

3) 基本設計調査時

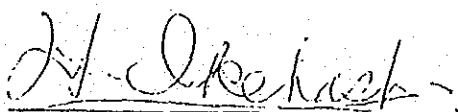
MINUTES OF DISCUSSIONS  
ON  
THE RESEARCH INFRASTRUCTURE DEVELOPMENT PROJECT FOR  
PRESERVATION AND UTILIZATION OF PLANT GENETIC RESOURCES  
IN  
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA.

In response to the request of the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a basic design study on the Research Infrastructure Development Project for Preservation and Utilization of Plant Genetic Resources (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to the Democratic Socialist Republic of Sri Lanka, a study team headed by Dr. Hiroshi Ikehashi, Genetic Resources Coordinator, National Institute of Agrobiological Resources, Ministry of Agriculture, Forestry and Fisheries from 26th July to 14th August 1986.

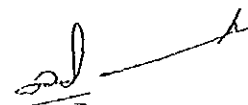
The team had a series of discussions on the Project with the officials of the Government of the Democratic Socialist Republic of Sri Lanka headed by Mr. N.V.K.K. Weragoda, Secretary, Ministry of Agricultural Development and Research and conducted a field study in Kandy District.

As a result of the study, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

4th August 1986



Dr. Hiroshi Ikehashi  
Team Leader



Mr. N.V.K.K. Weragoda  
Secretary

Major points of understanding between the Ministry of Agricultural Development and Research and the Japanese International Cooperation Agency.

Basic concept for the Plant Genetic Resources Centre.

Both parties fully agreed on the need to establish a new Plant Genetic Resources Centre (PGRC) in Sri Lanka for the preservation and utilization of genetic resources.

1. Principal concept of the PGRC should be based on the understanding that the Government of the Democratic Socialist Republic of Sri Lanka, takes necessary steps to develop this Centre to a national centre to promote all activities on conservation and utilization of plant genetic resources. Considering the magnitude of grant aid, proposed responsibilities and areas of research, it is recommended that the PGRC be placed at a considerably higher position in the administrative structure of the Department of Agriculture to facilitate adequate administrative and financial support.
2. This centre is to establish strong working linkages with the existing research divisions of the CARI and other regional research centres of the Department of Agriculture, Universities and other National Research Institutes. Facilities of this centre should be jointly utilized in executing the National Research Programme.

Major Laboratories and Related Facilities of the Proposed PGRC

1. Laboratory for Seed Storage
  - 1.1 Storage facilities for long, medium and short term storage.
  - 1.2 Germination test and seed inspection room.
  - 1.3 Seed drying and seed packing room.
2. Laboratory for Vegetatively Propagated Plants.
  - 2.1 Medium preparation room
  - 2.2 Storage room for cultured tissues. *S/rv*

3. Laboratory for data Management.
  - 3.1 Mini-computer based data processing and management functions such as cataloging, inventoring and computer data processing and so on
4. Laboratory for exploration and collection
5. Laboratory for evaluation
6. Laboratory for visiting scientists
7. Common facilities
  - 7.1 Room for balances
  - 7.2 Room for microscopes
  - 7.3 Room for incubators
8. Facilities for Administration
  - 8.1 Director's room
  - 8.2 Administration office
  - 8.3 Lecture rooms
  - 8.4 Exhibition corner
  - 8.5 Conference hall
  - 8.6 Visitors room and related facilities
9. Workshop and other related field management facilities.
  - 9.1 Screen houses for:
    - Entomological studies
    - Pathological studies
    - Physiological studies
    - Tissue culture studies
    - Germplasm studies
  - 9.2 Sheltered drying facilities
  - 9.3 Processing workshop
  - 9.4 Storage facilities for field equipment, soil and agro chemicals etc.
  - 9.5 Garages for vehicles and tractors
  - 9.6 Maintenance room
  - 9.7 Field workers' room
  - 9.8 Potting shed

*Handwritten initials*

*8/04*

10. Equipment is to be installed to facilitate basic function of collection, storage, primary evaluation and data management of seed propagated and vegetatively propagated plants. Due consideration will be given for equipment needs to accommodate advanced research capabilities in future.
  
11. Necessary measures to be taken by the Government of the Democratic Socialist Republic of Sri Lanka as listed in the minutes of the discussion of the preceding mission are reconfirmed by both parties here.

*G/ok*

*Isle O*

4) ドラフトファイナルレポート説明調査時

Minutes of Discussions  
on  
The Research Infrastructure Development Project  
for  
Preservation and Utilization of Plant Genetic Resources  
in  
The Democratic Socialist Republic of Sri Lanka

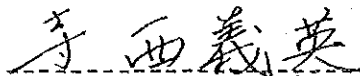
In response to the request of the Government of the Democratic Socialist Republic of Sri Lanka for Grant Assistance for the Research Infrastructure Development Project for Preservation and Utilization of Plant Genetic Resources (hereinafter referred to as "the project"), the Government of Japan decided to conduct a basic design study on the Project and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to the Democratic Socialist Republic of Sri Lanka the study team from 26th July to 14th August 1986.

As a result of the study, JICA prepared a Draft Final Report of the study and dispatched a mission, headed by Mr. Yoshihide Teranishi, First Basic Design Study Division, Grant Aid Planning and Survey Department, JICA, to explain and discuss it starting from 28th October to 6th November, 1986.

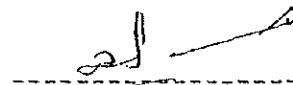
The team had a series of discussions on the Report with the officials of the Government of the Democratic Socialist Republic of Sri Lanka headed by Mr. N.V.K.K. Weragoda, Secretary, Ministry of Agricultural Development and Research.

Both parties had agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

4th November, 1986



Mr. Yoshihide Teranishi  
Leader - Draft Report Team  
of Basic Design Study,  
Japan International Cooperation  
Agency.



Mr. N.V.K.K. Weragoda  
Secretary,  
Ministry of Agricultural  
Development and Research.

Major Points of Understanding  
-----

1. The Sri Lankan side principally agreed to the basic design proposed in the Draft Final Report and appropriate alterations, as per annexure I, will be incorporated in the Final Report.
2. The Final Report (10 copies in English) will be submitted to the Democratic Socialist Republic of Sri Lanka in December 1986.
3. The Sri Lankan side understood the system of Japan's Grant Aid Program and confirmed that the Government of the Democratic Socialist Republic of Sri Lanka will take necessary measures, as per annexure II, upon execution of the grant aid for the Project by the Government of Japan.

*Z.T.*

*C/11/04*

ANNEXURE I

Alterations agreed by both Parties

1. Director's room to be located in the 1st floor and to attach a secretary cum guest room.
2. Visiting scientists rooms to be located in the ground floor.
3. Reception and store room to be provided in the entrance hall to conference room.
4. Clean bench room, incubator room and tissue culture storages to be isolated from the common laboratory area.
5. Toilet facilities to be provided in each wing of the first floor of laboratory building.
6. Ramp way to the 1st floor to be provided.
7. System of waste water treatment to be reconsidered from the view point of easy operation and maintenance.
8. Pumps for water supply to be purchased in Sri Lanka.
9. Existing experimental field and irrigation canals which shall be damaged by the construction work to be restored.
10. Experimental field to be enclosed with net fence for protection of plants.
11. The location of field management related facilities and infrastructure facilities to be revised as per attached site plan.
12. Site area was reconfirmed as attached site plan.
13. Stand by cooling condensor for long term storage must be considered.

Y.T.

C11/04

-3-

14. The following experimental equipments to be supplemented:

| Item                | Q'ty  | Room                               |
|---------------------|-------|------------------------------------|
| ----                | ----  | ----                               |
| a. Ladder           | 3     | Seed Storage(long,medium,short)    |
| b. Seed enlarger    | 1     | Seed inspection & germination test |
| c. Book binding set | 1     | Administration office              |
| d. Net screen       | 1 lot | Net House                          |

*M.T.* *C/1/6-4*



ANNEXURE II

1. Measures related to the execution of the Project.

1.1. Works related to construction:

- a) Site clearance,
- b) Relocation of telephone line,
- c) Relocation of bus stop,
- d) Electricity-supply wiring, branching 50 metre off from existing 33 KV line to the site,
- e) Wiring of underground telephone cable to the MDF to be installed in Administration building,
- f) Disposal of rainwater through underground pipe,
- g) Landscaping (Turving 720 m<sup>2</sup>, planting),
- h) Furnitures and utensils,
- i) Gate and fence in and around the site.

1.2. Formalities and procedural matters:

- a) Expenses associated with banking arrangements,
- b) Expenses for import tax to be imposed upon the construction equipment and materials; experimental equipment which shall be brought into Sri Lanka for the implementation of the Project,
- c) Prompt action concerning customs clearance,
- d) Arrangements for exemption of customs duty, domestic taxes and other public charges on the Japanese nationals who shall be involved in the implementation of the Project based on the verified contract,
- e) Provision of conveniences to the said Japanese nationals concerning their entry and stay in Sri Lanka for the purpose of performing their duties.

J.T.

6/11/04

ANNEXURE II contd...

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2. Measures related to operation of the proposed Plant Genetic Resources Centre.

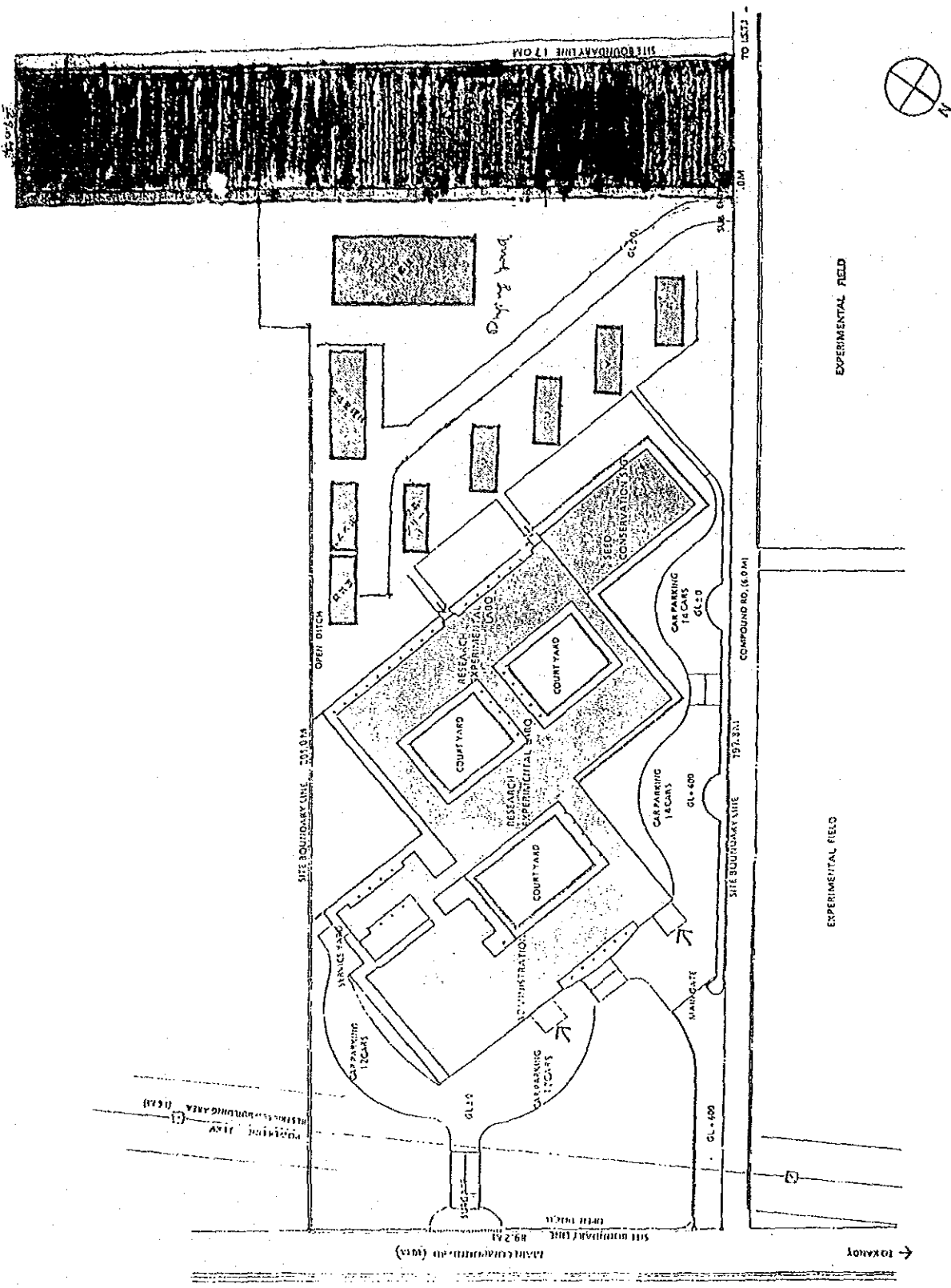
2.1. Assignment of necessary staff according to the proposed manpower plan, i.e. Research staff (existing in the Department of Agriculture) and creation of new cadre of middle level technicians (2 Nos.) to be associated with Japanese consultants during building construction and installation of equipment.

