

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY ON THE PROJECT
FOR UPGRADING EQUIPMENT
FOR SCIENCE EDUCATION AT THE UNIVERSITY OF CAPE COAST
IN THE REPUBLIC OF GHANA

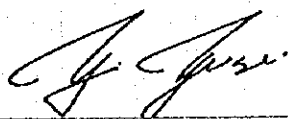
In response to a request from the Government of Ghana (hereinafter referred to as "the GOG"), the Government of Japan has decided to conduct a Basic Design Study on the Project for upgrading equipment for science education at the University of Cape Coast in Ghana (hereinafter referred to as "the Project"), and entrusted the study to Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Ghana a Basic Design Study Team headed by Ms. Yumiko YOKOZEKI, Development Specialist, JICA, and is scheduled to stay in the country from 18 November to 13 December, 1995.

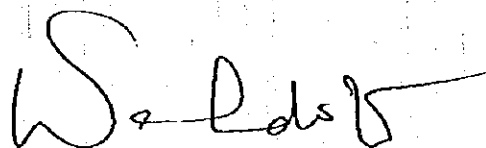
The team held discussions with the officials concerned of the Government of Ghana and conducted a field survey at the Project site (University of Cape Coast).

As a result of discussions and field survey, both parties confirmed the main items described on the attached sheets. The team will proceed with further study and prepare the Basic Design Study Report.

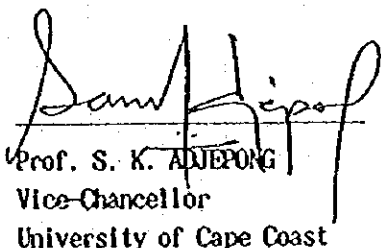
Accra, 28 November, 1995



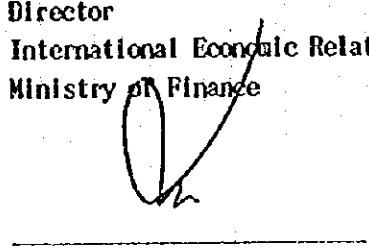
Ms. Yumiko YOKOZEKI
Leader
Basic Design Study Team
JICA



Dr. William ADOTE
Director
International Economic Relations Division
Ministry of Finance



Prof. S. K. ADJEPONG
Vice-Chancellor
University of Cape Coast



Mr. J. S. DALRYMPLE-HAYFRON
Chief Director
Ministry of Education

ATTACHMENT

1. OBJECTIVES OF THE PROJECT

The objective of the Project is to upgrade the equipment for the Faculty of Science and Faculty of Education of the University of Cape Coast in order to enhance the quality of science educators.

2. EXECUTING AGENCY

The Ministry of Education is to be the overall responsible agency and the University of Cape Coast is to be the executing agency for the Project. The organization charts are attached in Annex 1.

3. PROJECT SITE

The Project site is the main campus of the University of Cape Coast, Central Region, Ghana, as shown in Annex 2.

4. REQUESTS MADE BY THE GOG

Departments/Units, in the University of Cape Coast, for which the requests have been made are listed in Annex 3.

5. JAPAN'S GRANT AID SYSTEM

The GOG has understood the system of Japan's Grant Aid Programme explained in Annex 4.

6. NECESSARY MEASURES TO BE TAKEN BY THE GOG

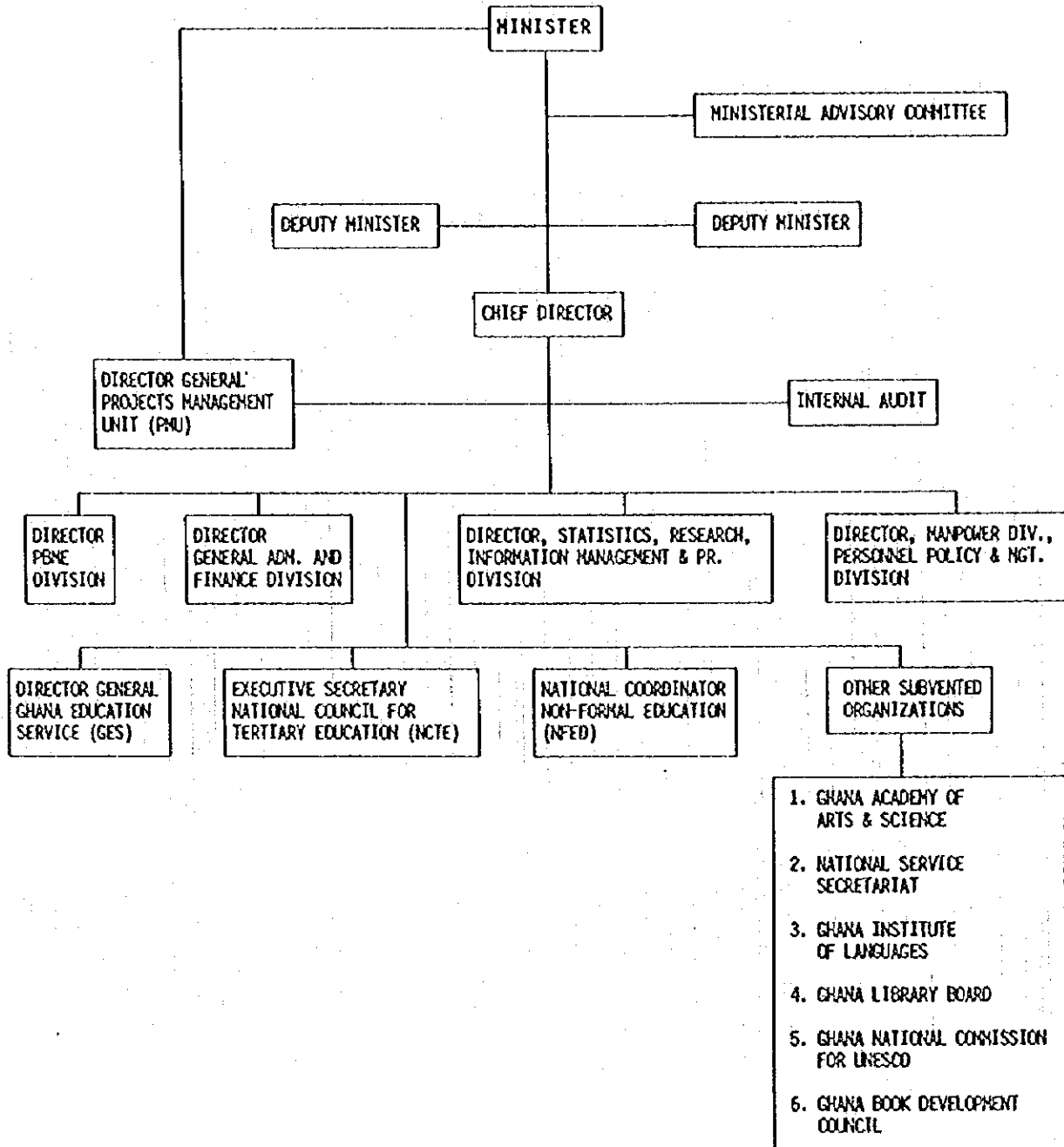
The GOG will take necessary measures described in Annex 5 for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. FURTHER SCHEDULE OF THE STUDY

- 1) The team will proceed with further study in Ghana until the 13th of December, 1995.
- 2) Based on the agreement of the Minutes of Discussions and technical examination of the study results, JICA will complete the final report and send it to the GOG by March, 1996.

