押引力ゲージ	1
17	Resistive load	抵抗負荷器	1
18	Earth leakage circuit break testar	漏電遮断器試験装置	1
19	Integrating photometer and standard lamps for testing fluorescent lamps	蛍光ランプテスト用全光束計	1
20	Climatic chamber	恒温恒湿槽	2
21	Earth resistance measuring equipment	接地抵抗測定器	1
22	Chart recorder (Flat bed type)	記録計	1
23	Battery charger	バッテリー充電器	1
24	Spray test apparatus	注水試験装置	1
25	Splash test apparatus	はね水試験装置	1
26	Radio frequency interference measuring equipment	ラジオ妨害波干渉試験装置	1
27	DC power supply	直流安定電源	1

資料-8 要請機材リスト

Appendix-8 Requested Equipment under the Japanese Grant Aid Program

Code No.	Equipment	機材名	Q'ty
28	Vertical rain test apparatus	降雨試験装置	1
29	Needle flame test apparatus	ニードルフレーム試験装置	1
30	Hot mandrel test apparatus	ホットマンドレル試験装置	1
<b>C. FOOD AND CHEMICALS LABORATORY</b>		<b>食品・化学実験室</b>	
1	Atomic absorption spectrophotometer with the background corrector and graphite furnace	原子吸光光度計	1
2	Capillary gas liquid chromatograph	ガスクロマトグラフ	1
3	Carbon/Sulphur analyzer	炭素・硫黄分析装置	1
4	IR spectrophotometer	赤外線分光光度計	1
5	Ionizer	イオナイザー	1
6	Flame photometer	炎光光度計	1
7	Analytical balance	分析天秤	1
8	Polarograph	ポーログラフ	1
9	Microwave oven	電子レンジ	1
<b>D. MICROBIOLOGY LABORATORY</b>		<b>微生物実験室</b>	
1	Top loading autoclave	滅菌器 (オートクレーブ)	1
2	pH meter	pHメーター	1
3	Horizontal laminar flow cabinet	ラミナーフローチャンバー	1
4	Air sampler	エアサンプラー	1
5	Precision pressure gauge	精密圧力ゲージ	1
6	Multi-channel temperature recorder	多チャンネル温度計	1
7	Sterilizing oven	滅菌乾燥機	1
8	Top pan electronic balance	電子天秤	1
9	Vortex mixer	混合機	1
10	Stomacher laboratory blender	ラボブレンダー	1
11	Refrigerator / Freezer	冷凍・冷蔵庫	1
12	Laboratory glassware washing machine	ガラス器具洗浄装置	1
13	Binocular microscope	生物顕微鏡	1
14	Stainless steel blender	ステンレス製混合機	1
15	Colony counter	群体計数器	1
16	Bench top centrifuge	遠心分離装置	1
17	Pipette plugging machine	ピペット充填器	1
18	Bench top pipette deplugging unit	卓上ピペット充填器	1
<b>E. TEXTILE LABORATORY</b>		<b>繊維実験室</b>	
1	Flammability tester (vertical)	垂直燃焼性試験装置	1
2	Flammability tester (45 degrees)	45° 傾斜燃焼性試験装置	1
3	Flammability tester (horizontal)	水平燃焼性試験装置	1
4	Flammability tester (hot nut)	敷物燃焼性試験装置	1
5	Bundesmann water repellence tester	撥水性試験器	1
6	Air permeability tester	通気性試験装置	1
7	Seam slippage tester	縫目滑脱試験装置	1