2.2. Budgetary provisions to be made by Sri Lankan side for proper and effective operation and maintenance of the centre.

*M.T.*

*G/1/84*

\*\*\*\*\*



SITE PLAN 0 TO 20 30 M 1

*J.T.*

*C/1/04*

#### 4. 面談者リスト

本件現地調査にあたり、下記の方々の御協力をいただいた。

##### ○ スリ・ランカ国側関係者

##### 農業開発研究省

- Mr. Gamini Jayasuriya      Minister of Agricultural Development and Research
- Mr. N.V.K.K. Weragoda      Secretary
- Mr. Dixon Niraweera      Acting Secretary

##### 農業局

- Dr. Irwin Gunawardena      Director, Department of Agriculture
- Dr. H.M.E. Herath      Deputy Director of Agricultural Research
- Dr. D.E.F. Suraweera      Deputy Director Economics and Projects
- Mr. A.M.Abeyratne      Chief Accountant.

##### 中央農業研究所 (C.A.R.I.)

- Dr. J. Fernando      Deputy Director of Research
- Dr. S.D.G. Jayawarudene      Botanist
- Mr. E.B. Hindagala      Research Officer
- Mr. S.Balendira      "
- Mr. M.H.Mendis      "
- Mr. A.Samarajeewe      "

##### 中央稲育種試験場 (C.R.B.S.)

- Mr. M.P. Dhanapala      Deputy Director of Research

##### 財政計画省、外国援助局

- Mr. S. Weerapana      Additional Director, Department of External Resources

○ 日本国側関係者

在スリランカ日本国大使館

- ・大鷹弘大使
- ・ト部敏直参事官
- ・丸山和彦一等書記官
- ・桜又正士二等書記官
- ・松本 淳三等書記官

JICAスリランカ事務所

- ・橋口次郎所長
- ・雨貝哲雄所員

熱帯農業研究センター派遣専門家

- ・森田弘彦
- ・小林 尚

資料編 II



## 資料編 II

### 1. 建設予定地関連資料

(1) 敷地周辺見取図

(2) 敷地測量図

(3) 敷地現況図

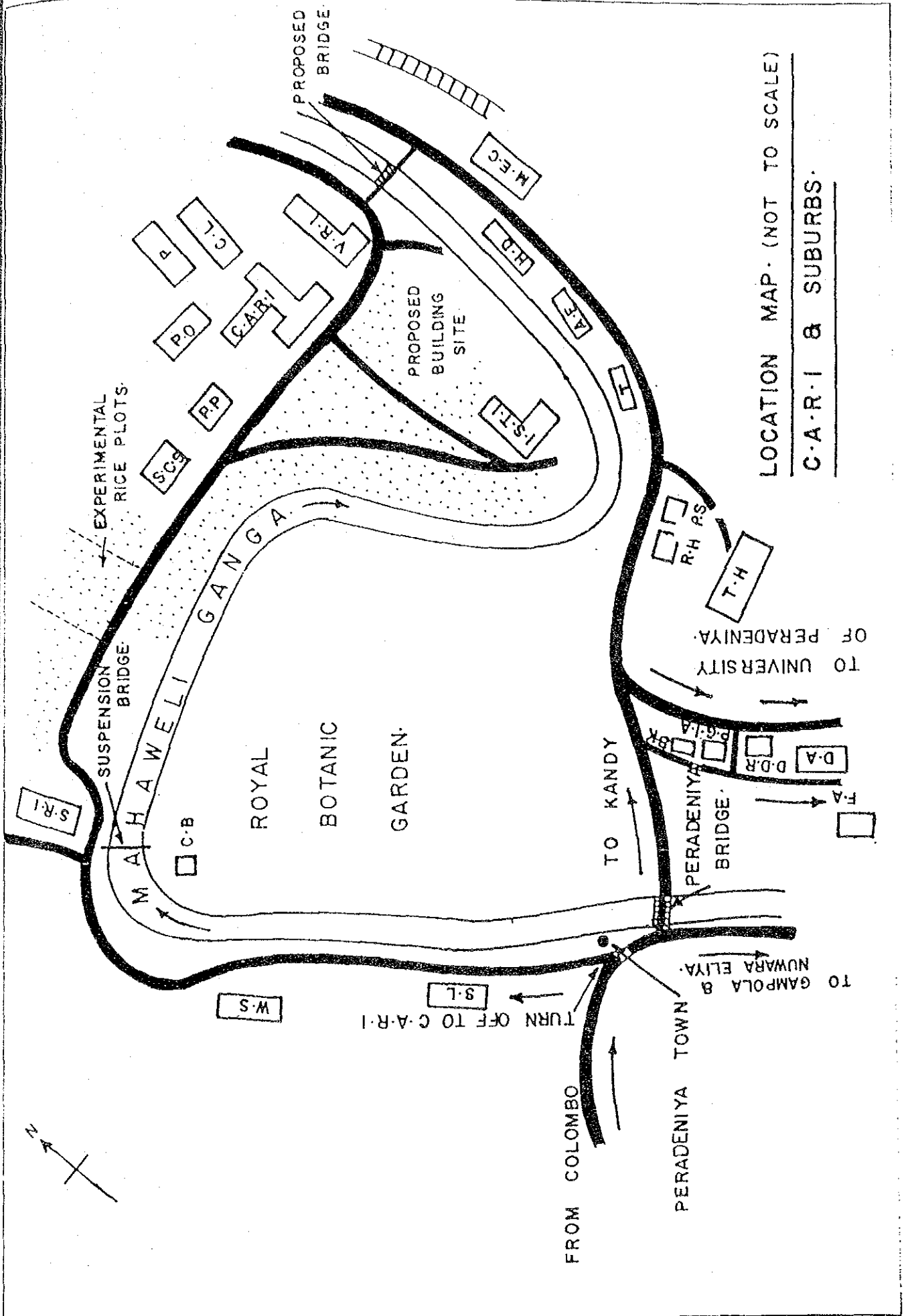
(4) 敷地写真

(5) 地質調査資料

### 2. 関連施設の概況





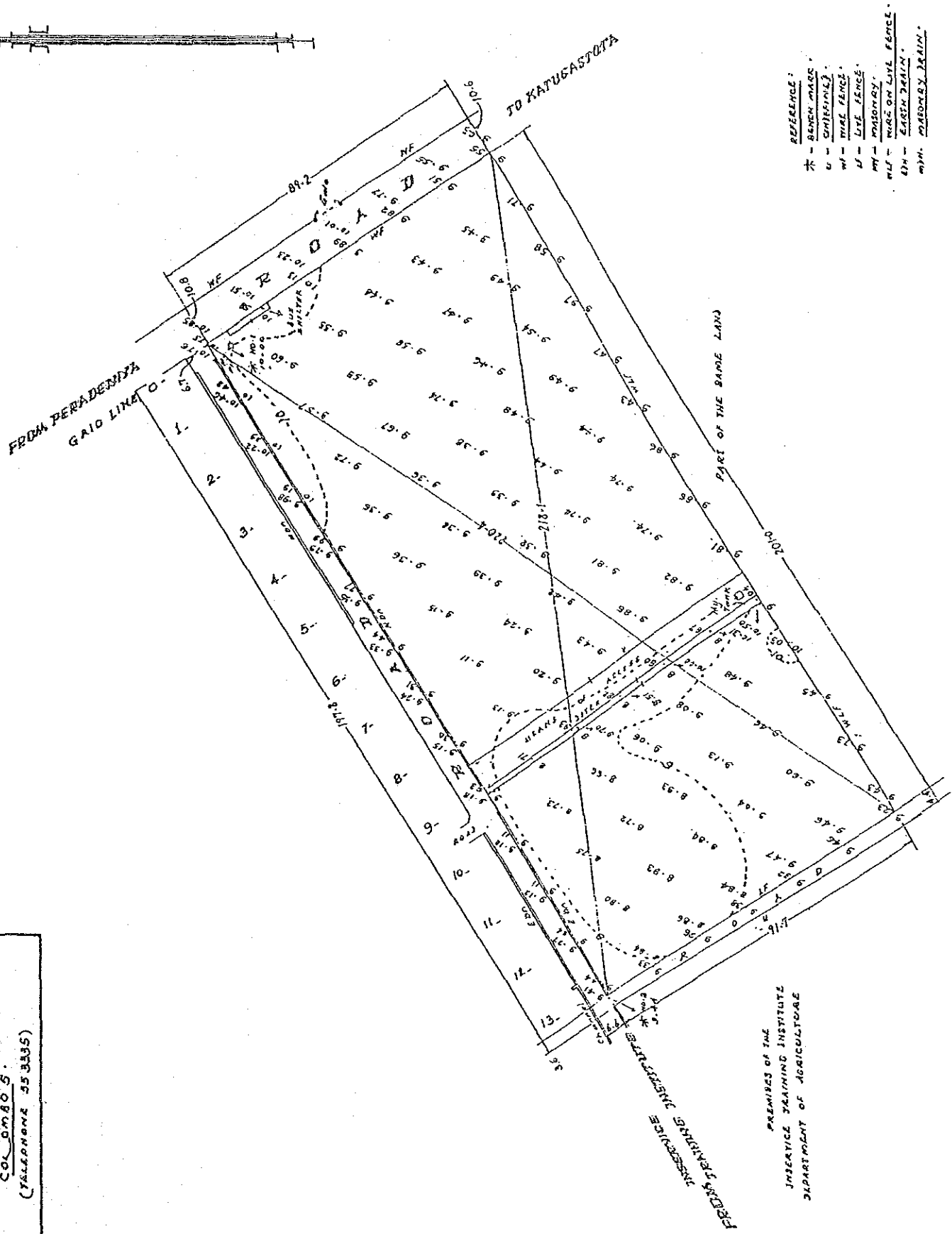


LOCATION MAP. (NOT TO SCALE)  
C.A.R.I. & SUBURBS.

CARI - Central Agricultural Research Institute  
 ISTI - In Service Training Institute  
 VRI - Veterinary Research Institute  
 PO - Plant Quarantine Office  
 PP - Plant Protection Office  
 SES - Seed Certification Service  
 P - Publication Unit  
 CL - Central Library  
 SRI - Soyabean Research Institute  
 WS - Workshop  
 SL - Seed Laboratory  
 BK - Bank  
 PGIA - Post Graduate Institute of Agriculture  
 FA - Faculty of Agriculture  
 DA - Director of Agriculture - office  
 DDR - Deputy Director of Agricultural Research  
 PS - Police Station  
 RH - Rest House  
 AE - Agricultural Extension Office  
 T - Buddhist Temple  
 HD - Horticultural Division  
 MEC - Minor Exports Crops Department  
 TH - Teaching Hospital  
 CB - Circuit Bunglow

PLAN NO. 2022

(2) 敷地測量図



D. JOY. JE. SILVA, F.S.I.  
 LICENSED SURVEYOR AND LEVELLER  
 COURT COMMISSIONER AND VILLAGER  
 103 B. RAKWAI AVENUE  
 COLombo 5  
 (TELEPHONE 553395)

SCALE: 1: 1000  
PLAN

DETECTING THE SURVEY OF PREMISES FOR PROPOSED  
CENTRAL AGRICULTURAL RESEARCH INSTITUTE

SITUATED

OFF KANDY - COLOMBO ROAD AT KANDIYUVA PERADENYA  
WITHIN THE DISTRICT OF KANDY

CENTRAL PROVINCE

SQUARE METRE - ACRES :: 1.8666 04.2 17.83

SPOT HEIGHTS OBSERVED AT 15 METRE INTERVALS ARE INDICATED IN THIS PLAN  
TWO BENCHMARKS (INST. AND B.) ARE SHOWN AT THE NORTH-WESTERN AND SOUTH-  
WESTERN CORNERS OF THE LAND

ASSUMED DATUM IS 10.00 - METRES AT BENCHMARK D.I.

