

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON
THE PROJECT FOR IMPROVEMENT OF EDUCATIONAL EQUIPMENT
FOR THE UNIVERSITY OF GOROKA
IN PAPUA NEW GUINEA
(EXPLANATION ON DRAFT REPORT)

In November 2003, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Improvement of Educational Equipment for the University of Goroka (hereinafter referred to as "the Project") to Papua New Guinea (hereinafter referred to as "PNG"), and through discussion, field survey, and the results of technical examination of the results in Japan, JICA prepared a draft final report of the study.

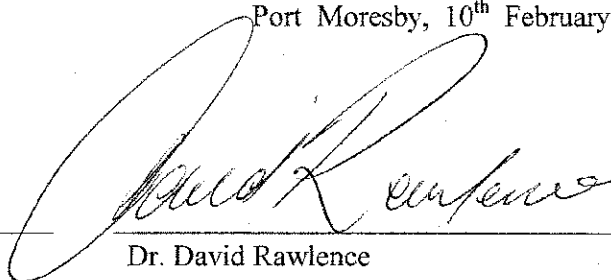
In order to explain and to consult the PNG side on the contents of the draft report, JICA sent to PNG the Draft Report Explanation Team (hereinafter referred to as "the Team") headed by Mr. Katsuro Saito, Resident Representative, JICA Papua New Guinea Office, from 4th February to 11th February 2004.

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

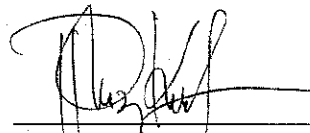
Port Moresby, 10th February 2004



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ATTACHMENT

1. Components of the Draft Report

The Government of PNG has agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

The PNG side has understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of PNG as explained by the Team and described in Annex-2 and Annex-4 of the Minutes of Discussions signed by both parties on 14th November 2003. Concerning Annex-4, however, internal transportation from the port of disembarkation to the Project site will be undertaken by the Japan side.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and will send it to PNG by April 2004.

4. Other relevant issues

4-1 Components covered by the Project

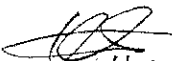
Both sides have agreed to the components covered by the Project as described in Annex-I.


4-2 Major Site Works covered by the PNG Side

The PNG side agreed that renovation and preparation work, such as constructing and/or renovating facilities where planned equipment is to be installed, shall be done by the PNG side as per the schedule shown in Annex-II for the smooth and effective implementation of the Project. The PNG side has further agreed that, in case of delay of such works against the agreed time schedule, such part of the project component might be excluded.

4-3 Proper Use and Maintenance

- (1) The PNG side has assured to secure and allocate necessary budget and personnel for proper use and maintenance of the equipment covered by the Project, which would be indispensable for full utilization of the equipment and their lifelong use.
- (2) As to the development budget necessary for completion of all works, including those mentioned in the Annex-II, the PNG side, through the University of Goroka, has hereby assured that the necessary funds as required would be utilized.
- (3) As to the personnel for management and maintenance of the planned equipment at the University of Goroka, the PNG side has confirmed that the persons-in-charge as mentioned in Annex-III were already in service. Further, an AV specialist will be recruited in due course of time, as committed by the University of Goroka, in order to assure sustainable maintenance activities of the AV section.
- (4) The PNG side agreed that the University of Goroka has responsibility to conduct regular monitoring and evaluation of the progress of all phases of the Project such as allocation and


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use of recurrent costs including those for operation and maintenance of the equipment, recruitment of additional manpower, etc. whatever considered necessary.

- (5) The PNG side understood that the contract for services of the consultant and the supplier may be suspended in case the Japanese side declares that the security is not suitable for continuing such services by the Japanese nationals.
- (6) The PNG side has understood that the University of Goroka should be allocated with the sufficient recurring budget to cover the operating and maintenance costs of the equipment to be provided under this Project, which would cause increase of expenses by approximately 2% of the current University budget, commencing fiscal year 2005.