ANNEX-1 ORGANIZATION CHARTS

REPUBLIC OF GHANA
 MINISTRY OF EDUCATION
 ORGANIZATIONAL CHART

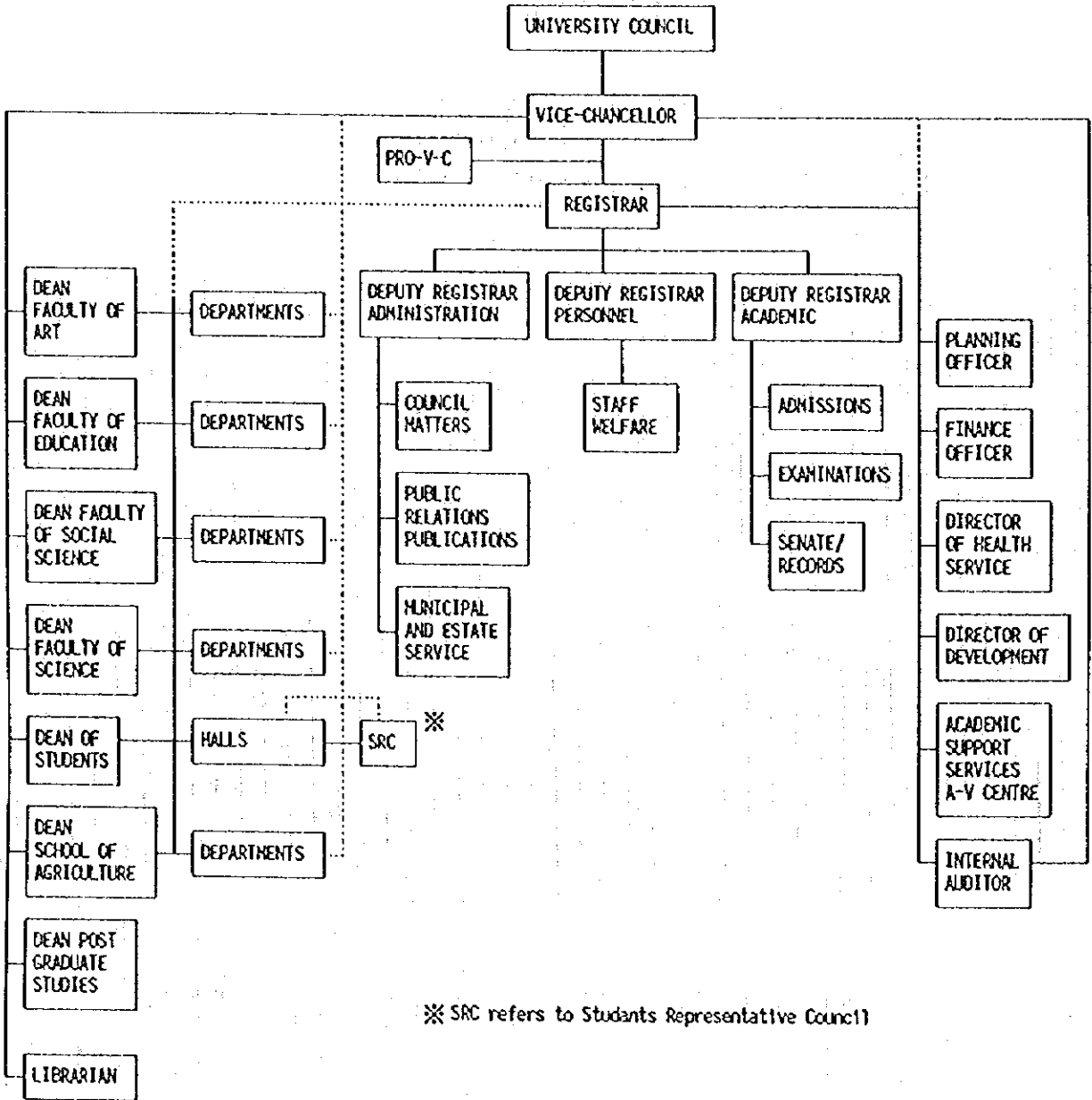


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UNIVERSITY OF CAPE COAST ORGANIZATION CHART

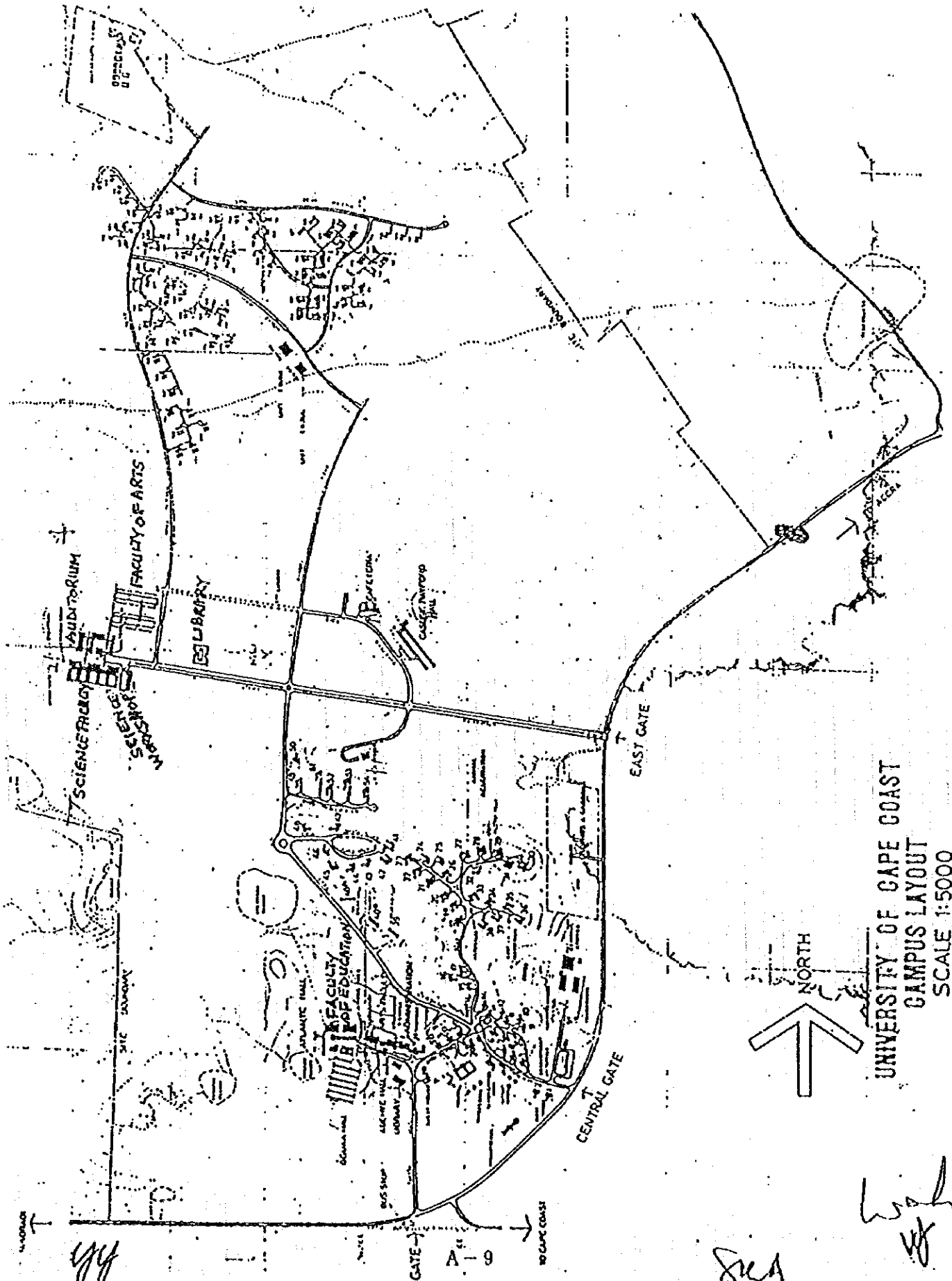


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ANNEX-2 PROJECT SITE



UNIVERSITY OF CAPE COAST
CAMPUS LAYOUT
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ANNEX-3 REQUESTS MADE BY THE GOG

The GOG requested equipment to be provided for the following departments/units of the University of Cape Coast:

Faculty of Science

1. Department of Botany
2. Department of Physics
3. Department of Chemistry
4. Department of Zoology
5. Computer Centre
6. Electronics Unit
7. Science Workshop
8. Faculty Supporting Unit

Faculty of Education

9. Department of Science Education

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ANNEX--4 JAPAN'S GRANT AID PROGRAMME

1. Japan's Grant Aid Procedures

The Japan's Grant Aid Programme is extended in the following procedures:

- 1)- Application (A request made by the recipient country)
 - Study (Basic Design Study conducted by JICA)
 - Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
 - Determination of Implementation (Exchange of Notes between both Governments)
 - Implementation (Implementation of the Project)

2) At the first step (Application), a request made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs), whether or not it is suitable for Grant Aid. If the request is confirmed that it has a high priority as the Project for Grant Aid, the Government of Japan instructs JICA to conduct the Study. At the second step (the Study), the Basic Design Study is conducted by JICA basically under contracts with a Japanese consulting firm to carry out.

At the third step (Appraisal & Approval), the Government of Japan appraises whether or not the Project is suitable for Japan's Grant Aid Programme based on the Basic Design Study Report prepared by JICA and then submitted for approval by Cabinet.

At the fourth step (Determination of Implementation), the Project approved by the Cabinet is officially determined to implement by signing the Exchange of Notes between both Governments.

In the course of Implementation of the Project, JICA will take charge of expediting the execution by assisting the recipient country in terms of the procedures of tender, contract and others.

2. Contents of the study

1) Contents of the study

The purpose of the study (the Basic Design Study) conducted by JICA is to provide basic documents necessary for the appraisal by the Government of Japan whether or not the project is viable for Japan's Grant Aid Programme. The contents of the Study are as follows:

- a) to confirm the background of the request, objectives and effects of the Project and maintenance ability of the recipient country necessary for the implementation;
- b) to evaluate the appropriateness of the Grant Aid from the technological, social and economical point of views;
- c) to confirm the basic concept of the plan mutually agreed upon through discussion between both sides;
- d) to prepare a basic design of the Project; and
- e) to estimate the rough cost of the Project.

The Contents of the original request are not necessarily approved as the contents of the Grant Aid as it is. The Basic Design of the Project is confirmed considering the Japan's Grant Aid Scheme. In the implementation of the Project, the Government of Japan requests the recipient country to take necessary measures in order to promote it's self-reliance. Those undertakings shall be guaranteed even if the recipient implementing entity does not have jurisdiction. Therefore, the implementation of the Project is confirmed by all relevant organizations in the recipient country in the Minutes of Discussions.

2) Selection of a Consultant

For the smooth implementation of the Study, JICA selects a consultant among those consultants who registered to JICA by evaluating proposals submitted by those consultants. The selected consultant carries out the Basic Design Study and prepares a report based upon the terms of reference made by JICA.

At the stage of implementation after the Exchange of Notes, for concluding the contract regarding the Detailed Design and Construction Supervision of the Project between a consultant and the recipient country, JICA recommends the same consultant which participated in the Basic Design Study to the recipient country in order to maintain the technical consistency between the Basic Design Study and the Detailed Design as well as to avoid undue delay caused by selection of a new consultant.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Programme provides the recipient country with nonreimbursable funds needed to procure facilities, equipment and services (labor or transportation, etc.) for economic and social development in the country under the following principles in accordance with the relevant laws and regulations of Japan. The Grant Aide is not a form of donation in kind to the country.

2) Exchange of Notes (E/N)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes between both Governments, in which the objectives of the Projects, period, conditions, amount of the grant, etc. are confirmed.

3) Period

The period of the Grant Aid is within the Japanese fiscal year in which the Cabinet approved the Project. Within the fiscal year, all procedure such as Exchange of Notes, concluding contracts by the recipient country with the consultant and contractor, and the final payment to them shall be completed.

In the case of a big project which requires net construction period more than 12 months, the period of the Grant Aid is designated covering more than one fiscal year depending on Basic Design Study Report.

However in case of the delay of delivery, installation or construction due to events such as weather, the period of the Grant Aid can be further extended for one fiscal year at most by mutual agreement between both Governments.

4) Purchase of the Products and or Services

The Grant Aid is used properly and exclusively for the purchase of the products, in principle, of Japan or the recipient country and of the services of the Japanese or the recipient country's nationals. The term "Japanese" means juridical persons controlled by physical persons. When both Governments deem it necessary, the Grant Aid may be used for the purchase of the products and/or services of the third country (other than Japan or the recipient country).

However, in terms of the principle of the Grant Aid, the prime contractors, that is the consultant, contractor and procurement firm, necessary for the implementation of the Grant Aid are limited to "Japanese nationals".

5) Verification

The Government of recipient country or its designated authority will conclude the contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is necessary because the source of the Grant Aid is the taxes of Japanese nationals.

6) Undertakings required to the Government of Recipient Country
(As described in ANNEX-5)

7) Proper Use

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

8) Re-export

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

9) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority shall 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 Government of the recipient country or its designated authority under the contracts verified.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under the Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

MEMORANDUM OF UNDERSTANDING

Basic Design Study on the Project for Upgrading Equipment for Science Education at the University of Cape Coast in the Republic of Ghana

This memorandum has been prepared to clarify an issue with regard to requests made by the Government of Ghana (hereinafter referred to as GOG) as contained in the Minutes of Discussions signed on 28th November, 1995.

1. ESTABLISHMENT OF MODEL SCIENCE EDUCATION LABORATORIES BY THE UNIVERSITY OF CAPE COAST

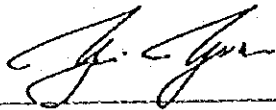
It was observed by the Ministry of Education, University of Cape Coast and the Japanese team that the establishment of model Science Education laboratories in a couple of teacher training colleges would be essential.