SURVEYED AND LEVELLED ON 10th JUNE 1986

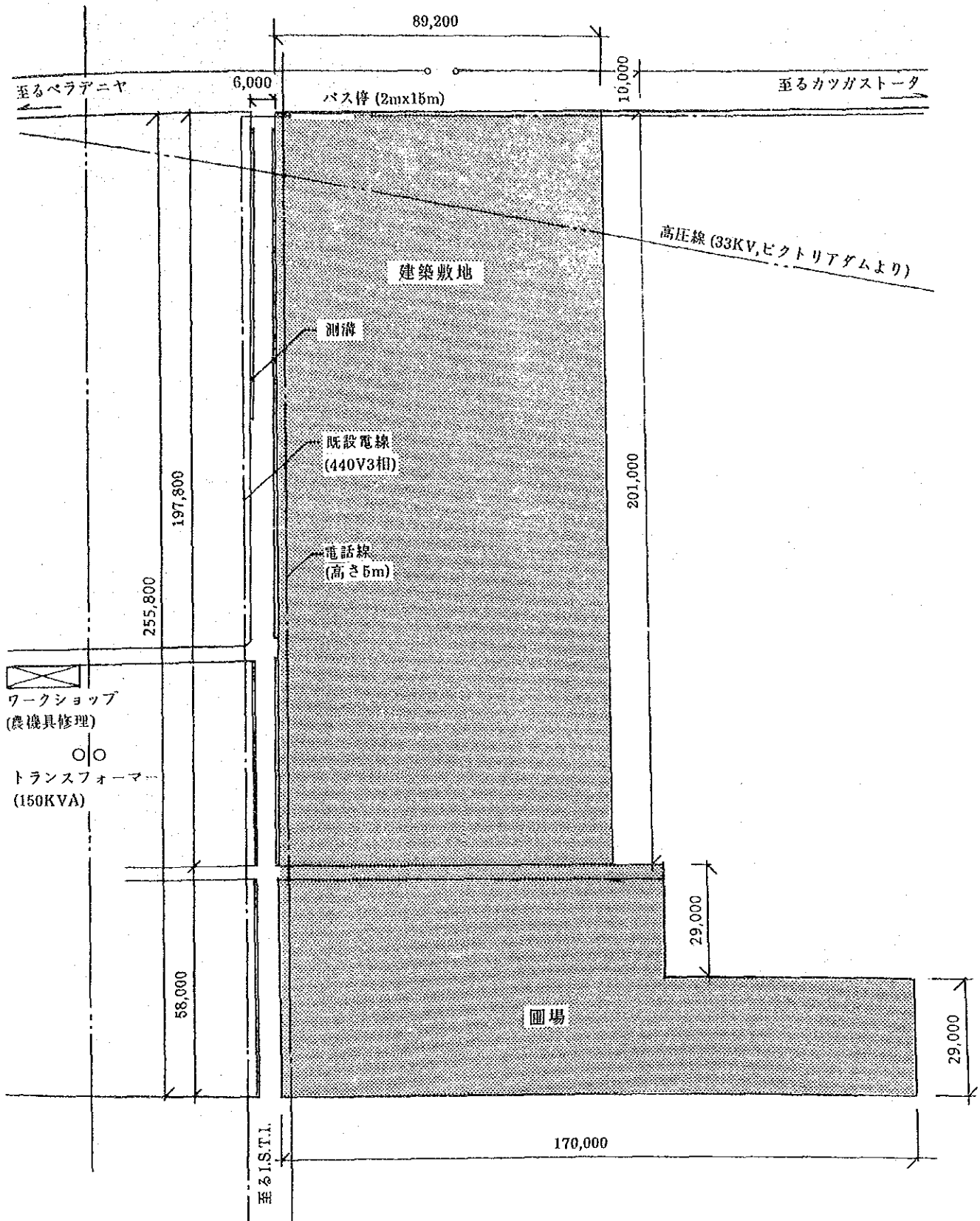
D. J. de Silva

LICED SURVEYOR AND LEVELLER

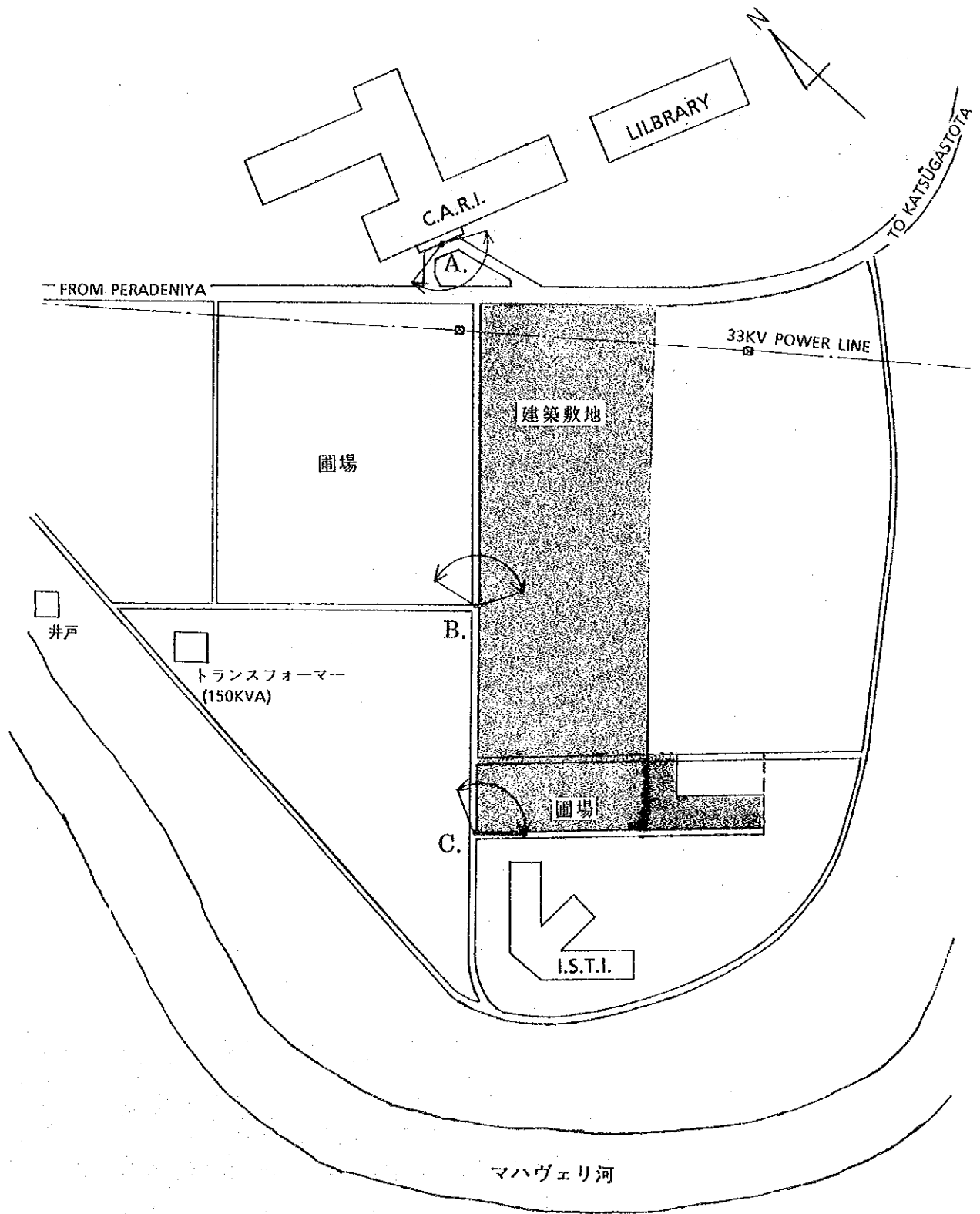
13th JUNE 1986

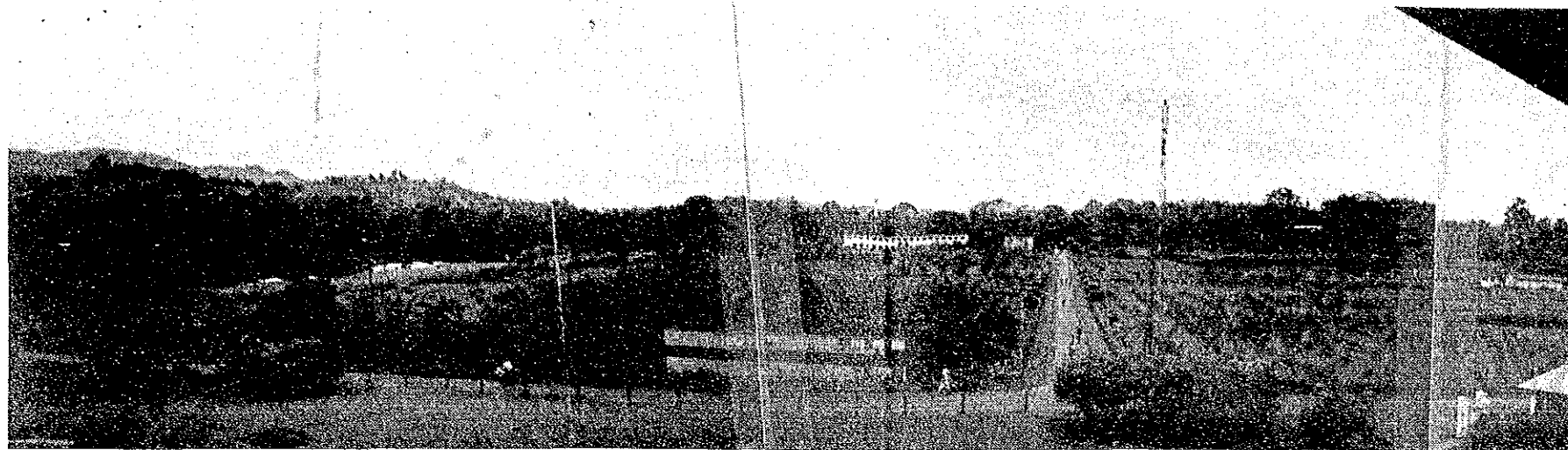


(3) 敷地現況図



(4) 敷地写真

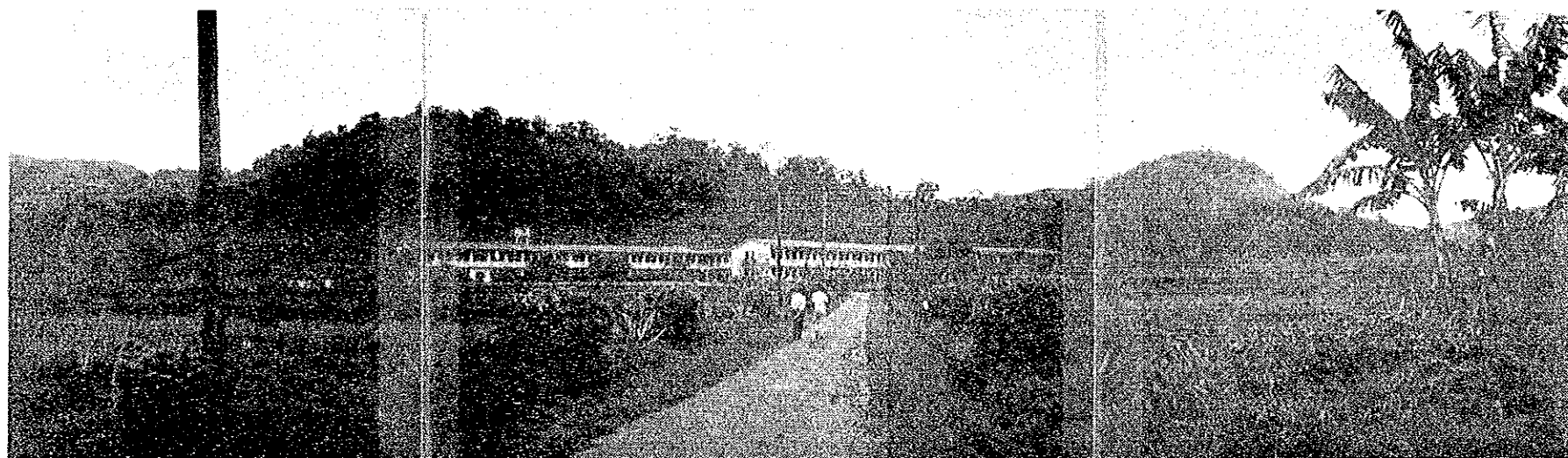




A : 敷地のパノラマ (CARIより)