4-4 Soft Component Services

For sustainable and effective operation and maintenance of the equipment, the PNG side requested JICA that soft component services are included in the scope of work of the Project consultant so that the University of Goroka would be able to develop and establish its own operation and maintenance system.

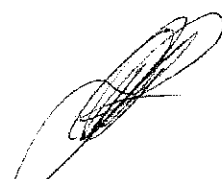
4-5 Detail Design of the Equipment

Both sides have agreed that the final decision on details of equipment would be made by the Japanese side after a final check in Japan.

4-6 Confidentiality of the Draft Report

Both sides have agreed that the draft report would be confidential, and not be disclosed to any third party.

Annex-I	Project Component
Annex-II	Schedule of Activities
Annex-III	Management and Maintenance System of UOG



Annex-I Project Component (List of Equipment)

Code No.	Description	Q'ty	Unit	Location
B	B. Equipment for the New Library			New Library
1.1.1	Book Stacks	40	unit	Reading Room (GF)
1.1.2	Reading Table	21	unit	Reading Room (GF)
1.1.3	Reading Chair	126	unit	Reading Room (GF)
1.2.1	Book Stacks	30	unit	Reading Room (FF)
1.2.2	Reading Table	17	unit	Reading Room (FF)
1.2.3	Reading Chair	102	unit	Reading Room (FF)
2.1	Maps Cabinet	1	unit	Reading Room (FF)
3.2	Computer	5	unit	Reading Room, Librarian's Room, Secretary Room (FF)
5.1	Multimedia Projector	1	unit	AV Lecture Room (GF)
5.2	Computer	1	unit	AV Lecture Room (GF)
5.3	VHS Video player	1	unit	AV Lecture Room (GF)
5.4	CD/DVD Player	1	unit	AV Lecture Room (GF)
5.5	Cabinet	1	unit	AV Lecture Room (GF)
5.7	Projector Screen	1	unit	AV Lecture Room (GF)
C	C. Equipment for AV Section			AV Section
3.1	Digital Video Camera with accessories	2	unit	Store (Shooting)
4.1	Computer	2	set	Store (Editing)
4.2	Software	2	set	Store (Editing)
4.3	Video Monitor	2	unit	Store (Editing)
4.4	Digital Video Recorder/player	1	unit	Store (Editing)
4.6	VHS Recorder/player	1	unit	Store (Editing)
4.8	CD/DVD player	1	unit	Store (Editing)
4.10	Portable Cassette Tape Recorder/player	1	unit	Store (Editing)
4.11	Scanner	1	unit	Store (Editing)
4.12	Laser Printer	1	unit	Store (Editing)
4.14	UPS	2	unit	Store (Editing)
4.15	Photocopier	1	unit	Store (Editing)
4.18	Steel Cabinet	1	lot	Store (Editing)
5.1	Cathode Ray Oscilloscope	1	unit	Maintenance Shop
5.2	Digital Multimeter	2	unit	Maintenance Shop
5.3	Digital LCR meter	1	unit	Maintenance Shop
5.4	Color Picture Tube Rejuvenator	1	unit	Maintenance Shop
5.5	High Wattage Soldering Station	2	unit	Maintenance Shop
5.6	Isolation Transformer	1	unit	Maintenance Shop
5.7	High Voltage Probe	1	unit	Maintenance Shop
5.8	Color TV Pattern Generator	1	unit	Maintenance Shop
5.9	L.O.P.T. Tester	1	unit	Maintenance Shop
5.10	Degaussing Wand	2	unit	Maintenance Shop
5.11	Video Service Tool Kit	2	unit	Maintenance Shop
5.13	Video Head Tester	1	unit	Maintenance Shop
5.15	Monitor Function Generator	1	unit	Maintenance Shop
5.17	Cabinet for Tool & Instruments	1	lot	Maintenance Shop
5.18	Work Bench	1	lot	Maintenance Shop
6.1	Computer	2	unit	Store (for Lending)
6.2	Multimedia Projector	2	unit	Store (for Lending)
6.4	Digital Camera	2	unit	Store (for Lending)
6.5	CD/DVD Player	2	unit	Store (for Lending)
6.8	Extension power reel	2	unit	Store (for Lending)
6.10	VHS Video player	2	unit	Store (for Lending)
6.11	Screen	2	unit	Store (for Lending)
7.1	Satellite TV Dish	1	set	Store (for Lending)
7.3	S-VHS Video Recorder/Player	1	unit	Store (for Lending)
D	D. Equipment for Printery Section			Printery Section
1	Offset press, A3 single-color	1	unit	New Printery Shop
2	Dark room camera (Graphic camera)	1	unit	New Printery Shop
3	Plate Maker (Exposure system)	1	unit	New Printery Shop
4	Electric Guillotine	1	unit	New Printery Shop
5	Electric Stapler	1	unit	New Printery Shop
6	Thermal Book Binder	1	unit	New Printery Shop
7	Paper Folder	1	unit	New Printery Shop
8	Paper Sorter	1	unit	New Printery Shop
9	Digital Stencil Duplicator	1	unit	New Printery Shop