資料-8 要請機材リスト

Appendix-8 Requested Equipment under the Japanese Grant Aid Program

Code No.	Equipment	機材名	Q'ty
8	Elemendorf tear resistance tester	エレメント型引裂抵抗試験装置	1
9	Yarn evenness tester	糸むら試験装置	1
10	Microprocessor controlled color matching/measuring system	コンピュータ色合せ試験装置	1
11	Fibrograph	繊維長測定器	1
12	Weatherometer	耐候試験装置	1
13	Pilot knitting machine	編み試験装置	1
14	Drape tester	ドレープテスター	1
15	Precision microtome	精密ミクローム	1
16	Zip tester	チャック試験装置	1
17	X-type viscometer	X型粘度計	1
18	Trash analyzer	糸屑分析装置	1
<b>F. METROLOGY/CALIBRATION LABORATORY</b>		<b>計量・校正試験室</b>	
1	3 D Coordinate measuring machine	三次元測定機	1
2	Fixed Point Temperature Calibration system	固定点温度校正システム	1
3	Automatic gauge block calibrating system	ゲージブロック自動校正装置	1
4	Air conditioned vehicle-mobile calibration purpose	移動校正用エアコン付車輛	1
5	Four terminal resistance bridge	4端子抵抗ブリッジ	1
6	Portable dry bath for calibration	簡易型校正バス	1
7	Horizontal universal length measuring machine	横型万能測長器	1
8	Portable microcomputer with printer	パソコン、プリンター付き	1
9	Surface texture measuring equipment	表面粗さ測定器	1
10	Mass comparator (0-100kg)	マスコンパレータ	1
11	High accuracy analytical balance	精密分析天秤	1
12	Set of proving rings	検定リングセット	1
13	Thermocouples	熱電対	1
14	General purpose reference hydrometer set	多目的標準液体比重計セット	1
15	Dead-weight pressure gauge tester	荷重式圧力ゲージテスター	1
16	Direct indicating standards test gauges (Pressure)	直示型圧力ゲージ	1
17	Specific gravity balance	比重天秤	1
18	Autocollimator	自動視準器	1
19	Ceramic gauge blocks	セラミックゲージブロック	1
20	Laser interferometer	レーザー干渉計	1
21	Load cell systems	圧縮引張用ロードセル	1
22	Slotted weight OIML-Class F1 1 kg-100 kg	切込付き荷重	1
23	Volume calibration test equipment	体積校正試験セット	1
24	Precision multimeter	精密マルチメーター	1
25	Reference hydrometer set	標準液体比重計	1
26	PRT 100	白金抵抗温度計	2
27	Set of reference alcohol meters	標準アルコール測定器セット	1
28	Standard Rockwell hardness testers	標準硬度計	1
29	Variable AC/DC power supply	可変直流・交流電源	1

資料-8 要請機材リスト

Appendix-8 Requested Equipment under the Japanese Grant Aid Program

Code No.	Equipment	機材名	Q'ty
30	Drying oven	乾燥オーブン	1
31	Stabilized power supply	安定化電源	1
32	Temperature and humidity recorder	温度・湿度記録計	1
33	8 channel temperature recorder	ペン型8点記録温度計	1
34	Deep freezer	精密温度計保管用冷凍庫	1
35	X-Y plotter	X-Yプロッター	1
36	Tachometer calibrator	回転計校正器	1
37	Torque wrench calibrator	トルクレンチ校正器	1
38	Precision bench center	精密加工台	1
39	Dead-weight / Lever force calibrating machine	荷重レバー式力校正器	1
<b>G. ENGINEERING WORKSHOP</b>		<b>工作室</b>	
1	Lathe machine	旋盤	1
2	Metal sheet working machine	金属板加工機	1
3	Shaping machine	シェーパー	1
<b>H. GENERAL</b>		<b>共用施設</b>	
1	Computer systems	パソコンシステム	5
2	Standard reference material	標準試薬、材料	1



## 資料-9 強制検査項目

Appendix-9 Items Covered Under the Import Inspection Scheme Operated by SLSI

Item coming under Import Inspection Scheme		該当列・リカ規格
1	Canned fish	-SLS 591
2	Condensed milk	-SLS 179
3	Fruit squashes, fruit syrup and fruit cordials	-SLS 214
4	Synthetic / Artificial cordials	-SLS 221
5	Fruit concentrates	-SLS 730
6	Ready to serve fruit drinks	-SLS 729
7	House hold electric switches	-SLS 1000
8	House hold electric plugs and socket outlets and adaptors	-SLS 948
9	House hold electric lamp holders	-SLS 138
10	House hold electric bulbs	-CS 61
11	Domestic hotplates	-SLS 646
12	Brown sugar	-SLS 883
13	Conductors in insulated cables and cords	-SLS 695
14	Cables for electric power and lighting	-SLS 733
15	Flexible cords	-SLS 879
16	Electric cables with conductor cross-sectional area above 35mm <sup>2</sup>	-SLS 987
17	Soya bean oil	-SLS 293
18	Ground nut (pea nut) oil	-SLS 947
19	Sunflower seed oil	-SLS 946
20	Palm oil	-SLS 720
21	Coconut oil	-SLS 32
22	Palm kernel oil	-SLS 862
23	Sesame oil	-SLS 231
24	Corn oil	-SLS 905
25	Palm olein	-SLS 961
26	Palm strearin	-SLS 960
27	Jams, jellies, marmalades and preserves homogenised preparations	-SLS 265
28	Butter	-SLS 279
29	Margarine	-SLS 277
30	Sweet biscuits	-SLS 251
31	Rusks	-SLS 251
32	Skimmed milk powder	-SLS 731
33	Full cream milk powder	-SLS 731
34	Tomato sauce	-SLS 260
35	Chillie sauce	-SLS 581
36	Bicycle tyres	-SLS 224
37	Bicycle Tubes	-SLS 127
38	Torch batteries	-SLS 319
39	Vacuum flasks	-SLS 397
40	Boxes of matches	-SLS 11
41	Cotton sewing thread	-CS 112
42	Spun polyester sewing thread	-SLS 757
43	UPCV pipes for potable cold water supplies	-SLS 147