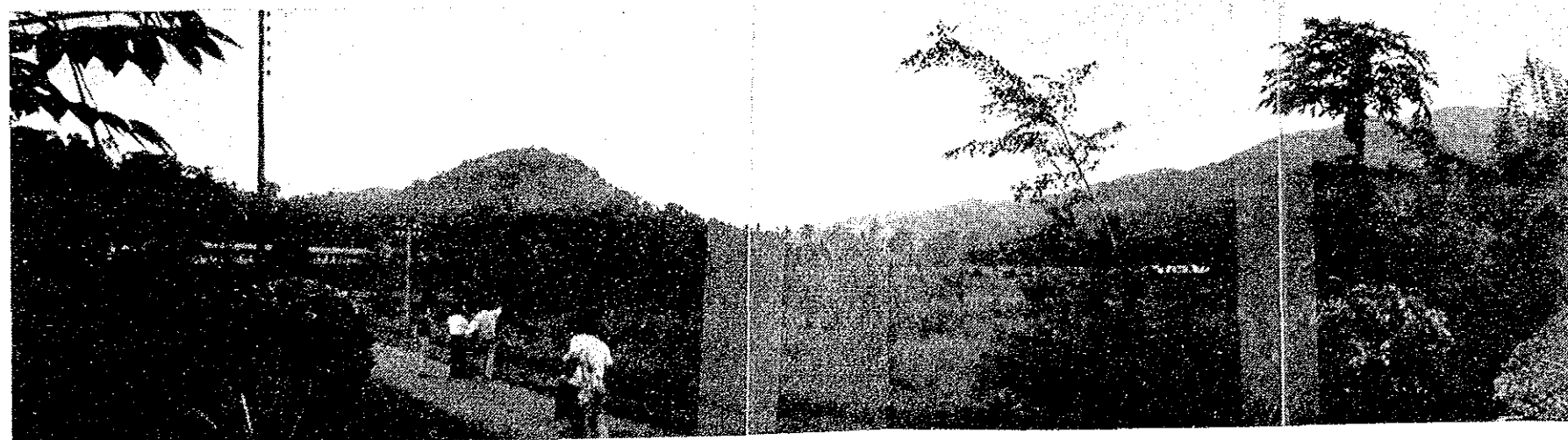
敷地を横断する33kV高圧線



B : 敷地及び圃場のパノラマ



CARI職員専用バス停留所



C : Aの反対側からのパノラマ



敷地境界沿いに架線されている電話線





(5) 地質調查資料

SITE INVESTIGATION PROGRAMME  
FOR THE PROPOSED BUILDING AT  
GANNORUWA , KANDY

AGRICULTURAL RESEARCH INSTITUTE

GEOTECH LIMITED  
7 KYNSEY TERRACE  
COLOMBO 8.

TEL: 91052 , 95536

| CONTENTS                                  | PAGE |
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| 2. Description of Site                    | 2    |
| 3. Boring                                 | 2    |
| 4. Standard Penetration Tests             | 2    |
| 5. Ground Water                           | 3    |
| 6. Laboratory Test                        | 3    |
| 7. Conclusion                             | 3    |
| APPENDIX A : Location Map                 | 4    |
| APPENDIX B : Borehole Logs & Test Results | 6    |

SITE INVESTIGATION PROGRAMME  
FOR THE PROPOSED BUILDING AT  
GANNORUWA, KANDY

1. INTRODUCTION

In June, 1986 Messrs Geotech Limited was instructed to carry out a Soil Investigation Programme for the proposed building at Gannoruwa, Kandy.

The investigation requirements were:

- (a) Five numbers boreholes to be drilled.
- (b) Borehole No: 1 to be taken down to 15m. and the other boreholes to be taken down to 10m.
- (c) Standard penetration tests to be carried out at every 1.5m. increment in depth.
- (d) Disturbed samples to be taken at every 1.5m. depth.
- (e) Ground water level to be measured at every borehole.
- (f) Undisturbed samples to be taken in cohesive soils.

The investigations were carried out in June, 1986, under the supervision of the geotechnical Engineers of Messrs Geotech Limited.

This report contains a factual account of the field work done and a classification report of the samples collected together with results of laboratory tests carried out.

A recommendation as to possible allowable bearing pressure of soil is also given.

It is understood that the building to be sited on the site would be a reinforced concrete frame structure two to three stories high.

The building has not yet been designed and therefore the foundation type could be selected based on this report.

## 2. DESCRIPTION OF SITE

The site is located within the School of Agriculture at Peradeniya. The strata on the site are generally lateritic soils in various stages of decomposition.

The clay has within it a considerable percentage of coarse fine sand the rock is found around 15m. depth.

## 3. BORINGS

The total of five boreholes were bored each to a depth as given in the detail borehole logs.

The borehole designated as BH1, BH2, BH3, BH4 and BH5. The locations of the boreholes are indicated in the plan attached.

The borehole logs mainly consist of the following:

- (a) The depth at which disturbed or washed samples were taken.
- (b) Visual description of the disturbed samples as taken from the boreholes.
- (c) Number of blows for SPT 30cm. penetration.
- (d) Depth of hole.
- (e) Height at which ground water was encountered.

## 4. STANDARD PENETRATION TESTS

In the normal standard penetration test, the 150mm. seating drive is followed by a 300mm. test drive and the N-value recorded on the borehole logs is the number of blows for the 300mm. test drive.

In these circumstances, the results of the tests are presented on the borehole logs in the following manner:

- (a) Where the 150mm. seating drive and part of the 300mm. test drive is carried out the number of blows for the partial test drive only is recorded on the borehole log thus (30) an N-value may be obtained by linear extrapolation of the number of blows recorded for the partial test drive.

- (b) If the total penetration is equal to or less than the 150mm. required for the seating drive the number of blows for the actual depth penetrated is recorded on the borehole logs thus (50) initial penetration only.

#### 5. GROUND WATER

Static water level is indicated in each of the borehole logs. No requirements were made to install peizometric stand pipes. Hence, the water level indicated are those obtained approximately 24 hours after the drilling operations are completed. There was no significant difference between the ground water level at first meeting in drilling and 24 hours after the completion of drilling.

#### 6. LABORATORY TEST

As the strata met with were mainly clays two triaxial test was done on samples obtained from BH1 and BH5. Plasticity index was determined on a number of samples and the results are attached.

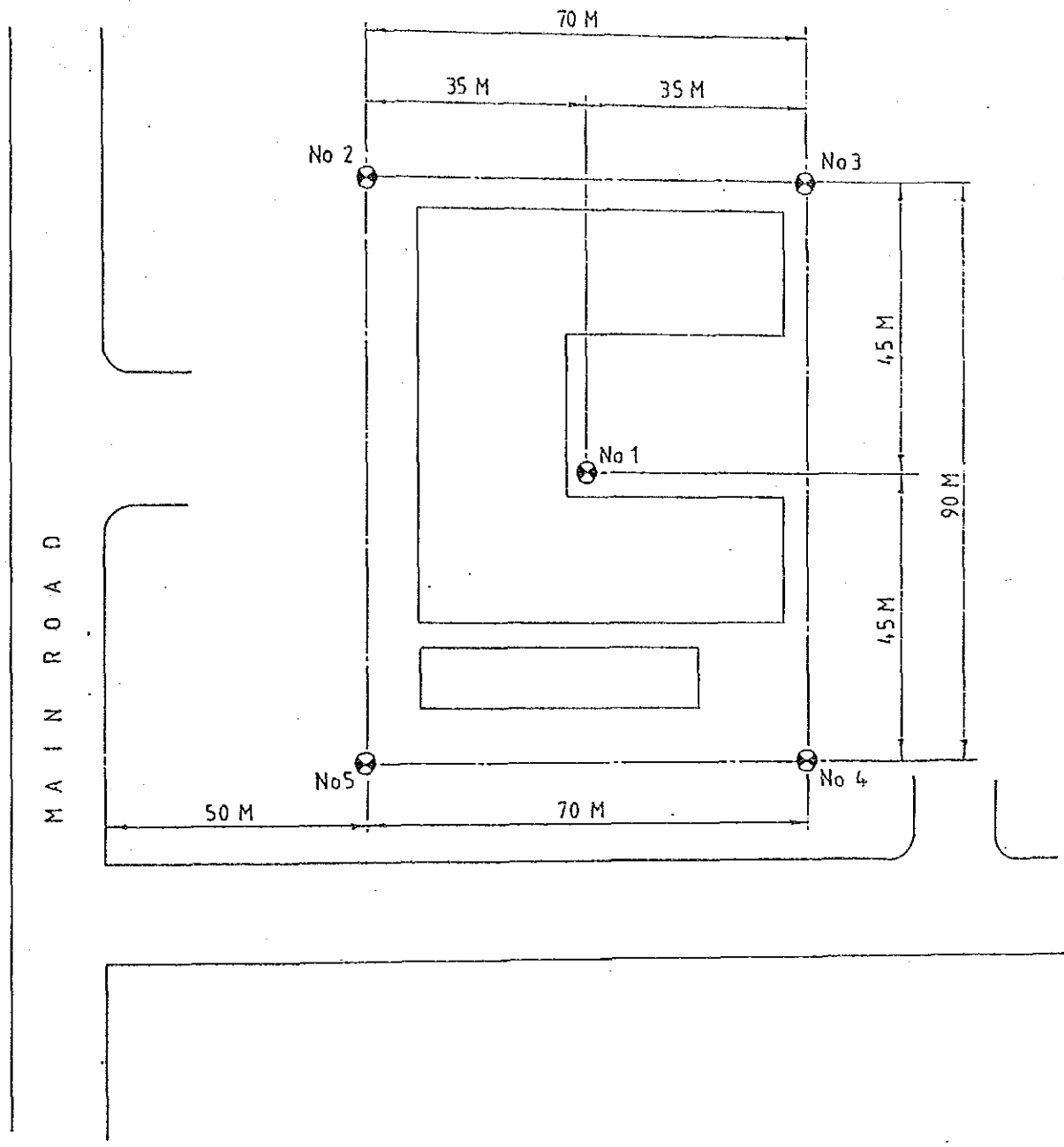
#### 7. CONCLUSION

The strata within the site are generally stiff clay of lateritic origin. The clay is quite stiff and has within it a considerable percentage of coarse sand. The N-values are quite high beyond the 2m. depth and gives an average N-value of around 20.

The value of  $C_u$  is quite high giving a value of  $120\text{KN/m}^2$ . This will indicate that the shear failure value of soil is quite high. However, it is recommended that a bearing pressure not exceeding one ton per square foot be used to the design of the foundation and the foundation could be placed at a depth of 1.5m. Such a bearing pressure would limit the settlement due to consolidation of the clay by dispersal of load. Actual values of settlement has not been calculated as consolidation tests were not done.