2. GOG REQUESTS (See annex 3 of Minutes of Discussions)

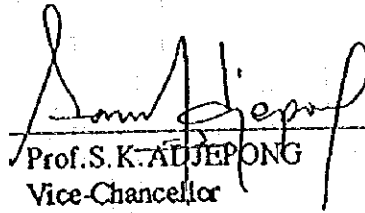
On the basis of the observation in (1) above the GOG requests that the number of equipment to be supplied to the Department of Science Education, University of Cape Coast should be increased and should be the basic type that can also be used to train students in the training colleges.

3. MEASURES TO BE TAKEN BY THE GOG IF THE REQUEST IS GRANTED

- (1) the model laboratories should be established at Komenda Training College, Komenda and OLA Training College, Cape Coast both located near the University of Cape Coast;
- (2) the additional equipment supplied should be used to set up the model laboratories in the two training college above;
- (3) the University of Cape Coast should have ownership of the equipment used in the model science laboratories so established;
- (4) the University of Cape Coast should assume full responsibility for the inventory and maintenance of all the equipment used in the model science laboratories so established, and
- (5) the quality of performance of students who train in the model science laboratories should be monitored by the University of Cape Coast.



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University of Cape Coast



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Chief Director
Ministry of Education

**ANNEX-5 NECESSARY MEASURES TO BE TAKEN
BY THE GOG**

The following necessary measures should be taken by the GOG 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 carry out civil works for buildings contemplated (including interior work of the buildings and the relocation work of the existing equipment and facilities) and to install the requested equipment;
3. To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities;
4. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission;
5. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in Ghana and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid;
6. To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Ghana with respect to the supply of the products and services under the verified contracts;
7. 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 Ghana and stay therein for the performance of their work;
8. To provide necessary permission, licenses and other authorizations for implementing the Project, if necessary;
9. To assign appropriate budget and teaching and administrative staff members for proper and effective operation and maintenance of equipment provided under the Grant Aid;
10. To maintain and use properly and effectively the facilities constructed and the equipment provided under the Project; and
11. To bear all the expenses, other than those to be borne by Japan's Grant Aid within the scope of the Project.

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Appendix 5 Equipment List Requested

Botany department

| | A | B | C | T |
|--|----|----|---|-----|
| BOT-1 Laminar flow cabinet w/air conditioner | 2 | | | 2 |
| BOT-2 Scientific calculators | 30 | | | 30 |
| BOT-3 Stainless steel carts | 4 | | | 4 |
| BOT-4 Flake ice maker | 1 | 1 | | 2 |
| BOT-5 Drying oven | 2 | | | 2 |
| BOT-6 Blenders | 6 | | | 6 |
| BOT-7 High speed refrigerated centrifuge | 2 | | | 2 |
| BOT-8 Student microscope (monocular) | 60 | 60 | | 120 |
| BOT-9 Student microscope (binocular) | 20 | | | 20 |
| BOT-10 Binocular microscope w/camera | 2 | 3 | | 5 |
| BOT-11 pH meter | 6 | | | 6 |
| BOT-12 Autoclave (small size) | 2 | 2 | | 4 |
| BOT-13 Micro Kjeldahl apparatus | 2 | | | 2 |
| BOT-14 Refrigerator | 2 | 2 | | 4 |
| BOT-15 Air sampler | 3 | | | 3 |
| BOT-16 Turbidimeter | 2 | | | 2 |
| BOT-17 Digital nephelometer | 2 | | | 2 |
| BOT-18 B.O.D system | 1 | | | 1 |
| BOT-19 Light meter | 2 | | | 2 |
| BOT-20 Hot plate / Magnetic stirrer | 2 | 3 | | 5 |
| BOT-21 Paraffin embedding oven | 2 | | | 2 |
| BOT-22 Hot plate | 8 | 8 | | 16 |
| BOT-23 Incubator | 2 | | | 2 |
| BOT-24 Refrigerated incubator | 2 | | | 2 |
| BOT-25 Soil thermometer | 10 | | | 10 |
| BOT-26 Hydrometer | 4 | 6 | | 10 |
| BOT-27 Hygrometer | 4 | 6 | | 10 |
| BOT-28 Flame photometer | 1 | 1 | | 2 |
| BOT-29 Atomic absorption spectrophotometer | 1 | 1 | | 2 |
| BOT-30 Tissue processor | 1 | 1 | | 2 |
| BOT-31 Varistain | 2 | | | 2 |
| BOT-32 Compass | 4 | | | 4 |
| BOT-33 Refractometer | 2 | | | 2 |
| BOT-34 Altimeter | 2 | 3 | | 5 |
| BOT-35 Furnace | 2 | | | 2 |
| BOT-36 Table microtome | 2 | | | 2 |
| BOT-37 Hand microtome | 3 | 2 | | 5 |
| BOT-38 Water bath | 6 | | | 6 |
| BOT-39 Rotary vacuum evaporator | 2 | | | 2 |
| BOT-40 Ultra violet lamp | 2 | | | 2 |
| BOT-41 Laboratory mill | 2 | | | 2 |
| BOT-42 Aquarium pump | 6 | | | 6 |
| BOT-43 Slide warmer | 2 | | | 2 |
| BOT-44 Vacuum pump | 2 | | | 2 |
| BOT-45 Slide dispenser | 4 | 2 | | 6 |
| BOT-46 Sand bath | 2 | | | 2 |

J. Lindro
8-12-95


Physics department

| | A | B | C | T |
|--|----|---|---|----|
| PHY-1 Measuring microscope | 8 | 8 | | 16 |
| PHY-2 Self induator AM type | 16 | 8 | | 24 |
| PHY-3 Decade capacitor | 16 | 8 | | 24 |
| PHY-4 Oscilloscope (100 MHz) | 1 | 1 | | 2 |
| PHY-5 Analog multimeter | 16 | 8 | | 24 |
| PHY-6 Direct-acting electrical recorder | 1 | 1 | | 2 |
| PHY-7 Digital multimeter | 8 | 8 | | 16 |
| PHY-8 Electrostatic meter | 1 | | | 1 |
| PHY-9 e/m apparatus | 1 | 1 | | 2 |
| PHY-10 Radiation detector, portable type | 2 | 2 | | 4 |
| PHY-11 Radio wave demonstration set | 1 | | | 1 |
| PHY-12 Planck's constant measuring apparatus | 1 | | | 1 |
| PHY-13 Millikan apparatus with power supply unit | 1 | | | 1 |
| PHY-14 LCR meter set | 1 | | | 1 |
| PHY-15 Standard tuning folks | 2 | 2 | | 4 |
| PHY-16 Vibro-graver, engraving tool | 1 | | | 1 |
| PHY-17 Digital luxmeter | 1 | 1 | | 2 |
| PHY-18 Temperature controller with thermocouple | 1 | | | 1 |
| PHY-19 Lens | 16 | 8 | | 24 |
| PHY-20 Glass block (rectangular) | 16 | 8 | | 24 |
| PHY-21 Newton's rings apparatus | 8 | 8 | | 16 |
| PHY-22 DC potentiometer for students | 2 | 2 | | 4 |
| PHY-23 Slide rheostat | 16 | 8 | | 24 |
| PHY-24 Storage battery | 16 | 8 | | 24 |
| PHY-25 Alkaline storage battery | 16 | 8 | | 24 |
| PHY-26 Leclanche cell | 16 | 8 | | 24 |
| PHY-27 Muffle furnace | 1 | 1 | | 2 |
| PHY-28 DC power supply unit | 8 | 8 | | 16 |
| PHY-29 Specific gravity bottles | 16 | 8 | | 24 |
| PHY-30 Electronics circuit trainer | 1 | 1 | | 2 |
| PHY-31 Liquid resistance measuring U-tube | 2 | 2 | | 4 |
| PHY-32 Electronic tool set | 4 | 2 | | 6 |
| PHY-33 Diffraction grating | 4 | 2 | | 6 |
| PHY-34 Electric circuit training board | 6 | 6 | | 12 |
| PHY-35 Polarimeter | 2 | 2 | | 4 |
| PHY-36 Optical bench | 6 | 6 | | 12 |
| PHY-37 Ripple tank | 2 | 2 | | 4 |
| PHY-38 Spectro meter | 6 | 6 | | 12 |
| PHY-39 Electronic balance | 2 | 2 | | 4 |

L. A. Ahen
S. A. Ahen
 8-12-95

Chemistry Department (1/2)

| | A | B | C | T |
|--|-----|-----|----|-----|
| CHE-1 Water jet pump | 48 | 24 | 8 | 80 |
| CHE-2 Vacuum drying oven | 3 | | | 3 |
| CHE-3 Electronic analytical balance | 16 | 4 | 2 | 22 |
| CHE-4 Electronic balance | 16 | 4 | 2 | 22 |
| CHE-5 Double distilled water apparatus | 3 | 1 | 1 | 5 |
| CHE-6 Magnetic stirrer w/hot plate | 32 | 8 | 2 | 42 |
| CHE-7 Barometer | 12 | | | 12 |
| CHE-8 Digital pipette (variable volume) | 10 | 5 | 5 | 20 |
| CHE-9 Digital pipette set | 5 | 5 | 5 | 15 |
| CHE-10 Atomic absorption spectrophotometer | 1 | 1 | | 2 |
| CHE-11 Oil bath | 12 | 6 | 6 | 24 |
| CHE-12 pH meter (student) | 24 | 12 | 12 | 48 |
| CHE-13 Conductivity meter | 12 | 4 | | 16 |
| CHE-14 UV-Visible spectrophotometer | 1 | | | 1 |
| CHE-15 Flame photometer | 1 | 1 | | 2 |
| CHE-16 Colorimeter | 2 | 2 | 2 | 6 |
| CHE-17 Muffle furnace | 1 | | | 1 |
| CHE-18 Bomb calorimeter | 2 | | | 2 |
| CHE-19 Carbon dioxide analyser | 2 | 2 | | 4 |
| CHE-20 Infrared spectrophotometer | 1 | | | 1 |
| CHE-21 Tintometer | 1 | | | 1 |
| CHE-22 Hot plate | 12 | 6 | 6 | 24 |
| CHE-23 Stopclock | 50 | 20 | | 70 |
| CHE-24 Wash bottle | 200 | 200 | | 400 |
| CHE-25 Spectacle | 50 | | | 50 |
| CHE-26 Safety mask set | 10 | | | 10 |
| CHE-27 Flask shaker | 4 | 4 | | 8 |
| CHE-28 Refrigerator | 3 | 3 | | 6 |
| CHE-29 High performance liquid chromatograph | 1 | | | 1 |
| CHE-30 Gas chromatograph | 1 | | | 1 |
| CHE-31 Polarimeter | 1 | | | 1 |
| CHE-32 Centrifuge (table top) | 4 | 2 | | 6 |
| CHE-33 Melting point apparatus | 4 | 2 | 1 | 6 |
| CHE-34 Refractometer | 3 | 3 | | 6 |
| CHE-35 Steam bath | 10 | 24 | | 34 |
| CHE-36 Mechanical stirrer | 2 | 1 | | 3 |
| CHE-37 UV lamp for TLC | 5 | | | 5 |
| CHE-38 Thermometer (mercury, 110° C) | 100 | 50 | 20 | 170 |
| CHE-39 Thermometer set (mercury, 250/360° C) | 3 | 2 | | 5 |
| CHE-40 Thermometer set (quick-fit, 110/250/360° C) | 3 | 3 | | 6 |
| CHE-41 Aerosol spray gun for TLC | 5 | | | 5 |
| CHE-42 TLC set | 10 | 5 | | 15 |
| CHE-43 Chromatographic column | 20 | 10 | | 30 |
| CHE-44 Spectacle for UV | 5 | | | 5 |
| CHE-45 Platinum crucible | 4 | 1 | | 5 |
| CHE-46 Nickel crucible | 5 | 5 | 2 | 12 |
| CHE-47 Stainless steel crucible | 5 | 5 | 2 | 12 |
| CHE-48 Polarographic analyzer | 1 | | | 1 |
| CHE-49 Glass lathe machine | 1 | | | 1 |
| CHE-50 Glass cutting knives | 50 | | | 50 |
| CHE-51 Hand torch burner | 10 | | | 10 |
| CHE-52 Glass cutting machine | 1 | 1 | | 2 |