## 資料-9 強制検査項目

Appendix-9 Items Covered Under the Import Inspection Scheme Operated by SLSI

Item coming under Import Inspection Scheme		該当スリ・ラカ規格
44	PVC pipe socket	-SLS 659 Part 1
45	Mosquito coils	-SLS 453
46	Asbestos flat sheets	-SLS 9 Part 1
47	Asbestos corrugated sheets	-SLS 9 Part 2
48	Exercise books	-SLS 382
49	Ordinary Portland cement	-SLS 107
50	Hot rolled mild Steel round bars	-CS 26
51	Cold worked steel bars	-SLS 375
52	Hot rolled steel bars for structural and general engineering purposes	
	i) Round bars	-SLS 949 Part 1
	ii) Square bars	-SLS 949 Part 2
	iii) Hexagonal bars	-SLS 949 Part 3
	iv) Flats	-SLS 949 Part 5
53	Mild steel wire	-CS 139
54	Cold drawn wire mild steel for manufacture of wire nails	-SLS 7
55	Hot rolled structural steel sections	
	i) U sections (channels)	-SLS 907 Part 3
	ii) L Sections (Equal & unequal angles)	-SLS 907 Part 4
	iii) T sections	-SLS 907 Part 5
56	Helmets	-SLS 517

## 資料-10 品質管理トレーニングプログラム

### TRAINING PROGRAMMES

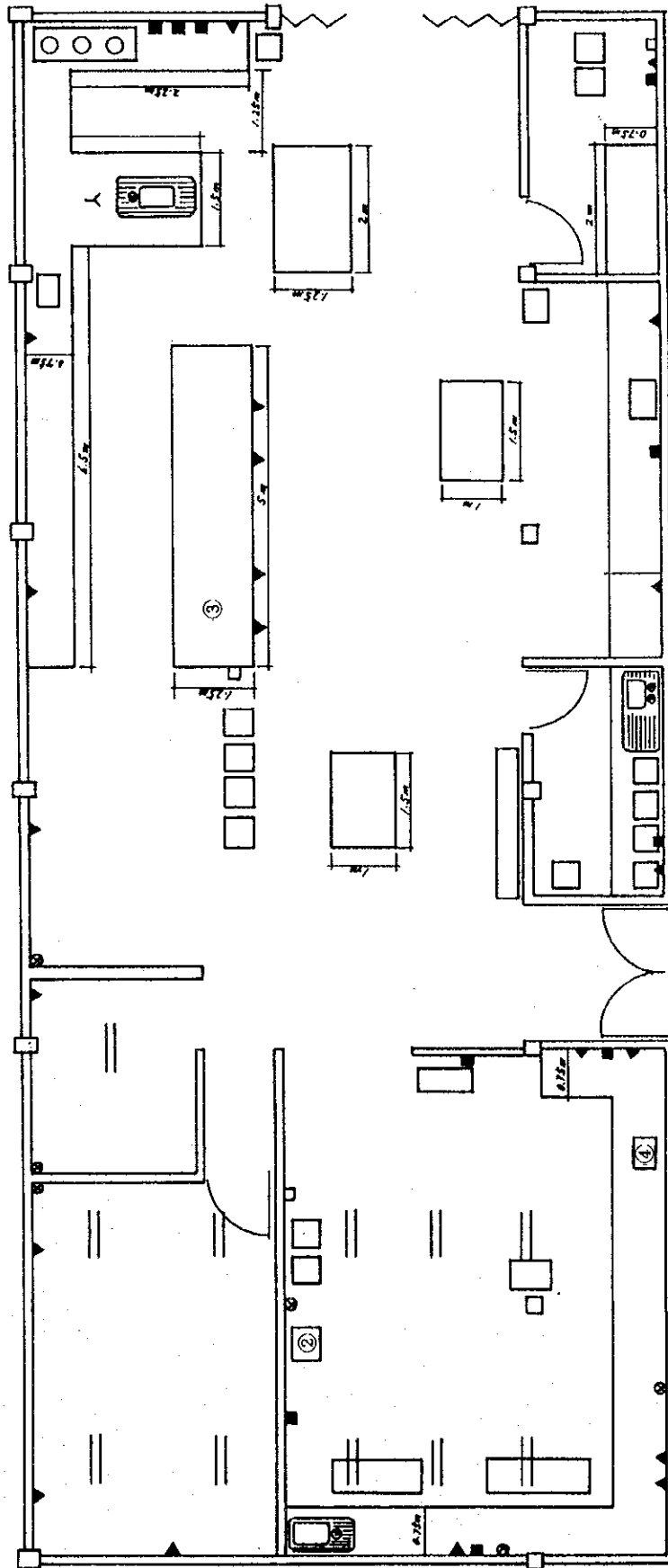
Given below is the list of Training Programmes currently offered by the Sri Lanka Standards Institution.