APPENDIX A

Location Map



GEOTECH LIMITED  
PLAN SHOWING LOCATION OF BORE HOLES  
PROPOSED AGRICULTURAL RESEARCH CENTRE  
PERADENYA



APPENDIX B

Borehole Logs & Test Results

JOB No: G/198

CLIENT: A.R.I.

BH No. 01

DRILLING RIG Dilcon 1500

DRILLING FLUID \_\_\_\_\_

BARREL TYPE \_\_\_\_\_

LOGGED BY \_\_\_\_\_

| HOLE |       | CORE |    | CASING |    | DATE START <u>15.5.86</u> FINISH _____ |
|------|-------|------|----|--------|----|--|
| OMM  | TO    | OMM  | TO | OMM    | TO | CO.ORDINATES E _____ N _____           |
| 200  | 15.00 |      |    |        |    | GROUND LEVEL _____                     |
|      |       |      |    |        |    | INCLINATION _____                      |
|      |       |      |    |        |    | SEARING _____                          |

| ROD (%) | TCR (%) | SCR (%) | FPM | CASING LEVEL | WATER LEVEL | IN-SITU TEST TYPES AND SAMPLES | DISCONTINUITY DESCRIPTION |                 | LITHOLOGICAL DESCRIPTION   | (THICKNESS)<br>DEPTH R.L. | LEGEND |
|---------|---------|---------|-----|--------------|-------------|--------------------------------|---------------------------|-----------------|--|---------------------------|--------|
|         |         |         |     |              |             |                                | TYPE                      | CHARACTERISTICS |  |                           |        |
|         |         |         |     |              |             | 1.00D<br>1.00-1.45<br>SPT;N=5  |                           |                 | Soft, yellowish brown silty CLAY with occasional sand                                      | 1                         |        |
|         |         |         |     |              |             | 2.50D<br>2.50-2.95<br>U100/26  |                           |                 | Firm, yellowish brown, slightly plastic, silty CLAY with occasional sand                   | 3                         |        |
|         |         |         |     |              |             | 4.00D<br>4.00-4.45<br>SPT;N=22 |                           |                 | Stiff, reddish brown/yellowish brown, mottled, lateritic silty CLAY                        | 4                         |        |
|         |         |         |     |              |             | 5.50D<br>5.50-5.95<br>SPT;N=30 |                           |                 |  | 5                         |        |
|         |         |         |     |              |             | 7.00D<br>7.00-7.45<br>SPT;N=32 |                           |                 |  | 7                         |        |
|         |         |         |     |              |             | 8.50D<br>8.50-8.95<br>SPT;N=34 |                           |                 | Stiff, yellowish brown/reddish brown mottled, micaceous silty CLAY with occasional nodules | 9                         |        |
|         |         |         |     |              |             |                                |                           |                 |  | 10                        |        |

GEOTECH LTD.

COMMENTS

SCALE 1:5

SHEET 1 OF 2

JOB No: G/198

CLIENT: A.R.I.

BH No. 01

|                |          |          |          |                             |        |
|----------------|----------|----------|----------|-----------------------------|--------|
| DRILLING RIG   | HOLE     | CORE     | CASING   | DATE START                  | FINISH |
| DRILLING FLUID | OMM   TO | OMM   TO | OMM   TO | CO.ORDINATES E ..... N..... |        |
| BARREL TYPE    |          |          |          | GROUND LEVEL                |        |
| LOGGED BY      |          |          |          | INCLINATION                 |        |
|                |          |          |          | BEARING                     |        |

| RQD (%) | TCR (%) | SCR (%) | FPM | CASING LEVEL | WATER LEVEL | IN-SITU TEST TYPES AND SAMPLES    | DISCONTINUITY DESCRIPTION |                 | LITHOLOGICAL DESCRIPTION  | (THICKNESS)<br>DEPTH:<br>R. L. | LEGEND |
|---------|---------|---------|-----|--------------|-------------|-----------------------------------|---------------------------|-----------------|---|--------------------------------|--------|
|         |         |         |     |              |             |                                   | TYPE                      | CHARACTERISTICS |   |                                |        |
|         |         |         |     |              |             | 10.00-10.45<br>SPT;N=30           |                           |                 |   | 11                             |        |
|         |         |         |     |              |             | 11.50D<br>11.50-11.95<br>SPT;N=23 |                           |                 |   | 12                             |        |
|         |         |         |     |              |             | 13.00D<br>13.00-13.45<br>SPT;N=18 |                           |                 |   | 13                             |        |
|         |         |         |     | 13.63 v      |             |                                   |                           |                 | Firm, light brown, kaolinized, micaceous silty CLAY (completely weathered rock) | 14                             |        |
|         |         |         |     |              |             |                                   |                           |                 | Borehole terminated at 15.00 m  | 15                             |        |
|         |         |         |     |              |             |                                   |                           |                 |   | 16                             |        |
|         |         |         |     |              |             |                                   |                           |                 |   | 17                             |        |

GEOTECH LTD.

COMMENTS

SCALE 1:50

SHEET 2 OF 2

JOB No: G/198

CLIENT: A.R.I. &

BH No. 02

DRILLING RIG Pilcon 1500

HOLE

CORE

CASING

DATE START \_\_\_\_\_ FINISH \_\_\_\_\_

DRILLING FLUID \_\_\_\_\_

OMM

TO

OMM

TO

OMM

TO

CO.ORDINATES E \_\_\_\_\_ N \_\_\_\_\_

BARREL TYPE \_\_\_\_\_

200

10.00

GROUND LEVEL \_\_\_\_\_

LOGGED BY \_\_\_\_\_

INCLINATION \_\_\_\_\_

BEARING \_\_\_\_\_

| ROD (%) | TCR (%) | SCR (%) | FPM | CASING LEVEL | WATER LEVEL | IN-SITU TEST TYPES AND SAMPLES | DISCONTINUITY DESCRIPTION |             | LITHOLOGICAL DESCRIPTION   | (THICKNESS)<br>DEPTH.<br>R. L. | LEGEND |
|---------|---------|---------|-----|--------------|-------------|--------------------------------|---------------------------|-------------|--|--------------------------------|--------|
|         |         |         |     |              |             |                                | TYPE                      | DIP ON CORE |  |                                |        |
|         |         |         |     |              |             | 1.00<br>1.00-1.45<br>SPT;N=4   |                           |             | Soft, brown, silty CLAY with occasional quartz pebbles                           | 1                              |        |
|         |         |         |     |              |             | 2.50D<br>2.00-2.95<br>U100/25  |                           |             | Firm, yellowish brown, slightly plastic, silty CLAY with occasional sand         | 2                              |        |
|         |         |         |     |              |             | 4.00D<br>4.00-4.45<br>SPT;N=25 |                           |             |  | 3                              |        |
|         |         |         |     |              |             | 5.50D<br>5.50-5.95<br>SPT;N=25 |                           |             | Stiff, yellowish brown/white, mottled, silty CLAY with occasional sand           | 4                              |        |
|         |         |         |     |              |             | 7.00D<br>7.00-7.45<br>SPT;N=17 |                           |             |  | 5                              |        |
|         |         |         |     |              |             | 8.50D<br>8.50-8.95<br>SPT;N=16 |                           |             |  | 6                              |        |
|         |         |         |     |              |             | 9.50D<br>9.50-9.95<br>SPT;N=19 |                           |             | Completely weathered, altered brown, very weak, partly kaolinized micaceous rock | 7                              |        |
|         |         |         |     |              |             |                                |                           |             |  | 8                              |        |
|         |         |         |     |              |             |                                |                           |             |  | 9                              |        |
|         |         |         |     |              |             |                                |                           |             |  | 10                             |        |

GEOTECH LTD.

COMMENTS

Borehole terminated at 10.00 m

SCALE 1:50

SHEET 1 OF 1

JOB No: G/198

CLIENT: A.R.I.

BH No. 03

|  |      |       |      |    |        |    |                                    |
|--|------|-------|------|----|--------|----|------------------------------------|
| DRILLING RIG _____<br>DRILLING FLUID _____<br>BARREL TYPE _____<br>LOGGED BY _____ | HOLE |       | CORE |    | CASING |    | DATE START _____ FINISH _____      |
|  | OMM  | TO    | OMM  | TO | OMM    | TO | CO.ORDINATES E _____ N _____       |
|  | 200  | 10.00 |      |    |        |    | GROUND LEVEL _____                 |
|  |      |       |      |    |        |    | INCLINATION _____<br>BEARING _____ |

| RQD (%) | TCR (%) | SCR (%) | FPM | CASING LEVEL | WATER LEVEL | IN-SITU TEST TYPES AND SAMPLES | DISCONTINUITY DESCRIPTION |                 | LITHOLOGICAL DESCRIPTION  | (THICKNESS)<br>DEPTH.<br>R. L. | LEGEND |
|---------|---------|---------|-----|--------------|-------------|--------------------------------|---------------------------|-----------------|---|--------------------------------|--------|
|         |         |         |     |              |             |                                | TYPE                      | CHARACTERISTICS |   |                                |        |
|         |         |         |     |              |             | 1.00D<br>1.00-1.45<br>SPT;N=6  |                           |                 | Soft, yellowish brown silty CLAY with occasional sand   | 1                              |        |
|         |         |         |     |              |             | 2.50D<br>2.50-2.95<br>SPT;N=24 |                           |                 | Firm, yellowish brown, silty CLAY with quartz gravels   | 2                              |        |
|         |         |         |     |              |             | 5.50D<br>5.50-5.95<br>SPT;N=12 |                           |                 | Firm, yellowish brown/ brown mottled micaceous silty CLAY with some completely weathered rock fragments | 5                              |        |
|         |         |         |     |              |             | 7.00D<br>7.00-7.45<br>SPT;N=19 |                           |                 |   | 7                              |        |
|         |         |         |     |              |             | 8.50D<br>8.50-8.95<br>SPT;N=20 |                           |                 | Completely weathered, altered brown very weak micaceous rock  | 9                              |        |
|         |         |         |     |              |             |                                |                           |                 |   | 10                             |        |

GEOTECH LTD.

COMMENTS

Borehole terminated at 10.00 m

SCALE 1:50

SHEET 1 OF 1

JOB No: G/198 CLIENT: A.R.I. BH No. 04

|                                 |           |        |        |                  |        |
|---------------------------------|-----------|--------|--------|------------------|--------|
| DRILLING RIG <u>Pilcon 1500</u> | HOLE      | CORE   | CASING | DATE START       | FINISH |
| DRILLING FLUID                  | OMM TO    | OMM TO | OMM TO | CO.ORDINATES E N |        |
| BARREL TYPE                     | 200 10.05 |        |        | GROUND LEVEL     |        |
| LOGGED BY                       |           |        |        | INCLINATION      |        |
|                                 |           |        |        | BEARING          |        |

| RQD (%) | TCR (%) | SCR (%) | FPM | CASING LEVEL | WATER LEVEL | IN-SITU TEST TYPES AND SAMPLES  | DISCONTINUITY DESCRIPTION |             | LITHOLOGICAL DESCRIPTION  | (THICKNESS) | DEPTH R. L. | LEGEND |
|---------|---------|---------|-----|--------------|-------------|---------------------------------|---------------------------|-------------|---|-------------|-------------|--------|
|         |         |         |     |              |             |                                 | TYPE                      | DIP ON CORE |   |             |             |        |
|         |         |         |     |              |             | 1.00D<br>1.00-1.45<br>SPT;N=4   |                           |             | Soft, brown silty CLAY  |             | 1           |        |
|         |         |         |     |              |             | 2.50D<br>2.50-2.95<br>SPT;N=9   |                           |             | Firm, yellowish brown slightly plastic, silty CLAY with occasional sand |             | 2           |        |
|         |         |         |     |              |             | 4.00D<br>4.00-4.45<br>SPT;N=21  |                           |             |   |             | 3           |        |
|         |         |         |     |              |             | 5.50D<br>5.50-5.95              |                           |             |   |             | 4           |        |
|         |         |         |     |              |             | 7.00D<br>7.00-7.45<br>SPT;N=26  |                           |             | Stiff, yellowish brown, silty CLAY with some coarse sand and gravel     |             | 5           |        |
|         |         |         |     |              |             | 8.50D<br>8.50-8.95<br>SPT;N=21  |                           |             | Firm, yellowish brown/brown mottled, silty CLAY with occasional sand    |             | 6           |        |
|         |         |         |     |              |             | 9.60D<br>9.60-10.05<br>SPT;N=24 |                           |             | Completely weathered, altered brown, very weak micaceous rock           |             | 7           |        |
|         |         |         |     |              |             |                                 |                           |             |   |             | 8           |        |
|         |         |         |     |              |             |                                 |                           |             |   |             | 9           |        |
|         |         |         |     |              |             |                                 |                           |             |   |             | 10          |        |