A-19

Dec 8, 1995

Chemistry Department (2/2)

| | A | B | C | T |
|--|----|----|---|----|
| CHE-53 Bunsen burner | 30 | 15 | | 45 |
| CHE-54 Glass drilling machine | 3 | 2 | | 5 |
| CHE-55 Grinding machine | 2 | | | 2 |
| CHE-56 Strain viewer | 6 | | | 6 |
| CHE-57 Grinding machine for quick-fit | 1 | 1 | | 2 |
| CHE-58 Annealing oven | 1 | 1 | | 2 |
| CHE-59 Separating funnel set | 25 | | | 25 |
| CHE-60 Soxhlet extractor set | 10 | | | 10 |
| CHE-61 Vacuum dessicator | 10 | | | 10 |
| CHE-62 Kjeldahl distillation unit | 1 | 1 | | 2 |
| CHE-63 Glass tube set for glass blowing | 3 | | | 3 |
| CHE-64 Glass-ware set | 1 | | | 1 |
| CHE-65 Fume hood | 3 | 1 | | 4 |
| CHE-66 Nitrogen gas generator | 1 | 1 | | 2 |
| CHE-67 Ion-selective electrode set (7 kinds/set) | 5 | 1 | | 5 |

W. M. H. Dec 8, 1995

Zoology Department

| | A | B | C | T |
|--|-----|----|---|-----|
| ZOO-1 Digital pipetter set | 3 | 2 | | 5 |
| ZOO-2 Water quality meter (portable) | 2 | 1 | | 3 |
| ZOO-3 Conductivity meter (portable, digital) | 2 | 1 | | 3 |
| ZOO-4 pH/ORP meter (portable, digital) | 2 | 1 | | 3 |
| ZOO-5 DO/O2/Temp. meter (portable, digital) | 2 | 1 | | 3 |
| ZOO-6 Salinity refractometer | 2 | 2 | | 4 |
| ZOO-7 Precision balance | 2 | 2 | | 4 |
| ZOO-8 Stereo microscope | 10 | 5 | | 15 |
| ZOO-9 Insect sampling kit | 1 | | | 1 |
| ZOO-10 Insect net set | 4 | | | 4 |
| ZOO-11 Collecting tools for beach | 4 | | | 4 |
| ZOO-12 Electrophoresis apparatus (cellulose acetate) | 2 | 1 | | 3 |
| ZOO-13 Turbidity/temp. meter (portable digital) | 2 | 1 | | 3 |
| ZOO-14 pH meter (digital) | 2 | 1 | | 3 |
| ZOO-15 Automatic hydrocarbon analyzer | 1 | | | 1 |
| ZOO-16 Inflatable boat | 2 | 1 | | 3 |
| ZOO-17 Ultraviolet light water sterilizer | 2 | | | 2 |
| ZOO-18 Dry bath | 1 | 1 | | 2 |
| ZOO-19 Tool kit for microscope | 5 | | | 5 |
| ZOO-20 Eyepiece screw micrometer | 3 | 2 | | 5 |
| ZOO-21 Microscope slides, zoology specimens | 1 | | | 1 |
| ZOO-22 Kilner jar | 100 | | | 100 |
| ZOO-23 Soil Insect collector | 1 | 1 | | 2 |
| ZOO-24 Tool set for maintenance | 1 | | | 1 |
| ZOO-25 Rubber bulbs | 10 | | | 10 |
| ZOO-26 Rubber gloves | 20 | | | 20 |
| ZOO-27 Rubber apron | 20 | | | 20 |
| ZOO-28 Rubber boots set | 10 | | | 10 |
| ZOO-29 Students monocular microscope | 60 | 40 | | 100 |
| ZOO-30 Deep freezer (chest type) | 2 | | | 2 |
| ZOO-31 Refrigerator | 4 | | | 4 |
| ZOO-32 Microtome knife sharpner | 1 | | | 1 |
| ZOO-33 Compound microscope | 8 | | | 8 |
| ZOO-34 Mammal trap | 50 | 50 | | 100 |
| ZOO-35 Tape measure | 5 | | | 5 |
| ZOO-36 Specimen jars | 100 | | | 100 |
| ZOO-37 Whirlimixer | 1 | | | 1 |
| ZOO-38 Shaker | 1 | | | 1 |
| ZOO-39 Compass | 10 | | | 10 |
| ZOO-40 Recirculating pump | 1 | | | 1 |
| ZOO-41 Aquarium tank | 10 | | | 10 |
| ZOO-42 Plastic tubing set | 1 | | | 1 |
| ZOO-43 Microscope w/camera | 1 | | | 1 |

Rankin 8/12/95
 DR. K. YANKSON

Agbela
 C. T. Agbela A-21
 8/12/95

Computer center

| | A | B | C | T |
|----------------------------|----|---|---|----|
| CPC-1 Personal computer | 36 | | | 36 |
| CPC-2 Printer (dot matrix) | 8 | | | 8 |
| CPC-3 Printer (laser) | 2 | | | 2 |
| CPC-4 UPS | 36 | | | 36 |
| CPC-5 Software | 1 | | | 1 |
| CPC-6 LAN set | 1 | | | 1 |
| CPC-7 Scanner | 1 | | | 1 |
| CPC-8 Plotter | 1 | | | 1 |
| CPC-9 Printer (colour) | 1 | | | 1 |
| CPC-10 Sharer | 1 | | | 1 |
| CPC-11 Tablette | 2 | | | 2 |
| CPC-12 MODEM | 1 | | | 1 |

James Abubobi
8th Dec 1995

Electronic unit

| | A | B | C | T |
|----------------------------------|----|----|---|----|
| ELU-1 Anti-static soldering iron | 10 | 10 | | 20 |
| ELU-2 Soldering iron | 16 | 8 | | 24 |
| ELU-3 Deoldering tool | 20 | | | 20 |
| ELU-4 Transistor checker | 2 | 2 | | 4 |
| ELU-5 Multi-meter (analogue) | 4 | 2 | | 6 |
| ELU-6 Capacitance meter | 1 | 1 | | 2 |
| ELU-7 Multi-meter (digital) | 4 | 2 | | 6 |
| ELU-8 Color pattern generator | 1 | 1 | | 2 |
| ELU-9 Signal injector | 3 | 2 | | 5 |
| ELU-10 DC power supply | 4 | | | 4 |
| ELU-11 Electronic tool set | 2 | 2 | | 4 |

G. H. ARTHUR

~~XXXXXXXXXX~~

8-12-95

L. A. ALLEN (S/Allen)

8/12/95

Workshop

| | A | B | C | T |
|---------------------------------|---|---|---|---|
| WOK-1 Turret milling machine | 1 | | | 1 |
| WOK-2 Center lathe | 1 | | | 1 |
| WOK-3 Press brake | 1 | | | 1 |
| WOK-4 Guillotine | 1 | | | 1 |
| WOK-5 Pipe bending machine | 1 | | | 1 |
| WOK-6 Gas (MIG) Welding machine | 1 | | | 1 |
| WOK-7 AC arc welder | 1 | | | 1 |
| WOK-8 Universal milling machine | 1 | | | 1 |
| WOK-9 CNC lathe (table top) | 1 | | | 1 |
| WOK-10 Air compressor | 1 | | | 1 |
| WOK-11 Lath | 1 | | | 1 |

Jim Ammeral

8/12/95

Supporting unit

| | A | B | C | T |
|-------------------------------|----|---|---|----|
| SUP-1 Personal computer | 4 | | | 4 |
| SUP-2 Laser printer | 2 | | | 2 |
| SUP-3 Overhead projector | 10 | | | 10 |
| SUP-4 Printing machine | 2 | | | 2 |
| SUP-5 Pick-up car | 2 | | | 2 |
| SUP-6 Micro-bus | 1 | | | 1 |
| SUP-7 Slide projector | 3 | | | 3 |
| SUP-8 VTR/TV/Videp camera set | 2 | | | 2 |
| SUP-9 35mm camera | 2 | | | 2 |
| SUP-10 Photocopier | 2 | | | 2 |
| SUP-11 Electric typewriter | 4 | | | 4 |

Tonoffin
8th December, 1995

AV unit

| | A | B | C | T |
|------------------------------------|-----|---|---|-----|
| AVU-1 Video camera | 2 | | | 2 |
| AVU-2 Over head projector | 4 | 2 | | 6 |
| AVU-3 Slide projector | 4 | 2 | | 6 |
| AVU-4 Video deck | 2 | | | 2 |
| AVU-5 Video monitor | 2 | | | 2 |
| AVU-6 Cassette recorder | 8 | 2 | | 10 |
| AVU-7 Video cassette | 100 | | | 100 |
| AVU-8 Audio cassette | 100 | | | 100 |
| AVU-9 Photocopy machine | 1 | | | 1 |
| AVU-10 Transparencie paper for OHP | 50 | | | 50 |
| AVU-11 Computer w/printer | 1 | | | 1 |
| AVU-12 Laminating machine | 1 | 1 | | 2 |
| AVU-13 Studio editing system | 1 | | | 1 |
| AVU-14 35 mm camera | 5 | 4 | | 9 |
| AVU-15 Microscope | 2 | 1 | | 3 |
| AVU-16 Enlarger | 2 | | | 2 |
| AVU-17 Dark room equipment | 1 | | | 1 |