	NAME OF PROGRAMME	NO.OF PROGRAMMES
1	QUALITY	
1.1	Diploma in Quality Management	1
1.2	Training Programme on Industrial Standardization and Quality Management for Managerial Grades	1
1.3	Training Programme on Industrial Standardization and Quality Management for Supervisory Grades	3
1.4	Seminar on Quality Management for Service Organizations	1
1.5	Workshop on Quality Control for Shop-floor Workers	4
2	QUALITY CIRCLES	
2.1	Training Programme for Quality Circle Facilitators	3
2.2	Training Programme for Quality Circle Leaders	2
2.3	Workshop for Quality Circle Members	1
3	SPECIFIC AREAS ON QUALITY	
3.1	Seminar on ISO 9000 Series of Standards & the Preparation of Quality Manual	3
3.2	Seminar on Internal Quality Auditing as per ISO 9000 Standards	2
3.3	Workshop on Quality Costs	1
3.4	Seminar on Quality Audit	1
3.5	Seminar on the Seven Basic Tools & New Management Tools in Quality	1
3.6	Seminar on Quality Management in Purchasing & Supply	1
4	STATISTICS	
4.1	Seminar on Design of Industrial Experiments	1
4.2	Workshop on Statistical Process Control	1
4.3	Training Programme on Statistical Sampling Techniques and Inspection	1
5	LABORATORY QUALITY MANAGEMENT	
5.1	Training Programme on Laboratory Quality Management	1
6	FOOD INDUSTRY	
6.1	Seminar on Quality Assurance in Fruit Processing Industry	1
6.2	Training Seminar on Food Hygiene	1
6.3	Seminar on Quality Assurance in Food Industry	1
6.4	Seminar on Quality Assurance in Dairy Industry	1
7	MARINE PRODUCTS	
7.1	Seminar/Workshop on Quality Assurance in Fish Processing	1
7.2	Workshop on Sensory Evaluation and Grading of Shrimps	1
7.3	Seminar on the Application of Hazard Analysis Critical Control Points (HACCP) in Marine Industry	1
8	OTHER	
8.1	Workshop on Grading of Spices & Allied Products	1
8.2	Seminar on 5S Housekeeping Practices for Quality Improvement	1
8.3	Seminar on Quality Assurance in Spice Industry	1
8.4	Seminar on Standards for Information Handling	1