**GEOTECH LTD.** COMMENTS SCALE 1:50  
 Borehole terminated at: 10.05 m SHEET 1 OF 1

JOB No: G/198

CLIENT: A.R.I. &

BH No. 05

|  |      |       |      |    |        |               |                              |              |
|--|------|-------|------|----|--------|---------------|------------------------------|--------------|
| DRILLING RIG _____<br>DRILLING FLUID _____<br>BARREL TYPE _____<br>LOGGED BY _____ | HOLE |       | CORE |    | CASING |               | DATE START _____             | FINISH _____ |
|  | OMM  | TO    | OMM  | TO | OMM    | TO            | CO.ORDINATES E _____ N _____ |              |
|  | 200  | 10.00 |      |    |        |               | GROUND LEVEL _____           |              |
|  |      |       |      |    |        |               | INCLINATION _____            |              |
|  |      |       |      |    |        | BEARING _____ |                              |              |

| RQD (%) | TCR (%) | SCR (%) | FPM | CASING LEVEL | WATER LEVEL | IN-SITU TEST TYPES AND SAMPLES | DISCONTINUITY DESCRIPTION |             | LITHOLOGICAL DESCRIPTION   | DEPTH. (THICKNESS)<br>R. L. | LEGEND |
|---------|---------|---------|-----|--------------|-------------|--------------------------------|---------------------------|-------------|--|-----------------------------|--------|
|         |         |         |     |              |             |                                | TYPE                      | DIP ON CORE |  |                             |        |
|         |         |         |     |              |             | 1.00D<br>1.00-1.45<br>U100/22  |                           |             | Soft, brown silty CLAY   | 1                           |        |
|         |         |         |     |              |             | 2.50D<br>2.50-2.95<br>SPT;N=9  |                           |             | Firm, yellowish brown slightly plastic silty CLAY with occasional sand | 2                           |        |
|         |         |         |     |              |             | 4.00D<br>4.00-4.45<br>SPT;N=20 |                           |             |  | 4                           |        |
|         |         |         |     |              |             | 5.50D<br>5.50-5.95<br>SPT;N=28 |                           |             |  | 5                           |        |
|         |         |         |     |              |             | 7.00D<br>7.00-7.45<br>SPT;N=37 |                           |             | stiff, yellowish brown silty CLAY with occasional fine gravels         | 7                           |        |
|         |         |         |     |              |             | 8.50D<br>8.50-8.95<br>SPT;N=47 |                           |             |  | 8                           |        |
|         |         |         |     |              |             | 9.50D<br>9.50-9.95<br>SPT;N=55 |                           |             |  | 9                           |        |
|         |         |         |     |              |             |                                |                           |             |  | 10                          |        |

GEOTECH LTD.

COMMENTS

Borehole terminated at 10.00 m

SCALE 1:50

SHEET 1 OF 1

RESULTS OF THE ATTERBURG LIMITS TESTS OF  
SOIL INVESTIGATION AT GANNORUWA

| <u>B.H. No:</u> | <u>SAMPLE NO:</u> | <u>DEPTH (m)</u> | <u>L.L.%</u> | <u>P.L.%</u> | <u>P.I.%</u> |
|-----------------|-------------------|------------------|--------------|--------------|--------------|
| 1               | 07                | 4.80-5.50        | 44           | 33           | 11           |
| 1               | 12                | 8.50-8.95        | 50           | 20           | 30           |
| 2               | 07                | 4.90-5.50        | 51           | 43           | 07           |
| 3               | 09                | 5.50-5.95        | 49           | 34           | 15           |
| 4               | 08                | 5.50-5.95        | 33           | 26           | 07           |



RESULTS OF U U TRIAXIAL  
COMPRESSION TESTS

PROJECT : A.R.I.

B.H. No. : 1

DEPTH : 2.50 - 3.00 m

SOIL DESCRIPTION : Stiff clay with a considerable percentage of coarse to fine sand. Yellowish brown in colour.

CELL PRESSURE (lbs/in<sup>2</sup>) : 10 ; 20 ; 40

DEVIATOR STRESS AT FAILURE (lbs/in<sup>2</sup>) : 23 ; 42 ; 49

STRAIN AT FAILURE % : 17 ; 20 ; 13

CU. (lbs/in<sup>2</sup>) : 15  
: 105 Kn/m<sup>2</sup>

DIAMETER : 9°

NATURAL MOISTURE CONTENT % : 31

WET DENSITY (lbs/ft<sup>3</sup>) : 105

DRY DENSITY (lbs/ft<sup>3</sup>) : 80

B.H. No. : 5

DEPTH : 1.00 - 1.50 m

SOIL DESCRIPTION : Stiff clay with a considerable percentage of coarse to fine sand. Yellowish brown in colour.

CELL PRESSURE (lbs/in<sup>2</sup>) : 10 ; 20 ; 40

DEVIATOR STRESS AT FAILURE (lbs/in<sup>2</sup>) : 41 ; 41 ; 42

STRAIN AT FAILURE % : 18 ; 15 ; 20

CU. (lbs/in<sup>2</sup>) : 20  
: 140 Kn/m<sup>2</sup>

DIAMETER : 1°

NATURAL MOISTURE CONTENT % : 30

WET DENSITY (lbs/ft<sup>3</sup>) : 108

DRY DENSITY (lbs/ft<sup>3</sup>) : 83

## 2 関連施設の概況

### 中央農業研究所

Central Agricultural Research Institute(CARI)

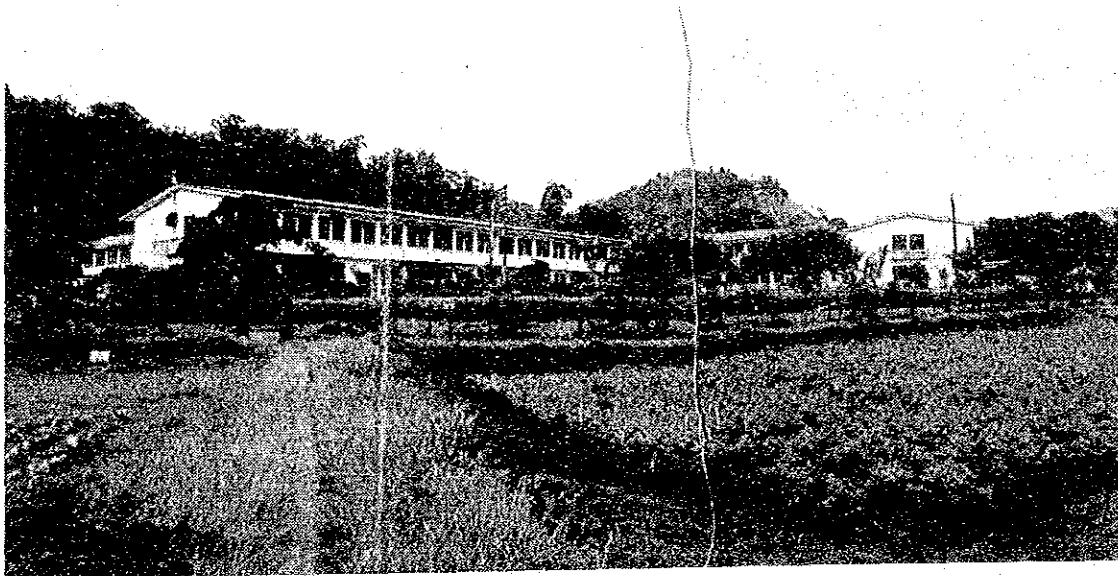
Agricultural Research Division

Department of Agriculture, Ministry of Agricultural Development and Research.

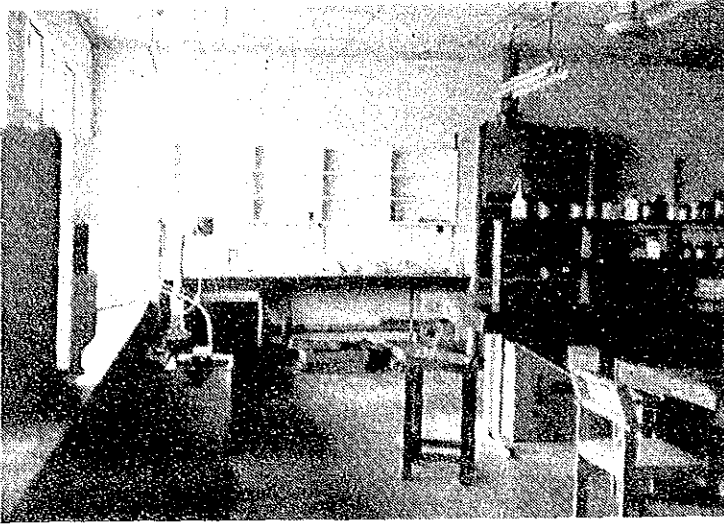
所在地 : Gannoruwa Peradeniya Kandy District.

設立は1958年。現在の施設はコロombo計画によって企画され、オーストラリア政府の援助によって1967年に建設されたものである。

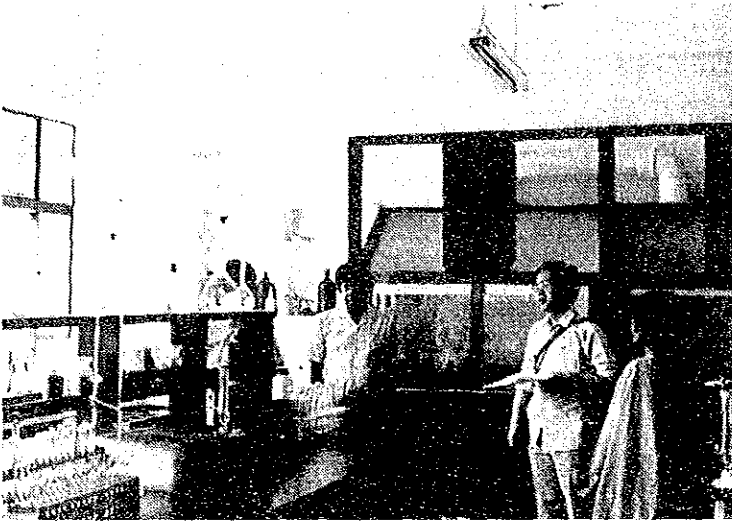
研究組織は、作物部、農芸化学部、植物病理部、昆虫部、園芸部、食品技術部、植物防疫部、生物統計部、図書資料部、農業経済部の10部門。研究員は126名、技術員や管理スタッフ84名、圃場作業員約300名となっている。