J. Dupin
8 Dec 1995

Science education workshop

| | A | B | C | T |
|------------------------------|---|---|---|----|
| SEW-1 Multi-meter (analogue) | 4 | 2 | | 6 |
| SEW-2 Multi-meter (digital) | 2 | | | 2 |
| SEW-3 Tool set | 6 | 6 | | 12 |
| SEW-4 Universal planer | 1 | | | 1 |
| SEW-5 Lathe | 1 | | | 1 |
| SEW-6 Bandsaw (portable) | 1 | | | 1 |
| SEW-7 Plane | 5 | 5 | | 10 |
| SEW-8 Rip saw | 3 | 3 | | 6 |
| SEW-9 Cross-cut saw | 3 | 3 | | 6 |
| SEW-10 Tenon saw | 3 | 3 | | 6 |
| SEW-11 Grinding machine | 1 | | | 1 |
| SEW-12 Materials | 1 | | | 1 |

Science education laboratory(1/2)

| | A | B | C | T |
|---------------------------------------|----|---|---|----|
| SEL-1 Top-pan balance | 2 | | | 2 |
| SEL-2 Paraffin pressure burner | 5 | | | 5 |
| SEL-3 Face protector | 10 | | | 10 |
| SEL-4 Respirator | 6 | | | 6 |
| SEL-5 Rubber hand gloves | 12 | | | 12 |
| SEL-6 Laser safety goggle | 9 | | | 9 |
| SEL-7 Flame photometer | 2 | 1 | | 3 |
| SEL-8 Mantle heater | 6 | | | 6 |
| SEL-9 Hot plate | 3 | | | 3 |
| SEL-10 Air pump | 6 | | | 6 |
| SEL-11 Vertex stirrer | 6 | 6 | | 12 |
| SEL-12 Stop watche | 6 | 6 | | 12 |
| SEL-13 Tool kit | 3 | | | 3 |
| SEL-14 Comparator unit | 3 | | | 3 |
| SEL-15 Dissecting set | 12 | | | 12 |
| SEL-16 Whip cord | 24 | | | 24 |
| SEL-17 Sash cord | 24 | | | 24 |
| SEL-18 Luggage cord | 24 | | | 24 |
| SEL-19 Friction apparatus | 6 | | | 6 |
| SEL-20 Thermal conductivity apparatus | 6 | | | 6 |
| SEL-21 Cadmium battery | 6 | 6 | | 12 |
| SEL-22 Storage battery | 6 | 6 | | 12 |
| SEL-23 Lead acid accumulator | 6 | 6 | | 12 |
| SEL-24 Water still | 1 | 1 | | 2 |
| SEL-25 Galvanometer | 12 | | | 12 |
| SEL-26 Oscilloscope | 3 | | | 3 |
| SEL-27 Potentiometer | 12 | | | 12 |
| SEL-28 Barometer | 3 | | | 3 |
| SEL-29 Flexible plug lead | 48 | | | 48 |
| SEL-30 Hydrometer | 6 | | | 6 |
| SEL-31 Hygrometer | 6 | | | 6 |
| SEL-32 Moter set | 10 | | | 10 |
| SEL-33 Spatula | 24 | | | 24 |
| SEL-34 Test tube holder | 24 | | | 24 |
| SEL-35 Thermometer | 48 | | | 48 |
| SEL-36 Thermometer (200° C) | 48 | | | 48 |
| SEL-37 Thermometer (maximum/minimum) | 12 | | | 12 |
| SEL-38 Thermometer (wall mounting) | 6 | | | 6 |
| SEL-39 Wash bottle | 12 | | | 12 |
| SEL-40 Pipette washer | 12 | | | 12 |
| SEL-41 Burette | 36 | | | 36 |
| SEL-42 Watch glass | 24 | | | 24 |
| SEL-43 Spouting jar | 1 | | | 1 |
| SEL-44 Communicating vessel | 12 | | | 12 |
| SEL-45 Bucket & cylinder | 12 | | | 12 |
| SEL-46 Ripple tank | 3 | | | 3 |
| SEL-47 Universal test meter | 3 | | | 3 |
| SEL-48 Bell in vacuum | 6 | | | 6 |
| SEL-49 Pendulum bob | 43 | | | 43 |
| SEL-50 Boyles law apparatus | 6 | | | 6 |
| SEL-51 Whitley bay smoke cell | 12 | | | 12 |
| SEL-52 Ball and ring | 18 | | | 18 |
| SEL-53 Bimettalic strip | 36 | | | 36 |

J. R. Ruffin
8th Dec. 1995

Science education laboratory (2/2)

| | A | B | C | T |
|--------------------------------------|----|---|---|----|
| SEL-54 Bar breaking apparatus | 12 | | | 12 |
| SEL-55 Van de graaf generator pack | 1 | | | 1 |
| SEL-56 Horseshoe magnet | 12 | | | 12 |
| SEL-57 Ring magnet | 12 | | | 12 |
| SEL-58 Suspension magnet cylindrical | 12 | | | 12 |
| SEL-59 U-shaped magnet | 12 | | | 12 |

J. J. J. J.
8th Dec 1995

Teacher training colleges (package for one college)

| | A | B | C | T |
|------------------------------------|----|---|---|----|
| TTC-1 Refrigerator | 2 | | | 2 |
| TTC-2 Electric top pan balance | 2 | | | 2 |
| TTC-3 Double pan balance | 2 | | | 2 |
| TTC-4 Spring balance | 15 | | | 15 |
| TTC-5 Barometer | 1 | | | 1 |
| TTC-6 Water bath | 2 | | | 2 |
| TTC-7 Fire extinguisher | 2 | | | 2 |
| TTC-8 First aid kit | 2 | | | 2 |
| TTC-9 Alcohol burner | 15 | | | 15 |
| TTC-10 Paper chromatography kit | 1 | | | 1 |
| TTC-11 Dissecting set | 15 | | | 15 |
| TTC-12 Ammeter | 15 | | | 15 |
| TTC-13 Voltmeter | 15 | | | 15 |
| TTC-14 Filter paper | 50 | | | 50 |
| TTC-15 Measuring tool set | 15 | | | 15 |
| TTC-16 Emulsion heater | 3 | | | 3 |
| TTC-17 Hot plate | 2 | | | 2 |
| TTC-18 Specific gravity hydrometer | 1 | | | 1 |
| TTC-19 Magnifier | 50 | | | 50 |
| TTC-20 Student microscope | 15 | | | 15 |
| TTC-21 Autoclave | 1 | | | 1 |
| TTC-22 Molecular model set | 1 | | | 1 |
| TTC-23 Mortar & pestle | 15 | | | 15 |
| TTC-24 Drying oven | 1 | | | 1 |
| TTC-25 Periodic chart | 1 | | | 1 |
| TTC-26 Spatula | 50 | | | 50 |
| TTC-27 Iron stand set | 15 | | | 15 |
| TTC-28 Glass rod thermometer | 50 | | | 50 |
| TTC-29 Rubber & glass tubing | 50 | | | 50 |
| TTC-30 Preserved specimen set | 15 | | | 15 |
| TTC-31 Human anatomical model | 1 | | | 1 |
| TTC-32 Chart (human, biology) | 1 | | | 1 |
| TTC-33 Over head projector | 1 | | | 1 |
| TTC-34 Calculator | 15 | | | 15 |
| TTC-35 Thermo flask | 10 | | | 10 |
| TTC-36 Crocodile clip | 50 | | | 50 |
| TTC-37 Motor set | 1 | | | 1 |
| TTC-38 Centrifuge (table top) | 1 | | | 1 |
| TTC-39 Density bottle | 15 | | | 15 |
| TTC-40 DC power supply | 15 | | | 15 |
| TTC-41 Glassware set | 1 | | | 1 |