Code No.	Description	Q'ty	Unit	Location
10	Photocopier, heavy duty	1	unit	New Printery Shop
11	Work Bench	1	lot	New Printery Shop
13	Computer	1	unit	New Printery Shop
E. Equipment for Language Laboratory, Dept. of Language & Linguistic				Language Lab
1	Students' Self-learning system for tutorial class	30	unit	Language Lab
6	OHP	3	unit	Language Lab
7	Projector Screen, Movable	3	unit	Language Lab
8	Cassette Tape Player, Portable	3	unit	Language Lab
G. Equipment for Computer Laboratories				Computer Lab
1.1	Computer with monitor	60	set	New Open Computer Lab
1.1.1	Computer for server	1	set	New Open Computer Lab
1.3	Equipment/Materials for Network system	1	lot	New Open Computer Lab
1.4	Laser Printer	2	unit	New Open Computer Lab
1.5	Scanner	1	unit	New Open Computer Lab
1.6	UPS	60	unit	New Open Computer Lab
1.9	Security system	1	set	New Open Computer Lab
5.1	UTP Cable(CAT5) Tester	1	unit	IT Room (IT Section)
5.2	Fiber Optic Cable Tester	1	unit	IT Room (IT Section)
5.3	UPS for Data servers	3	unit	IT Room (IT Section)
5.5	Switch (HUB) - 16 port	4	unit	IT Room (IT Section)
5.6	Operating System for server	1	unit	IT Room (IT Section)
H. Equipment for Expressive Arts Education (Music section)				Music Section
1.1	Trombone	1	unit	Music (Instruments)
1.2	Trumpet	3	unit	Music (Instruments)
1.3	Cornet	2	unit	Music (Instruments)
1.4	Alto sax	4	unit	Music (Instruments)
1.5	Tenor sax	4	unit	Music (Instruments)
1.6	Clarinet	3	unit	Music (Instruments)
1.7	Flute	4	unit	Music (Instruments)
1.8	Violin	2	unit	Music (Instruments)
1.9	Electric Guitar	1	unit	Music (Instruments)
1.10	Bass Guitar	1	unit	Music (Instruments)
1.13	Drum Kit	1	set	Music (Instruments)
1.14	Music Stand	20	unit	Music (Instruments)
1.15	Digital Piano with stand for classroom (student use)	12	unit	Music (Instruments)
1.16	Piano Seat-Padded regular	13	unit	Music (Instruments)
1.17	Digital Piano with stand- Portable type for classroom (teacher use) & live application	1	unit	Music (Instruments)
1.18	Electronic Synthesizer for live application (a)	1	unit	Music (Instruments)
1.19	Electronic Synthesizer for live application (b)	1	unit	Music (Instruments)
1.20	Power Amplifier	1	unit	Music (Instruments)
1.21	16 Channel Mixer	1	unit	Music (Instruments)
2.3	Computer for Music composition	4	unit	Music (Composition)
2.7	Laser Printer	1	unit	Music (Composition)
2.9	Compact Stereo System (CD, DVD, Tape)	1	set	Music (Composition)
2.10	UPS	4	unit	Music (Composition)
I. Equipment for Agriculture Education (Agriculture Section)				Agriculture Section
1.1	Analytical Lab Balance	2	unit	Agr Lab (Common)
1.2	Distilled Water/ Deionised Water Machine	1	unit	Agr Lab (Common)
1.3	Lab Drying Oven	1	unit	Agr Lab (Common)
1.4	Ammonia Distillation Apparatus	1	set	Agr Lab (Common)
1.5	Lab Incubator	1	unit	Agr Lab (Common)
1.6	Digital Lab pH Meter	2	unit	Agr Lab (Common)
1.7	Desiccators	1	lot	Agr Lab (Common)
1.8	Table top Centrifuge with Tubes	1	unit	Agr Lab (Common)
1.9	Spectrophotometer	2	unit	Agr Lab (Common)
1.10	Vacuum Pressure Pump	1	unit	Agr Lab (Common)
1.11	Mortar & Pestle	5	set	Agr Lab (Common)
1.12	Aluminum Heating Block	1	set	Agr Lab (Common)
1.15	Conductivity Meter	4	unit	Agr Lab (Common)
1.17	Mantles	1	unit	Agr Lab (Common)
1.18	Kjehldahl apparatus	1	unit	Agr Lab (Common)
1.19	Liquid Dispensers	1	set	Agr Lab (Common)
1.20	Calcrimeters	5	unit	Agr Lab (Common)
1.21	Peristaltic Pump	1	unit	Agr Lab (Common)