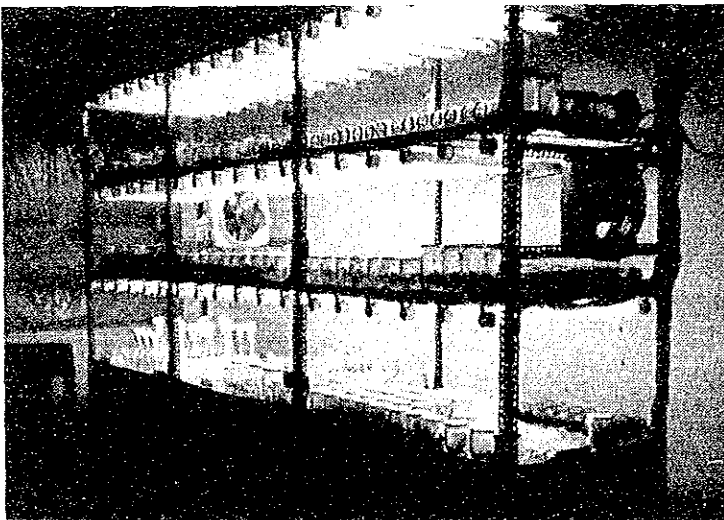
CARI全景



ラボラトリー 1



ラボラトリー 2

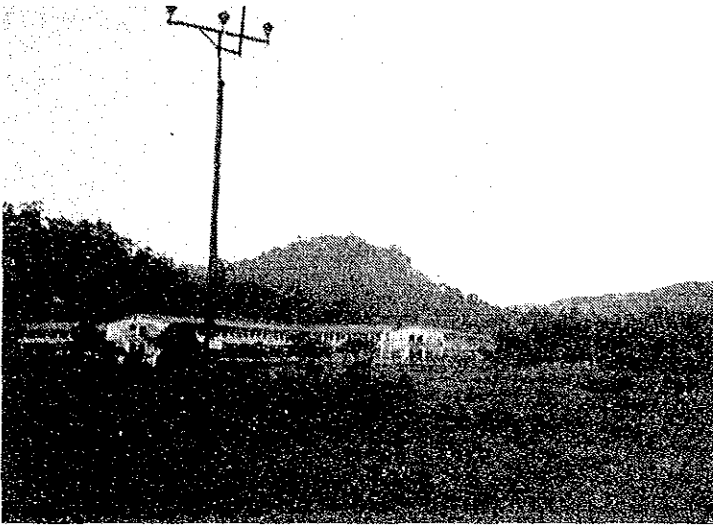


栄養系繁殖作物研究室

栄養系繁殖および永年生作物の  
組織培養による保存を行なっている。



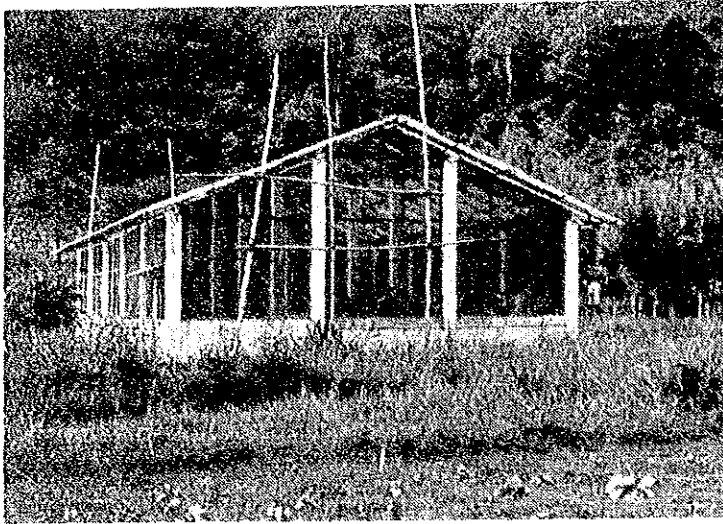
研究員室



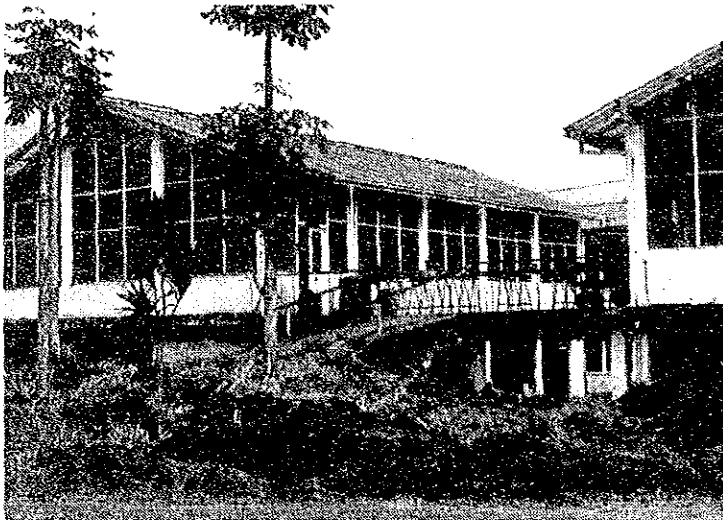
圃場 1



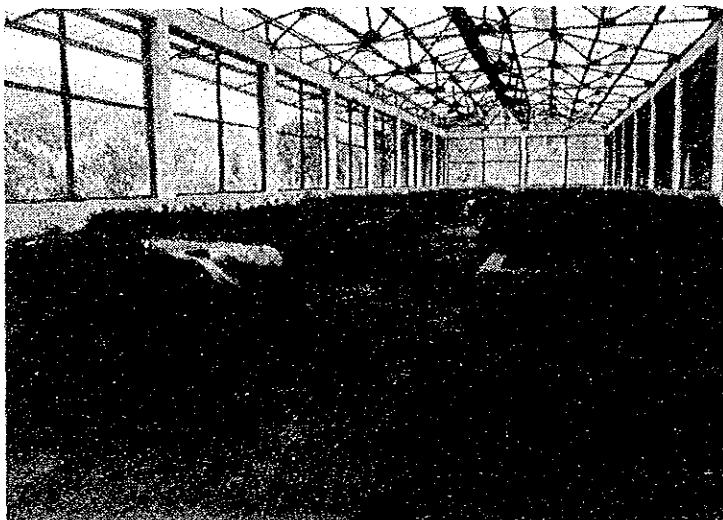
圃場 2



グリーンハウス外観 1



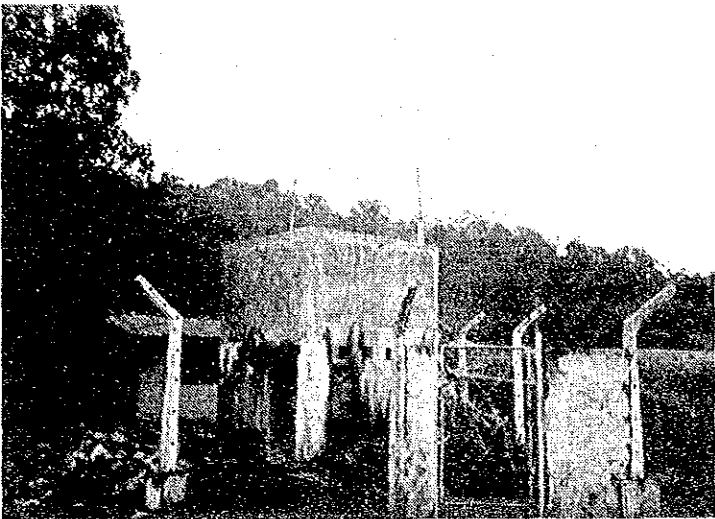
グリーンハウス外観 2



グリーンハウス内部

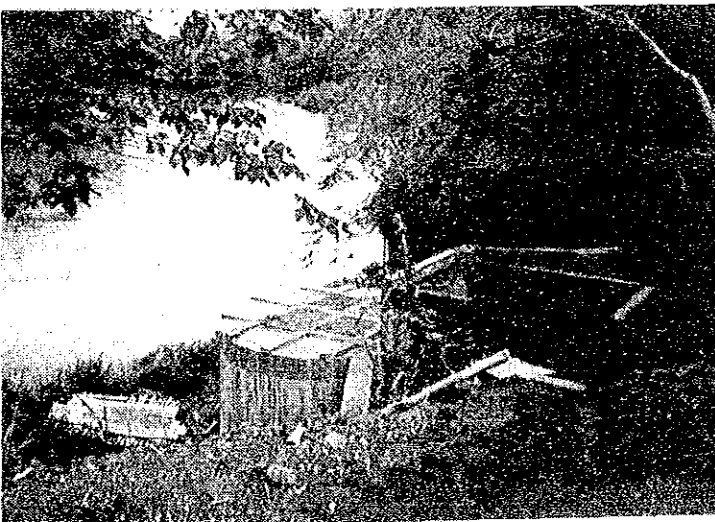


気象記録用施設



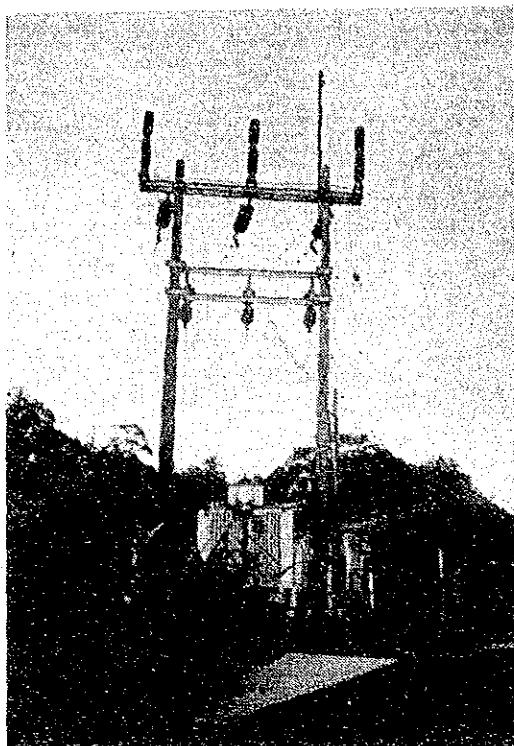
圃場用受水槽タンク

マハヴェリ河岸の井戸より取水し、圃場に配水している。

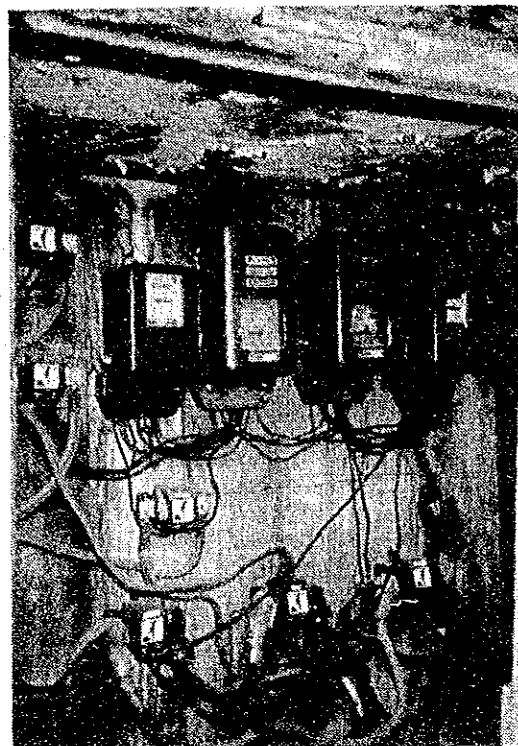


建設中の圃場給水用の井戸直径20 Ft.  
水位はマハヴェリ河水面と同じ

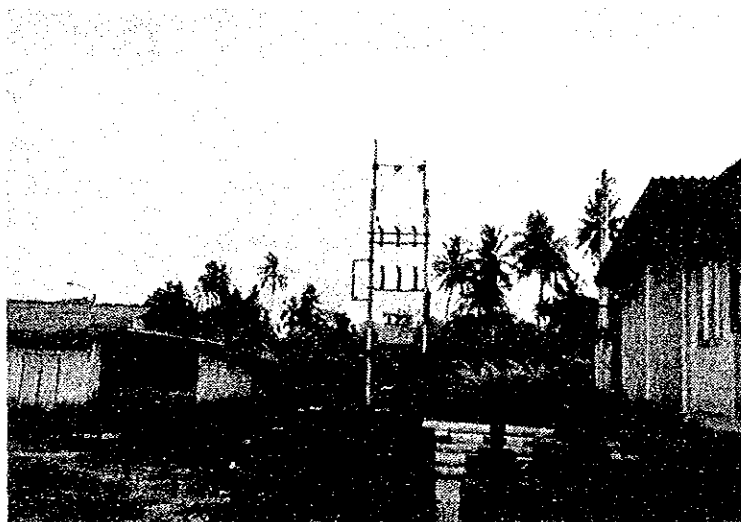
CARI構内に3ヶ所ある屋外変電所の状況



屋外変電設備

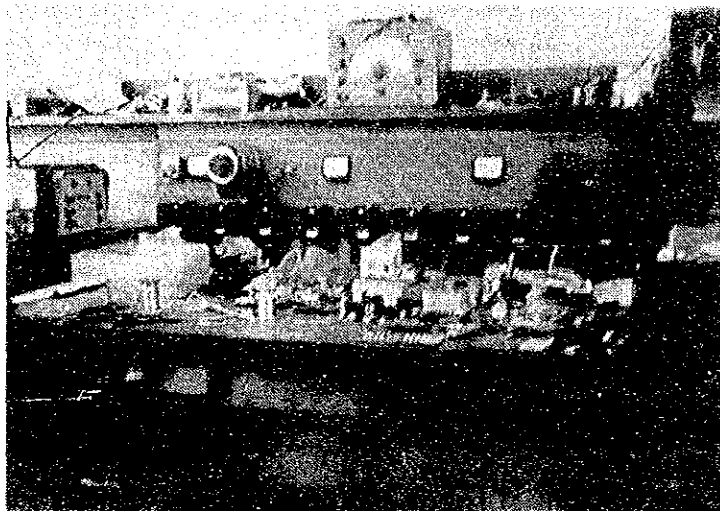


変電所配線状況



屋外変電設備のひとつ

・CARIのメンテナンスワークショップ



冷蔵庫やエアコンディショナー、簡単な実験機器、電動機器等の修理、修繕を行なっている。精密な計器で簡単なトランジスタが入っているエレクトロニクス回路も修理を行なっている。但し、IC、LSI等の回路については修理は難しい。