D. D. Dufur
8th Dec. 1995

Appendix 6 Equipment List Planned

PLANNED EQUIPMENT

| CODE | DESCRIPTION | QTY | CURRICULUM | LOCATION |
|---|--|-----|------------------------|---------------|
| (FACULTY OF SCIENCE / BOTANY DEPARTMENT) | | | | |
| BOT-1 | Laminar flow cabinet w/air conditioner | 2 | BOT-413 | B3-7 |
| BOT-2 | Scientific calculator | 30 | COMMON | B3-8 |
| BOT-3 | Stainless steel carts | 4 | COMMON | B3-8 |
| BOT-4 | Flake ice maker | 1 | COMMON | B2-10 |
| BOT-5 | Drying oven | 2 | COMMON | B2-10 |
| BOT-6 | Blenders | 6 | BOT-499 | B3-7 |
| BOT-7 | Centrifuge (high speed/refrigerated) | 2 | BOT-415, 416 | B3-7 |
| BOT-8 | Microscope (monocular/for student) | 60 | COMMON | B2-3 |
| BOT-9 | Microscope (binocular/for student) | 20 | COMMON | B3-2 |
| BOT-10 | Microscope (binocular w/camera) | 2 | BOT-499 | B3-2 |
| BOT-11 | pH meter | 6 | COMMON | B3-8 |
| BOT-12 | Autoclave (small size) | 2 | BOT-405 | B2-10 |
| BOT-13 | Micro Kjeldahl apparatus | 2 | BOT-304, 415, 416 | B2-10 |
| BOT-14 | Refrigerator | 2 | COMMON | B2-10, B3-9 |
| BOT-15 | Air sampler | 3 | BOT-403 | B3-8 |
| BOT-16 | Turbidimeter | 2 | BOT-301 | B3-8 |
| BOT-17 | Digital nephelometer | 2 | BOT-301, 401 | B3-8 |
| BOT-18 | DO meter | 1 | BOT-301 | B3-8 |
| BOT-19 | Luxmeter (digital) | 2 | BOT-301, 403 | B3-8 |
| BOT-20 | Hot plate / Magnetic stirrer | 2 | BOT-202, 416 | B3-8 |
| BOT-21 | Paraffin embedding oven | 2 | COMMON | B3-8 |
| BOT-22 | Hot plate | 8 | COMMON | B3-8 |
| BOT-23 | Incubator | 2 | COMMON | B2-1, B3-1 |
| BOT-24 | Incubator (refrigerated) | 2 | BOT-405, 415 | B2-10, B3-9 |
| BOT-25 | Soil thermometer | 10 | BOT-304, 401 | B3-8 |
| BOT-26 | Hydrometer | 4 | COMMON | B3-8 |
| BOT-27 | Hygrometer | 4 | COMMON | B3-8 |
| BOT-28 | Flame photometer | 1 | BOT-304, 405 | B2-10 |
| BOT-29 | Compass | 4 | BOT-301, 304, 401 | B3-8 |
| BOT-30 | Refractometer (Pocketable) | 2 | COMMON | B3-8 |
| BOT-31 | Altimeter | 2 | BOT-301, 304, 401 | B3-8 |
| BOT-32 | Furnace | 2 | COMMON | B2-1, B3-1 |
| BOT-33 | Table microtome | 2 | BOT-101, 102, 203, 303 | B2-2 |
| BOT-34 | Hand microtome | 3 | BOT-101, 102, 203, 303 | B2-1, 7, B3-1 |
| BOT-35 | Water bath | 6 | BOT-416 | B3-9 |
| BOT-36 | Rotary vacuum evaporator | 2 | BOT-304, 415, 416 | B3-9 |
| BOT-37 | Ultra violet lamp | 2 | BOT-202, 405, 413 | B3-8 |
| BOT-38 | Laboratory mill | 2 | BOT-304, 415, 416 | B2-7, B3-7 |
| BOT-39 | Aquarium pump set | 6 | BOT-301, 403 | B3-8 |
| BOT-40 | Slide warmer | 2 | BOT-101, 102, 203, 303 | B3-8 |
| BOT-41 | Vacuum pump | 2 | COMMON | B3-8 |
| BOT-42 | Slide dispenser | 4 | BOT-101, 102, 203, 303 | B3-8 |
| BOT-43 | Sand bath | 2 | COMMON | B3-8 |
| BOT-44 | Staining tool set | 2 | COMMON | B3-8 |
| BOT-45 | Storage box for microscope lens | 1 | COMMON | B2-3 |
| (FACULTY OF SCIENCE / PHYSICS DEPARTMENT) | | | | |
| PHY-1 | Measuring microscope | 8 | PHY-111, 112 | PG-9 |
| PHY-2 | Self inductor AM type | 16 | COMMON | PG-9 |
| PHY-3 | Decade capacitor | 16 | COMMON | PG-9 |
| PHY-4 | Oscilloscope (100 MHz) | 1 | PHY-214, 311 | P2-10 |
| PHY-5 | Multi-meter (analogue) | 16 | COMMON | PG-9 |
| PHY-6 | Direct-acting electrical recorder | 1 | COMMON | PG-9 |
| PHY-7 | Multi-meter (digital) | 8 | PHY-202, 212, 214 | PG-9 |
| PHY-8 | Electrostatic meter | 1 | PHY-214, 311 | PG-9 |
| PHY-9 | e/m apparatus | 1 | PHY-311, 314 | P1-2 |
| PHY-10 | Radiation detector, portable type | 2 | PHY-214, 411 | P1-2 |
| PHY-11 | Radio wave demonstration set | 1 | PHY-214, 415, 416 | P2-10 |
| PHY-12 | Planck's constant measuring apparatus | 1 | PHY-418 | P1-2 |
| PHY-13 | Millikan apparatus w/power supply unit | 1 | PHY-418 | P1-2 |

PLANNED EQUIPMENT

| CODE | DESCRIPTION | Q'TY | CURRICULUM | LOCATION |
|---|--|------|------------------------|--------------------|
| PHY-14 | LCR meter set | 1 | PHY-202, 212, 214 | P2-10 |
| PHY-15 | Standard tuning forks | 2 | PHY-111, 112 | PG-9 |
| PHY-16 | Vibro-graver, engraving tool | 1 | COMMON | PG-9 |
| PHY-17 | Luxmeter (digital) | 1 | PHY-314 | PG-9 |
| PHY-18 | Temperature controller with thermocouple | 1 | PHY-412 | PG-9 |
| PHY-19 | Lens set | 16 | PHY-212, 314 | PG-9 |
| PHY-20 | Glass block (rectangular) | 16 | PHY-212, 314 | PG-9 |
| PHY-21 | Newton's rings apparatus | 8 | PHY-212, 314 | PG-9 |
| PHY-22 | DC potentiometer for students | 2 | COMMON | PG-9 |
| PHY-23 | Slide rheostat | 16 | PHY-202, 212, 214 | PG-9 |
| PHY-24 | Storage battery | 16 | PHY-111, 112, 202, 212 | PG-9 |
| PHY-25 | Alkaline storage battery | 16 | PHY-111, 112, 202, 212 | PG-9 |
| PHY-26 | Leclanche cell | 16 | PHY-111, 112 | PG-9 |
| PHY-27 | Muffle furnace | 1 | PHY-418 | PG-9 |
| PHY-28 | DC power supply | 8 | COMMON | PG-9 |
| PHY-29 | Specific gravity bottles | 16 | PHY-111, 112, 211 | PG-9 |
| PHY-30 | Electronics circuit trainer | 1 | PHY-214, 311 | P2-10 |
| PHY-31 | Liquid resistance measuring U-tube | 2 | PHY-111, 112 | PG-9 |
| PHY-32 | Electronic tool set | 4 | PHY-214, 311 | PG-9 |
| PHY-33 | Diffraction grating | 4 | PHY-212, 314 | PG-9 |
| PHY-34 | Electric circuit training board | 6 | PHY-214, 311 | P2-10 |
| PHY-35 | Polarimeter | 2 | PHY-212, 314 | PG-9 |
| PHY-36 | Optical bench | 6 | PHY-212, 314 | PG-9 |
| PHY-37 | Ripple tank | 2 | PHY-314 | P2-1 |
| PHY-38 | Spectro meter | 6 | PHY-212, 314 | P2-1 |
| PHY-39 | Electronic top pan balance | 2 | COMMON | PG-9 |
| (FACULTY OF SCIENCE / CHEMISTRY DEPARTMENT) | | | | |
| CHE-1 | Water jet pump | 48 | COMMON | CG-1 |
| CHE-2 | Vacuum drying oven | 3 | CHE-104, 205, 309, 499 | CG-11, C1-7, C2-10 |
| CHE-3 | Electronic analytical balance | 16 | COMMON | CG-12 |
| CHE-4 | Electronic top pan balance | 16 | COMMON | CG-12 |
| CHE-5 | Water still (double distilled) | 3 | COMMON | CG-1 |
| CHE-6 | Hot plate / Magnetic stirrer | 32 | COMMON | C1-7 |
| CHE-7 | Barometer | 12 | COMMON | C1-7 |
| CHE-8 | Auto-pipette (variable volume) | 10 | COMMON | C1-7 |
| CHE-9 | Auto-pipette set | 5 | COMMON | C1-7 |
| CHE-10 | Atomic absorption spectrophotometer | 1 | CHE-306, 404, 411, 412 | C2-5 |
| CHE-11 | Oil bath | 12 | CHE-104, 205, 309 | C1-1, C2-1, C2-5 |
| CHE-12 | pH meter (student) | 24 | CHE-102, 202, 304 | C2-3 |
| CHE-13 | Conductivity meter | 12 | CHE-102, 202, 304 | C2-3 |
| CHE-14 | Spectrophotometer (UV-Visible) | 1 | CHE-306, 412, 499 | C1-7 |
| CHE-15 | Flame photometer | 1 | CHE-202, 304, 306, 412 | C1-7 |
| CHE-16 | Colorimeter | 2 | CHE-202, 304, 306, 412 | C1-10 |
| CHE-17 | Muffle furnace | 1 | CHE-499 | C1-7 |
| CHE-18 | Bomb calorimeter | 2 | CHE-304, 499 | CG-1 |
| CHE-19 | Carbon dioxide analyser | 1 | CHE-306, 412 | CG-11 |
| CHE-20 | Spectrophotometer (infrared) | 1 | CHE-303, 306, 401, 499 | CG-11 |
| CHE-21 | Tintometer | 1 | CHE-499 | CG-11 |
| CHE-22 | Hot plate | 12 | CHE-102, 202, 304 | C1-1 |
| CHE-23 | Stopclock | 50 | CHE-102, 202, 304 | C1-1 |
| CHE-24 | Wash bottle | 200 | COMMON | C1-1 |
| CHE-25 | Spectacle | 50 | COMMON | C1-1 |
| CHE-26 | Face mask set | 10 | COMMON | C1-1 |
| CHE-27 | Flask shaker | 4 | CHE-102, 202, 204, 309 | C1-1 |
| CHE-28 | Refrigerator | 3 | COMMON | CG-11, C1-1, C1-5 |
| CHE-29 | Gas chromatograph | 1 | CHE-306, 412, 499 | CG-11 |
| CHE-30 | Polarimeter | 1 | CHE-304, 309, 499 | C2-5 |
| CHE-31 | Centrifuge | 4 | COMMON | CG-11, C1-1, C1-5 |
| CHE-32 | Melting point apparatus | 4 | CHE-104, 309, 499 | C2-9 |
| CHE-33 | Refractometer | 3 | COMMON | C2-3 |