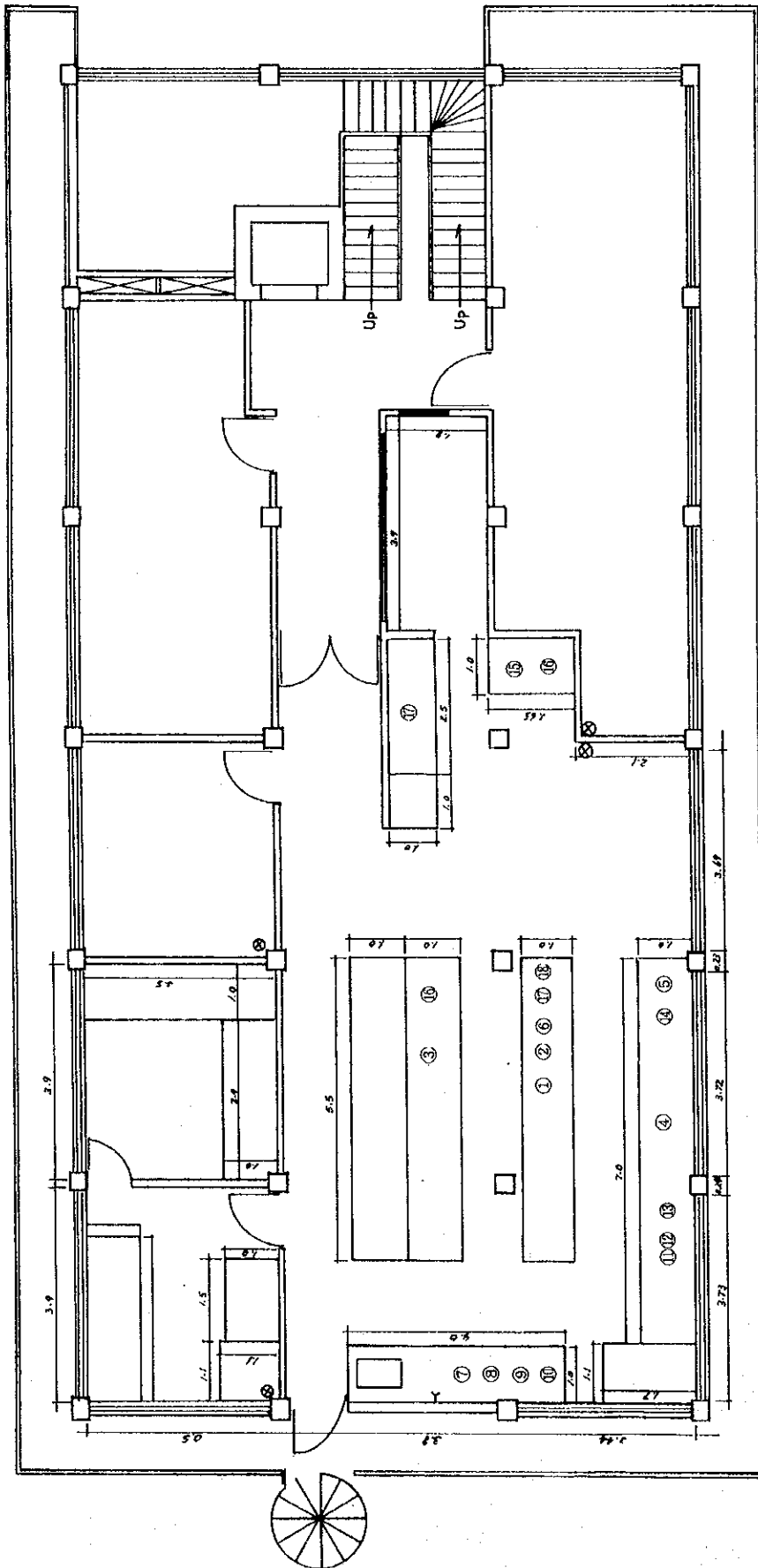


# **MATERIAL TESTING LABORATORY**

- 1 Helmet Testing Equipment
- 2 Cement/Concrete Testing Equipment
- 3 Micro-Lathe Machine
- 4 Profile Projector w/accessories



# ELECTRICAL AND ELECTRONIC LABORATORY



- |  |                                       |
|--|---------------------------------------|
| 1 Continuously Variable AC Power Supply                | 11 Multi-Channel Temperature Recorder |
| 2 Voltage Stabilizer                                   | 12 Flexing Machine for Cables         |
| 3 Equipment to Test 13A Plugs & Socket Outlet          | 13 Chart Recorder                     |
| 4 Inductive Load for Switch Testing                    | 14 Impact Test Apparatus              |
| 5 Tracking Test Apparatus                              | 15 Digital Thermometer                |
| 6 Glow Wire Test Apparatus                             | 16 Push Pull Gauge                    |
| 7 One set of Testing Fingers & Test Pins               | 17 Resistive Load                     |
| 8 Torque Tester for Screws                             | 18 Earth Leakage Circuit Break Tester |
| 9 Endurance Test Machine for Switches                  |                                       |
| 10 Shutter Endurance Testing Machine for Socket Outlet |                                       |

□ table  
 ⊗ water  
 λ gas

**FOOD AND CHEMICAL LABORATORY**

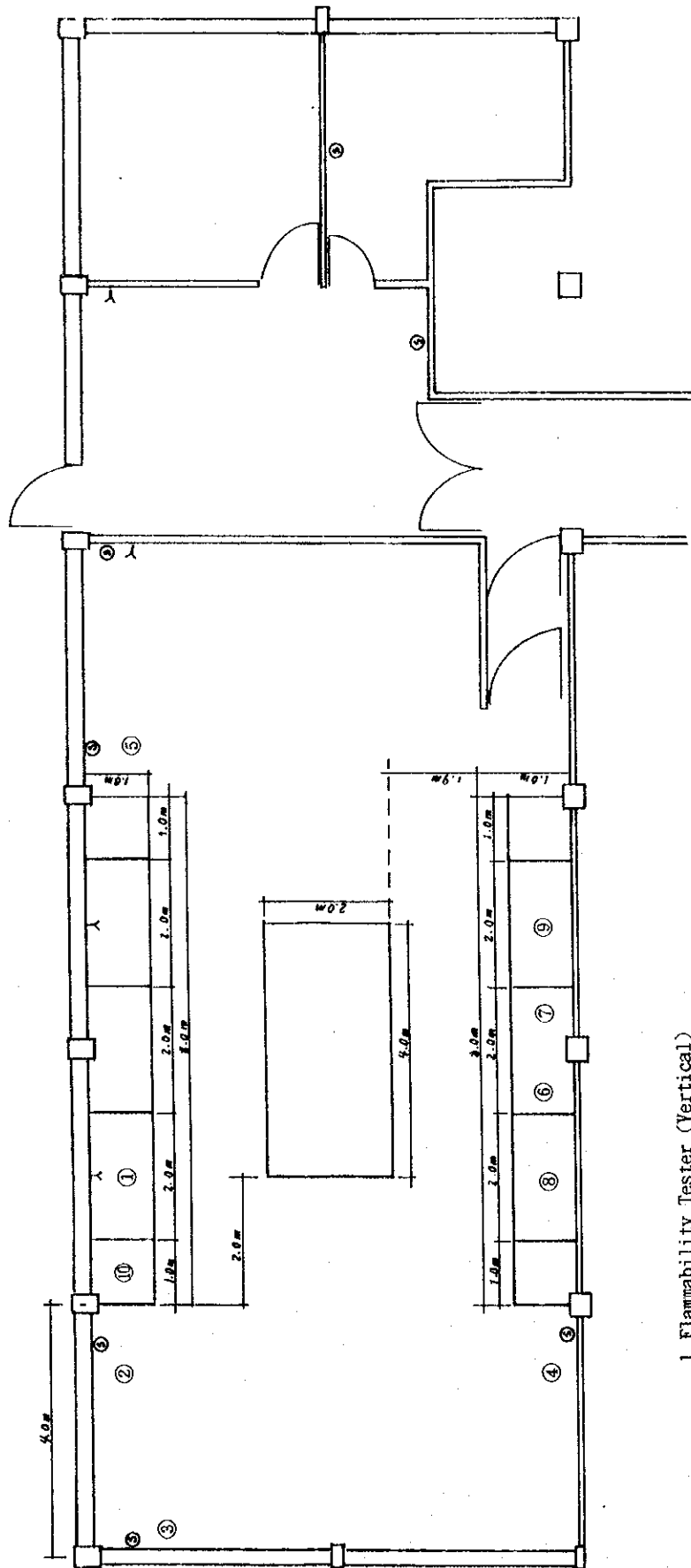
The floor plan illustrates the layout of the Food and Chemical Laboratory, featuring three primary experimental zones and associated utility areas. Dimensions are provided in meters (m) and millimeters (mm).