基本的な各種設備機器に対する知識や修理技術に問題はないが、スペアパーツの入手が難しいため、直せる技術はあっても修理できない事が多い。特に、研究実験機器は大半が地元のエージェントを持たないメーカー品であるため、部品の入手が現実的に不可能である。



バタラゴダ中央イネ育種試験場

Central Rice Breeding Station

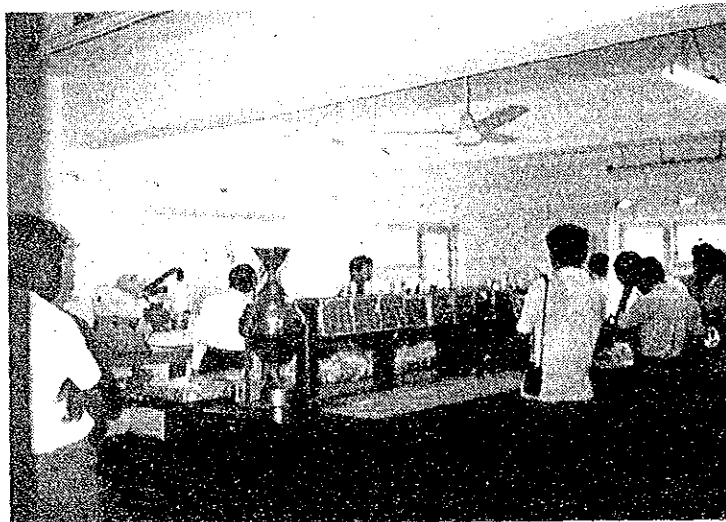
Department of Agriculture

所在地 : Batalagoda Ibbagamuwa, Kurunegala District.

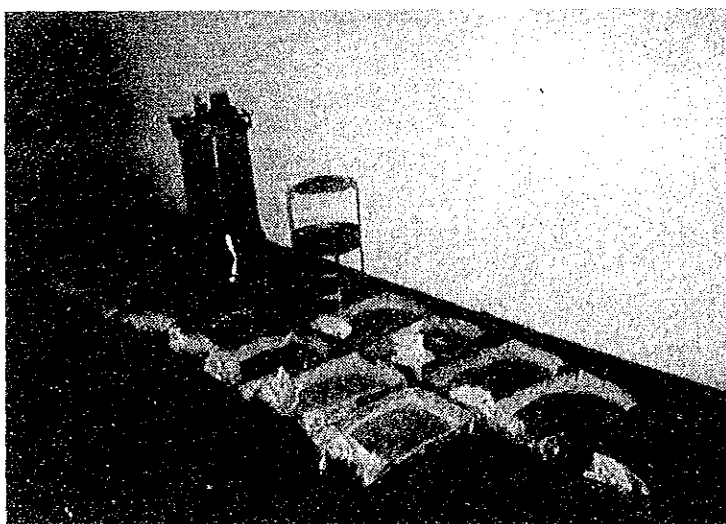
設定は1952年敷地は全体で127エーカー



研究・実験棟



種子検査・実験室



実験用種子保存



試験農場 50 エーカー  
研究用 25 エーカー  
増殖用 25 エーカー



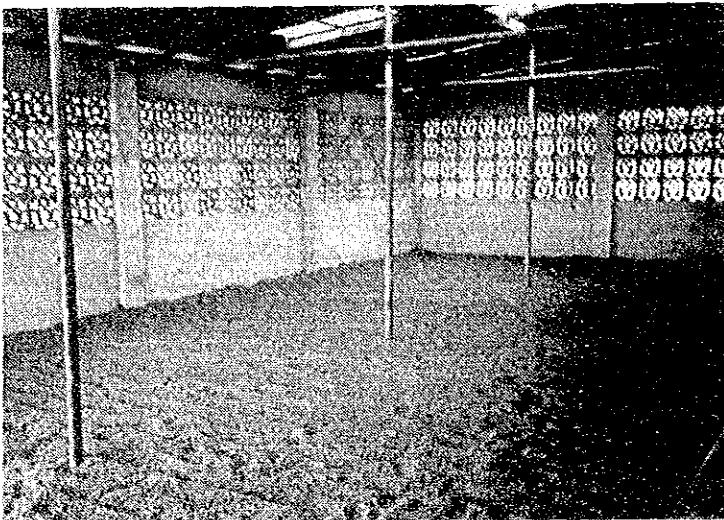
実験用グリーンハウス



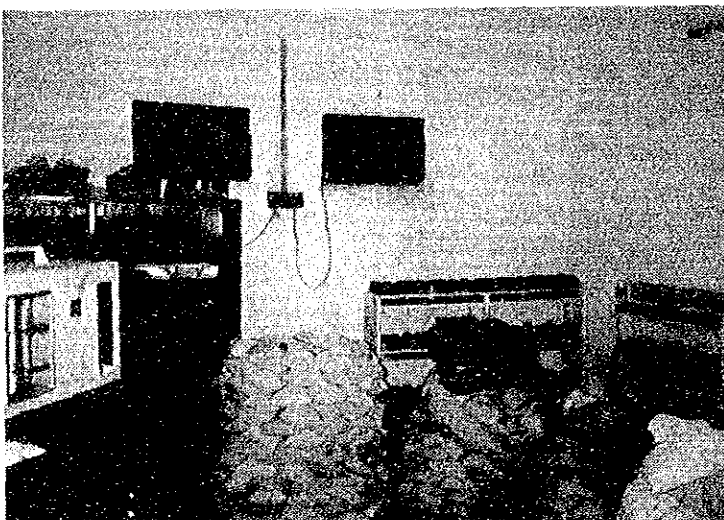
グリーンハウス内部  
屋根・周囲ともネットで試験  
栽培が行なわれている。



グリーンハウス内部  
屋根はプラスチック製



もみの屋内乾燥場



種子貯蔵室  
USAID によって建設された約 20㎡の種子貯蔵室。  
温度は 67° F。湿度コントロールはされていない。  
現在ここで 600 点のイネが保存されている。

・大豆研究所

Soy Bean Research Institute(S.R.I)

建物はCARIに隣接した所に建設されている。

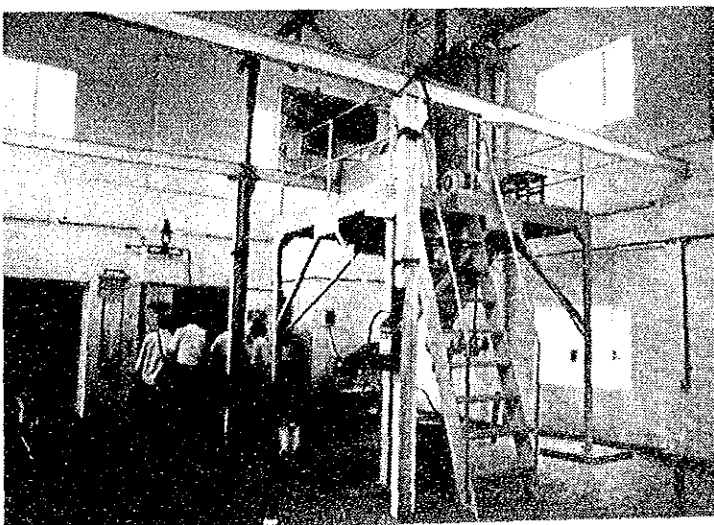


S.R.I 外観

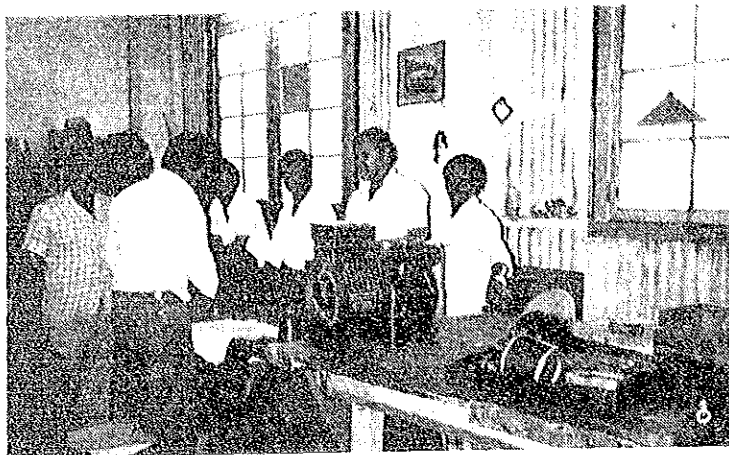


S.R.I 内部

食料加工のできる工場を有している。

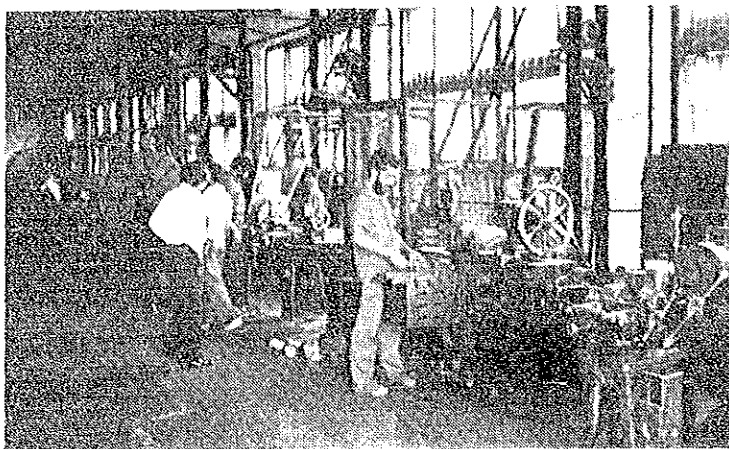


S.R.I 内部



Colombo Commercial Co.Ltd.

キャンディの支店では紅茶工場の機械を主に修理製作している。旋盤、グラインダー、シリング機械、ボール盤等の機械が設置されており、約15人程の技能者がいる。発電機の部品でピストンリング等鉄鋼材より鉄製リング、鉄棒等の製作修繕が可能である。電気機器については、コロンボの本店に持っていく修理を行なうとの事である。



Walker Sons and Co.Ltdキャンディ支店

主な販売、修理は、①冷蔵庫、冷凍庫、小型空調機の修理修繕、②電動機の修理修繕、③紅茶工場の機械の修理修繕、製作、④電気機器（ラジオ、冷蔵庫、ランプ、コンセント等）、衛生陶器（イタリア製）の販売を行なっている。又、工場内には鋳造、旋盤、グラインダー、シリング機械、電動機のコイル巻機、プレス機械、鋳造場等の機械がある。冷蔵庫・冷凍庫等の冷媒配管の修理・ファンガスの注入等一般の家庭用の冷蔵庫等機器は、ほとんど修理している。参考までに22kw電動機の修理がRS3,000.で1週間程で修理することができる。