PLANNED EQUIPMENT

| CODE | DESCRIPTION | QTY | CURRICULUM | LOCATION |
|--------|---|-----|----------------------------|-------------------|
| CHE-34 | Steam bath | 10 | CHE-102, 202, 205, 309 | CG-11, C1-1, C1-5 |
| CHE-35 | Mechanical stirrer | 2 | CHE-309, 499 | C2-1 |
| CHE-36 | UV lamp for TLC | 5 | CHE-205, 309, 499 | C2-3 |
| CHE-37 | Thermometer (mercury, 110°C) | 100 | COMMON | C2-3 |
| CHE-38 | Thermometer set (mercury, 250/360°C) | 3 | COMMON | C2-3 |
| CHE-39 | Thermometer set (mercury, quick-fit, 110/250/360°C) | 3 | COMMON | C2-3 |
| CHE-40 | Aerosol spray gun for TLC | 5 | CHE-205, 309, 499 | C2-3 |
| CHE-41 | TLC set | 10 | CHE-205, 309, 499 | C2-3 |
| CHE-42 | Chromatographic column | 20 | CHE-205, 309, 499 | C2-3 |
| CHE-43 | Spectacle for UV | 5 | CHE-205, 309, 499 | C2-3 |
| CHE-44 | Crucible (nickel) | 5 | CHE-304, 499 | C2-9 |
| CHE-45 | Crucible (stainless steel) | 5 | CHE-304, 499 | C2-9 |
| CHE-46 | Polarographic analyzer | 1 | CHE-306, 412, 499 | CG-11 |
| CHE-47 | Glass lathe machine | 1 | LTD-217 | CG-6 |
| CHE-48 | Glass cutting knives | 20 | LTD-217 | CG-6 |
| CHE-49 | Hand torch burner | 5 | LTD-217 | CG-6 |
| CHE-50 | Glass cutting machine | 1 | LTD-217 | CG-6 |
| CHE-51 | Bunsen burner | 20 | LTD-217 | CG-6 |
| CHE-52 | Glass drilling machine | 2 | LTD-217 | CG-6 |
| CHE-53 | Grinding machine | 1 | LTD-217 | CG-6 |
| CHE-54 | Strain viewer | 1 | LTD-217 | CG-6 |
| CHE-55 | Grinding machine for quick-fit | 1 | LTD-217 | CG-6 |
| CHE-56 | Annealing oven | 1 | LTD-217 | CG-6 |
| CHE-57 | Separating funnel set | 25 | COMMON | C2-3 |
| CHE-58 | Soxhlet extractor set | 10 | CHE-104, 205, 309 | C2-3 |
| CHE-59 | Vacuum dessicator | 10 | COMMON | C2-3 |
| CHE-60 | Kjeldahl distillation unit | 1 | CHE-104, 205, 309 | C2-3 |
| CHE-61 | Glass tube set for glass blowing | 3 | LTD-217 | C2-3 |
| CHE-62 | Glassware set | 1 | COMMON | C2-3 |
| CHE-63 | Fume hood | 3 | COMMON | CG-11, C1-5, C2-5 |
| CHE-64 | Nitrogen gas generator | 1 | COMMON | CG-1 |
| CHE-65 | Ion-selective electrode set (17 kinds/set) (FACULTY OF SCIENCE / ZOOLOGY DEPARTMENT) | 5 | CHE-102, 202, 304 | C2-9 |
| ZOO-1 | Auto-pipette set | 3 | COMMON | ZG-8 |
| ZOO-2 | Water quality meter (portable) | 2 | ZOO-302, 405, 499 | ZG-8 |
| ZOO-3 | Conductivity meter (portable, digital) | 2 | ZOO-302, 405, 499 | ZG-8 |
| ZOO-4 | pH/ORP meter (portable, digital) | 2 | ZOO-302, 405, 407, 499 | ZG-8 |
| ZOO-5 | DO/O2/Temp. meter (portable, digital) | 2 | ZOO-302, 405, 407, 499 | ZG-8 |
| ZOO-6 | Salinity refractometer | 2 | ZOO-302, 405, 407, 499 | ZG-8 |
| ZOO-7 | Precision balance | 2 | COMMON | ZG-8 |
| ZOO-8 | Microscope (stereo) | 10 | COMMON | ZG-4 |
| ZOO-9 | Insect sampling kit | 1 | BIO-101, 200-204, 401, 402 | ZG-5 |
| ZOO-10 | Insect net set | 4 | BIO-101, 200-204, 401, 402 | ZG-8 |
| ZOO-11 | Collecting tools for beach | 4 | BIO-101, 200-103, 302, 499 | ZG-8 |
| ZOO-12 | Electrophoresis apparatus (cellulose acetate) | 2 | BIO-102, 303, 499 | ZG-8 |
| ZOO-13 | Turbidity/temp. meter (portable digital) | 2 | ZOO-302, 405, 499 | ZG-8 |
| ZOO-14 | pH meter (digital) | 2 | ZOO-302, 305, 405, 407 | ZG-8 |
| ZOO-15 | Inflatable boat | 2 | ZOO-103, 302, 405, 406 | ZG-8 |
| ZOO-16 | Ultraviolet light water sterilizer | 2 | BIO-201, 200-405, 499 | ZG-8 |
| ZOO-17 | Dry bath | 1 | BIO-201, 200-305, 407 | ZG-8 |
| ZOO-18 | Tool set for microscope | 5 | COMMON | ZG-8 |
| ZOO-19 | Eyepiece screw micrometer | 3 | ZOO-405, 406, 499 | ZG-8 |
| ZOO-20 | Microscope slides, zoology | 1 | BIO-101, 200-201, 412 | ZG-5 |
| ZOO-21 | Kilner jar | 100 | BIO-101, 200-201, 406 | ZG-8 |
| ZOO-22 | Soil insect collector | 1 | BIO-103, 200-204, 409 | ZG-8 |
| ZOO-23 | Tool set for maintenance | 1 | COMMON | ZG-8 |
| ZOO-24 | Rubber bulbs | 10 | ZOO-305, 407, 499 | ZG-8 |
| ZOO-25 | Rubber gloves | 20 | BIO-103, 200-305, 409 | ZG-8 |
| ZOO-26 | Rubber apron | 20 | BIO-103, 200-305, 409 | ZG-8 |
| ZOO-27 | Rubber boots set | 10 | BIO-103, 200-305, 409 | ZG-8 |

PLANNED EQUIPMENT

| CODE | DESCRIPTION | QTY | CURRICULUM | LOCATION |
|--|------------------------------------|-----|------------------------|----------|
| ZOO-28 | Microscope (monocular/for student) | 60 | COMMON | ZI-4 |
| ZOO-29 | Freezer | 2 | COMMON | ZG-7, 8 |
| ZOO-30 | Refrigerator | 4 | COMMON | ZG-7, 8 |
| ZOO-31 | Microtome knife sharpner | 1 | COMMON | ZG-7 |
| ZOO-32 | Microscope (binocular/for student) | 8 | COMMON | ZI-4 |
| ZOO-33 | Mammal trap | 50 | ZOO-301, 408, 409, 499 | ZG-8 |
| ZOO-34 | Tape measure | 5 | COMMON | ZG-8 |
| ZOO-35 | Specimen jars | 100 | BIO-101, ZOO-201, 302 | ZG-8 |
| ZOO-36 | Whirlimixer, Vortex | 1 | BIO-201, ZOO-409, 499 | ZG-8 |
| ZOO-37 | Shaker | 1 | ZOO-409, 499 | ZG-8 |
| ZOO-38 | Compass | 10 | BIO-103, ZOO-203, 499 | ZG-8 |
| ZOO-39 | Recirculating pump | 1 | ZOO-302, 405, 406 | ZG-10 |
| ZOO-40 | Aquarium tank | 10 | ZOO-302, 405, 406 | ZG-10 |
| ZOO-41 | Plastic tubing set | 1 | ZOO-302, 405, 406 | ZG-10 |
| ZOO-42 | Microscope (binocular w/camera) | 1 | ZOO-499 | ZI-4 |
| ZOO-43 | Storage box for microscope lens | 1 | COMMON | ZI-4 |
| (FACULTY OF SCIENCE / COMPUTER CTRER) | | | | |
| CPC-1 | Personal computer (File server) | 1 | COMMON | CP-1 |
| CPC-2 | Personal computer | 35 | COMMON | CP-1 |
| CPC-3 | Printer (dot matrix) | 8 | COMMON | CP-1 |
| CPC-4 | Printer (laser) | 2 | COMMON | CP-1 |
| CPC-5 | UPS | 36 | COMMON | CP-1 |
| CPC-6 | Software | 1 | COMMON | CP-1 |
| CPC-7 | LAN set | 1 | COMMON | CP-1 |
| CPC-8 | Scanner | 1 | COMMON | CP-1 |
| CPC-9 | Plotter | 1 | COMMON | CP-1 |
| CPC-10 | Printer (colour) | 1 | COMMON | CP-1 |
| CPC-11 | Sharer | 1 | COMMON | CP-1 |
| CPC-12 | Tablette | 1 | COMMON | CP-1 |
| CPC-13 | MODEM | 1 | COMMON | CP-1 |
| (FACULTY OF SCIENCE / ELECTRONIC WORKSHOP) | | | | |
| ELU-1 | Anti-static soldering iron | 10 | LTD-311, 312 | P2-11 |
| ELU-2 | Soldering iron | 10 | LTD-311, 312 | P2-11 |
| ELU-3 | Desoldering tool | 10 | LTD-311, 312 | P2-11 |
| ELU-4 | Transistor checker | 2 | LTD-311, 312 | P2-11 |
| ELU-5 | Multi-meter (analogue) | 4 | LTD-311, 312 | P2-11 |
| ELU-6 | Capacitance meter | 1 | LTD-311, 312 | P2-11 |
| ELU-7 | Multi-meter (digital) | 4 | LTD-311, 312 | P2-11 |
| ELU-8 | Color pattern generator | 1 | LTD-311, 312 | P2-11 |
| ELU-9 | Signal injector | 3 | LTD-311, 312 | P2-11 |
| ELU-10 | DC power supply | 4 | LTD-311, 312 | P2-11 |
| ELU-11 | Electronic tool set | 2 | LTD-311, 312 | P2-11 |
| (FACULTY OF SCIENCE / WORKSHOP) | | | | |
| WOK-1 | Press brake | 1 | LTD125, 126 | WS-1 |
| WOK-2 | Guillotine | 1 | LTD125, 126 | WS-1 |
| WOK-3 | Pipe bending machine | 1 | LTD125, 126 | WS-1 |
| WOK-4 | AC arc welder | 2 | LTD125, 126 | WS-1 |
| WOK-5 | Horizontal milling machine | 1 | LTD125, 126 | WS-1 |
| WOK-6 | Air compressor | 1 | LTD125, 126 | WS-1 |
| WOK-7 | Lathe | 1 | LTD125, 126 | WS-1 |
| (FACULTY OF SCIENCE / SUPORTING UNIT) | | | | |
| SUP-1 | Computer w/printer | 4 | ADMINISTRATION | SU-1 |
| SUP-2 | Laser printer | 2 | ADMINISTRATION | SU-1 |
| SUP-3 | Over head projector | 10 | COMMON | SU-1 |
| SUP-4 | Printing machine | 2 | ADMINISTRATION | SU-1 |
| SUP-5 | Pick-up car | 2 | COMMON | SU-1 |
| SUP-6 | Micro-bus | 1 | COMMON | SU-1 |
| SUP-7 | Slide projector | 3 | COMMON | SU-1 |
| SUP-8 | VTR/TV/Video camera set | 2 | COMMON | SU-1 |
| SUP-9 | 35mm camera | 2 | COMMON | SU-1 |