- Top Experimental Zone:** A long rectangular area with a total width of 3.5 m and a depth of 1.8 m. It contains three numbered points (1, 2, 3) and is equipped with a sink (W 150) and a stove (150 mm).
- Middle Experimental Zone:** A rectangular area with a total width of 3.5 m and a depth of 1.8 m. It contains three numbered points (4, 5, 6) and is equipped with a sink (W 150) and a stove (150 mm).
- Bottom Experimental Zone:** A rectangular area with a total width of 3.5 m and a depth of 1.8 m. It contains three numbered points (7, 8, 9) and is equipped with a sink (W 150) and a stove (150 mm).
- Utility and Storage Areas:** Located on the right side of the plan, these areas include storage units (1.0 m x 1.0 m), a sink (W 150), and a stove (150 mm).

Numbered points (1-10) are distributed throughout the plan, indicating specific locations of interest or equipment. The plan also shows various other fixtures such as sinks, stoves, and storage units, along with their respective dimensions.

- 1 Atomic Absorption Spectrophotometer
- 2 Capillary Gas Liquid Chromatograph
- 3 Carbon/Sulphur Analyzer
- 4 IR Spectrophotometer
- 5 Ionizer (Digital)
- 6 Flame Photometer

# TEXTILE LABORATORY

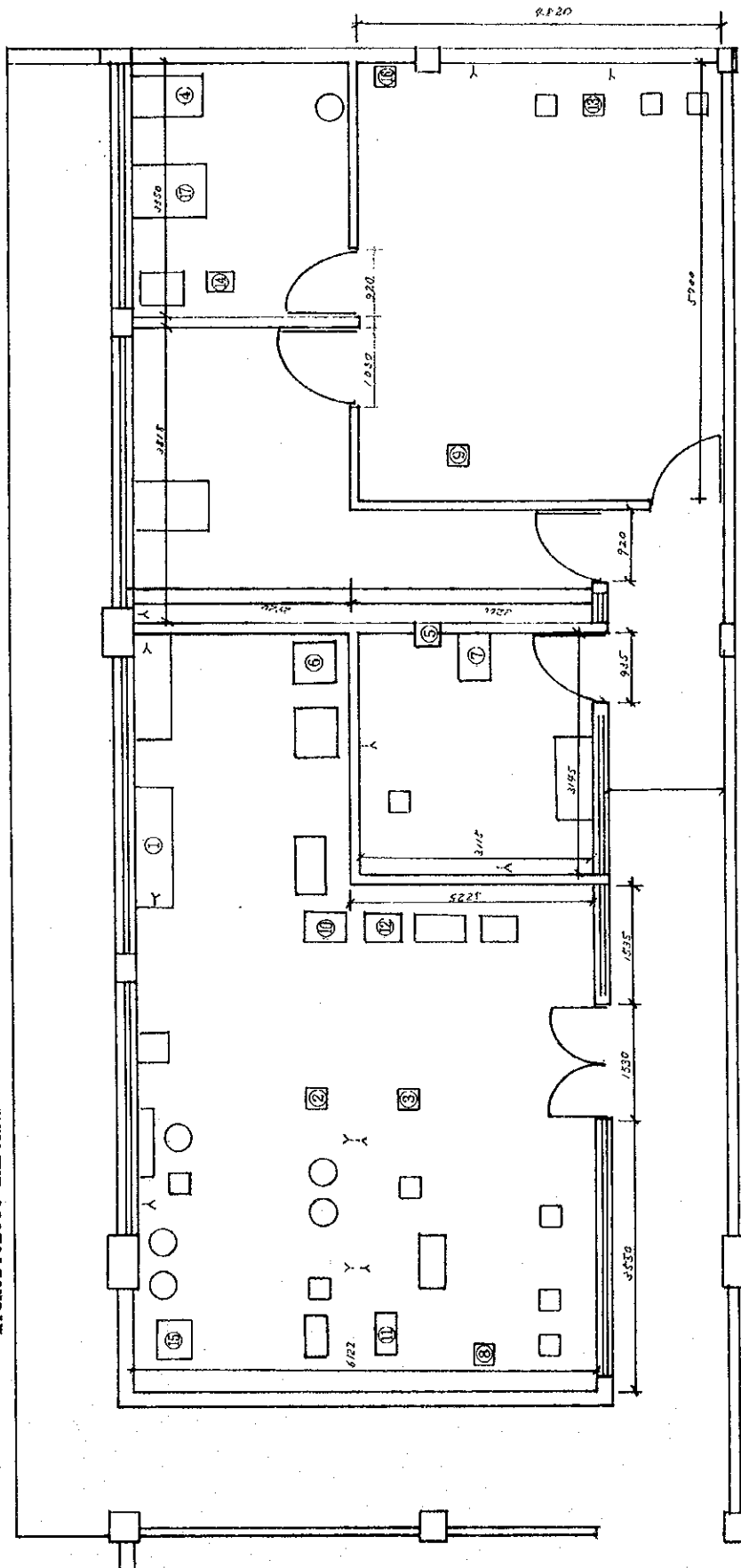


- 1 Flammability Tester (Vertical)
- 2 Flammability Tester (45 °C)
- 3 Flammability Tester (Horizontal)
- 4 Flammability Tester (Hot nut)
- 5 Bundesmand Water Repellence Tester

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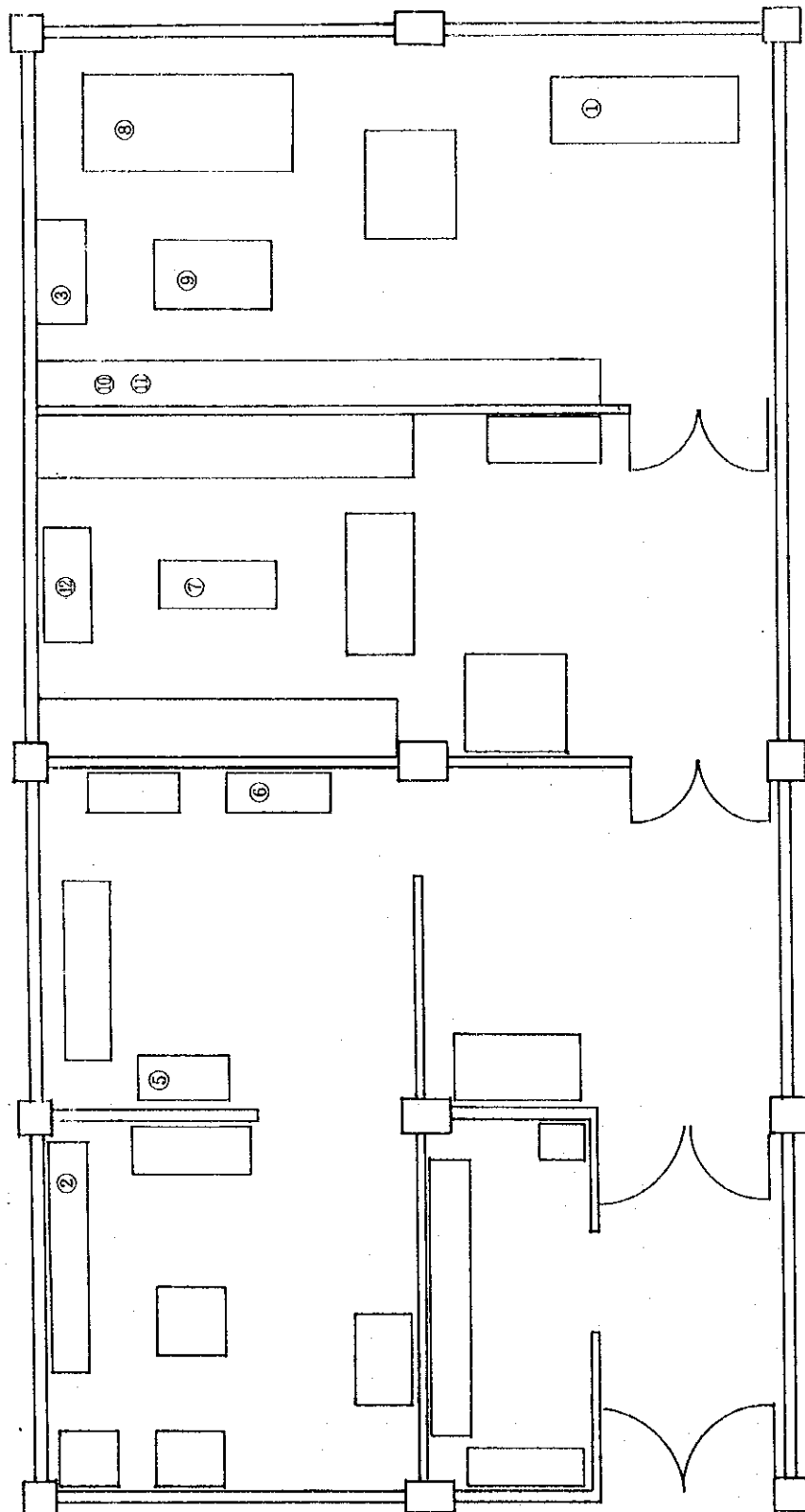
# MICROBIOLOGY LABORATORY

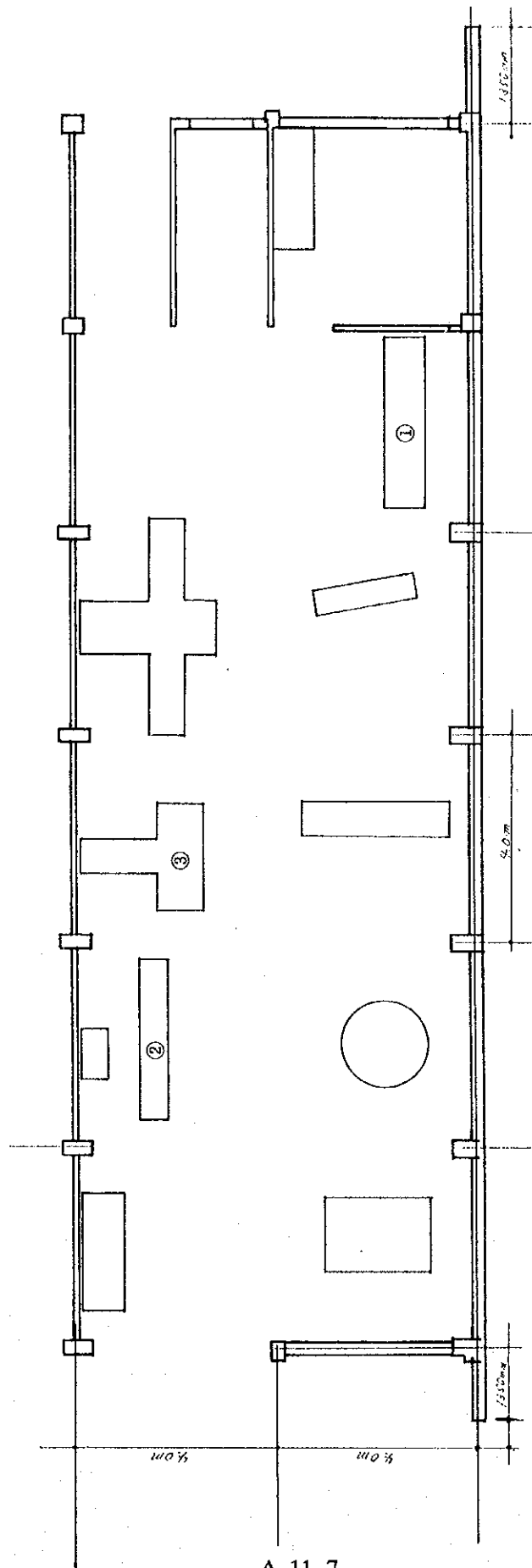


- |                                      |   |
|--------------------------------------|---|
| 1 Top Loading Autoclave, 70 lit.     | 10 Stomacher Laboratory Blender         |
| 2 pH Meter                           | 11 Refrigerator/Freezer                 |
| 3 Horizontal Laminar Flow Cabinet    | 12 Laboratory Glassware Washing Machine |
| 4 Air Sampler                        | 13 Binocular Microscope                 |
| 5 Precision Pressure Gauge           | 14 Stainless Steel Blender              |
| 6 Multi-Channel Temperature Recorder | 15 Colony Counter                       |
| 7 Sterilizing Oven                   | 16 Bench Top Centrifuge                 |
| 8 Top Pan Electronic Balance         | 17 Pipette Plugging Machine             |
| 9 Voltex Mixer                       |   |

# **METROLOGY/CALIBRATION LABORATORY**

- 1 3D Coordinate Measuring Machine
- 2 Fixed Point Temperature Calibration System
- 3 Automatic Gauge Block Calibrating system
- 4 Air Conditioned Vehicle-Mobile
- 5 Four Terminal Resistance Bridge
- 6 Portable Dry Bath for Calibration





# **ENGINEERING WORKSHOP**

- 1 Lathe Machine
- 2 Metal Sheet Working Machine
- 3 Shaping Machine









JICA