PLANNED EQUIPMENT

| CODE | DESCRIPTION | QTY | CURRICULUM | LOCATION |
|--------|---|-----|-------------------|----------|
| SUP-10 | Photocopy machine | 2 | ADMINISTRATION | SU-1 |
| SUP-11 | Electric typewriter | 4 | ADMINISTRATION | SU-1 |
| SUP-12 | Shelves | 24 | ADMINISTRATION | SU-1 |
| SUP-13 | Cabinet | 24 | ADMINISTRATION | SU-1 |
| | (FACULTY OF EDUCATION / AV UNIT) | | | |
| AVU-1 | Vidoe camera | 2 | ESC-313, 315, 415 | AV-5 |
| AVU-2 | Over head projector | 4 | ESC-313, 315, 415 | AV-6 |
| AVU-3 | Slide projector | 4 | ESC-313, 315, 415 | AV-6 |
| AVU-4 | Video deck | 2 | ESC-313, 315, 415 | AV-5 |
| AVU-5 | Video monitor | 2 | ESC-313, 315, 415 | AV-5 |
| AVU-6 | Audio cassette recorder | 8 | ESC-313, 315, 415 | AV-5 |
| AVU-7 | Cassette tape (video) | 100 | ESC-313, 315, 415 | AV-5 |
| AVU-8 | Cassette tape (audio) | 100 | ESC-313, 315, 415 | AV-5 |
| AVU-9 | Photocopy machine | 1 | ESC-313, 315, 415 | AV-6 |
| AVU-10 | Transparencie paper for OHP | 50 | ESC-313, 315, 415 | AV-6 |
| AVU-11 | Computer w/printer | 1 | ESC-313, 315, 415 | AV-6 |
| AVU-12 | Laminating machine | 1 | ESC-313, 315, 415 | AV-6 |
| AVU-13 | Stadio editing system | 1 | ESC-313, 315, 415 | AV-5 |
| AVU-14 | 35mm camera | 1 | ESC-313, 315, 415 | AV-4 |
| AVU-15 | Microscope (binocular w/camera) | 1 | ESC-313, 315, 415 | AV-6 |
| AVU-16 | Enlarger | 1 | ESC-313, 315, 415 | AV-1 |
| AVU-17 | Dark room equipment | 1 | ESC-313, 315, 415 | AV-1 |
| | (FACULTY OF EDUCATION / WORKSHOP) | | | |
| SEW-1 | Multi-meter (analogue) | 4 | ESC-315, 415 | EW-1 |
| SEW-2 | Multi-meter (digital) | 2 | ESC-315, 415 | EW-1 |
| SEW-3 | Tool set | 1 | ESC-315, 415 | EW-1 |
| SEW-4 | Universal planer | 1 | ESC-315, 415 | EW-1 |
| SEW-5 | Lathe | 1 | ESC-315, 415 | EW-1 |
| SEW-6 | Bandsaw (portable) | 1 | ESC-315, 415 | EW-1 |
| SEW-7 | Plane | 6 | ESC-315, 415 | EW-1 |
| SEW-8 | Rip saw | 6 | ESC-315, 415 | EW-1 |
| SEW-9 | Cross-cut saw | 6 | ESC-315, 415 | EW-1 |
| SEW-10 | Tenon saw | 6 | ESC-315, 415 | EW-1 |
| SEW-11 | Grinding machine | 1 | ESC-315, 415 | EW-1 |
| SEW-12 | Materials | 1 | ESC-315, 415 | EW-1 |
| | (FACULTY OF EDUCATION / SCIENCE LABORATORY) | | | |
| SEL-1 | Top-pan balance | 2 | ESC-313, 415, 419 | LB-3 |
| SEL-2 | Kelocin pressure burner | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-3 | Face mask set | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-4 | Respirator | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-5 | Rubber gloves | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-6 | Safety goggle | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-7 | Flame photometer | 1 | ESC-313, 415, 419 | LB-3 |
| SEL-8 | Mantle heater | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-9 | Hot plate | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-10 | Air pump | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-11 | Vortex stirrer | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-12 | Stopwatch | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-13 | Tool set | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-14 | Comparator unit | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-15 | Dissecting set | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-16 | Whip cord | 24 | ESC-313, 415, 419 | LB-3 |
| SEL-17 | Sash cord | 24 | ESC-313, 415, 419 | LB-3 |
| SEL-18 | Luggage cord | 24 | ESC-313, 415, 419 | LB-3 |
| SEL-19 | Friction apparatus | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-20 | Thernal conductivity apparatus | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-21 | Cadmium battery | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-22 | Storage battery | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-23 | Lead acid accumulator | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-24 | Water still | 2 | ESC-313, 415, 419 | LB-3 |

PLANNED EQUIPMENT

| CODE | DESCRIPTION | QTY | CURRICULUM | LOCATION |
|--------|---|-----|-------------------|----------|
| SEL-25 | Galvanometer | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-26 | Oscilloscope | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-27 | Potentiometer | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-28 | Barometer | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-29 | Flexible plug lead | 48 | ESC-313, 415, 419 | LB-3 |
| SEL-30 | Hydrometer | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-31 | Hygrometer | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-32 | Motor set | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-33 | Spatula | 24 | ESC-313, 415, 419 | LB-3 |
| SEL-34 | Test tube holder | 24 | ESC-313, 415, 419 | LB-3 |
| SEL-35 | Thermometer | 48 | ESC-313, 415, 419 | LB-3 |
| SEL-36 | Thermometer (200°C) | 48 | ESC-313, 415, 419 | LB-3 |
| SEL-37 | Thermometer (maximum/minimum) | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-38 | Thermometer (wall mounting) | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-39 | Wash bottle | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-40 | Pipette washer | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-41 | Burette | 36 | ESC-313, 415, 419 | LB-3 |
| SEL-42 | Watch glass | 24 | ESC-313, 415, 419 | LB-3 |
| SEL-43 | Spouting jar | 1 | ESC-313, 415, 419 | LB-3 |
| SEL-44 | Communicating vessel | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-45 | Bucket & cylinder | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-46 | Ripple tank | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-47 | Universal test meter | 3 | ESC-313, 415, 419 | LB-3 |
| SEL-48 | Bell in vacuum | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-49 | Pendulum bob | 36 | ESC-313, 415, 419 | LB-3 |
| SEL-50 | Boyles law apparatus | 6 | ESC-313, 415, 419 | LB-3 |
| SEL-51 | Whitley bay smoke cell | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-52 | Ball and ring | 18 | ESC-313, 415, 419 | LB-3 |
| SEL-53 | Bimetallic strip | 36 | ESC-313, 415, 419 | LB-3 |
| SEL-54 | Bar breaking apparatus | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-55 | Van de graaf generator pack | 1 | ESC-313, 415, 419 | LB-3 |
| SEL-56 | Horseshoe magnet | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-57 | Ring magnet | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-58 | Suspension magnet cylindrical | 12 | ESC-313, 415, 419 | LB-3 |
| SEL-59 | U-shaped magnet | 12 | ESC-313, 415, 419 | LB-3 |
| | (FACULTY OF EDUCATION / TEACHER TRAINING COLLEGE) | | | |
| TTC-1 | Refrigerator | 2 | ESC-420 | TTC-1, 2 |
| TTC-2 | Electronic top pan balance | 2 | ESC-420 | TTC-1, 2 |
| TTC-3 | Double pan balance | 4 | ESC-420 | TTC-1, 2 |
| TTC-4 | Spring balance | 30 | ESC-420 | TTC-1, 2 |
| TTC-5 | Barometer | 2 | ESC-420 | TTC-1, 2 |
| TTC-6 | Water bath | 4 | ESC-420 | TTC-1, 2 |
| TTC-7 | Fire extinguisher | 2 | ESC-420 | TTC-1, 2 |
| TTC-8 | First aid kit | 2 | ESC-420 | TTC-1, 2 |
| TTC-9 | Alcohol burner | 30 | ESC-420 | TTC-1, 2 |
| TTC-10 | Paper chromatography kit | 2 | ESC-420 | TTC-1, 2 |
| TTC-11 | Dissecting set | 30 | ESC-420 | TTC-1, 2 |
| TTC-12 | Ammeter | 30 | ESC-420 | TTC-1, 2 |
| TTC-13 | Voltmeter | 30 | ESC-420 | TTC-1, 2 |
| TTC-14 | Filter paper | 200 | ESC-420 | TTC-1, 2 |
| TTC-15 | Measuring tool set | 30 | ESC-420 | TTC-1, 2 |
| TTC-16 | Immersion heater | 6 | ESC-420 | TTC-1, 2 |
| TTC-17 | Hot plate | 4 | ESC-420 | TTC-1, 2 |
| TTC-18 | Specific gravity hydrometer | 30 | ESC-420 | TTC-1, 2 |
| TTC-19 | Magnifier | 60 | ESC-420 | TTC-1, 2 |
| TTC-20 | Microscope (monocular/for student) | 30 | ESC-420 | TTC-1, 2 |
| TTC-21 | Autoclave | 2 | ESC-420 | TTC-1, 2 |
| TTC-22 | Molecular model set | 2 | ESC-420 | TTC-1, 2 |
| TTC-23 | Mortar & pestle | 30 | ESC-420 | TTC-1, 2 |
| TTC-24 | Drying oven | 2 | ESC-420 | TTC-1, 2 |

PLANNED EQUIPMENT

| CODE | DESCRIPTION | Q'TY | CURRICULUM | LOCATION |
|--------|-------------------------|------|------------|----------|
| TTC-25 | Periodical chart | 2 | ESC-420 | TTC-1, 2 |
| TTC-26 | Spatula | 60 | ESC-420 | TTC-1, 2 |
| TTC-27 | Iron stand set | 30 | ESC-420 | TTC-1, 2 |
| TTC-28 | Thermometer (glass rod) | 60 | ESC-420 | TTC-1, 2 |
| TTC-29 | Rubber & glass tubing | 2 | ESC-420 | TTC-1, 2 |
| TTC-30 | Preserved specimen set | 2 | ESC-420 | TTC-1, 2 |
| TTC-31 | Human anatomical model | 2 | ESC-420 | TTC-1, 2 |
| TTC-32 | Chart (human, biology) | 2 | ESC-420 | TTC-1, 2 |
| TTC-33 | Over head projector | 2 | ESC-420 | TTC-1, 2 |
| TTC-34 | Scientific calculator | 30 | ESC-420 | TTC-1, 2 |
| TTC-35 | Thermo flask | 30 | ESC-420 | TTC-1, 2 |
| TTC-36 | Crocodile clip | 200 | ESC-420 | TTC-1, 2 |
| TTC-37 | Motor set | 30 | ESC-420 | TTC-1, 2 |
| TTC-38 | Centrifuge (table top) | 2 | ESC-420 | TTC-1, 2 |
| TTC-39 | DC power supply | 30 | ESC-420 | TTC-1, 2 |
| TTC-40 | Glassware set | 2 | ESC-420 | TTC-1, 2 |





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