Code No.	Description	Q'ty	Unit	Location
1.22	Lab Water Bath	1	unit	Agr Lab (Common)
1.23	Electronic Microscope	20	unit	Agr Lab (Common)
1.24	Dissecting/Stereo Microscope	10	unit	Agr Lab (Common)
1.25	Hand lenses	20	pc	Agr Lab (Common)
1.26	Electric Cork Borer	1	unit	Agr Lab (Common)
1.27	Laboratory Blender with Timer	1	unit	Agr Lab (Common)
1.28	Laboratory sample storage refrigerator	1	unit	Agr Lab (Common)
1.29	Laboratory Deep freezer for sample storage	1	unit	Agr Lab (Common)
2.1	Soil Bulk Density Corers - stainless	20	pc	Agr Lab (Soil/Plant)
2.2	Rotary Shaker	2	unit	Agr Lab (Soil/Plant)
2.3	Reciprocating shaker	2	unit	Agr Lab (Soil/Plant)
2.4	Refractometer	5	unit	Agr Lab (Soil/Plant)
2.5	Tullgren Funnel	1	pc	Agr Lab (Soil/Plant)
2.6	Salt & Hollick Soil Washing Apparatus	1	unit	Agr Lab (Soil/Plant)
2.7	Lab Bench Shakers	2	unit	Agr Lab (Soil/Plant)
2.8	pH Meter	2	unit	Agr Lab (Soil/Plant)
2.9	Ion Analyzer	1	unit	Agr Lab (Soil/Plant)
2.10	Soil Sieve Set	1	unit	Agr Lab (Soil/Plant)
2.11	Standard Test Sieve Shaker	1	unit	Agr Lab (Soil/Plant)
2.12	Water quality Analyser	2	unit	Agr Lab (Soil/Plant)
2.13	Hygrothermograph	2	unit	Agr Lab (Soil/Plant)
2.14	Thermograph	2	unit	Agr Lab (Soil/Plant)
2.15	Soil Density Hydrometer	5	unit	Agr Lab (Soil/Plant)
2.16	Soil Thermometers	10	unit	Agr Lab (Soil/Plant)
2.17	Fruit gauge	5	pc	Agr Lab (Soil/Plant)
2.18	Electronic Dendrometer	5	unit	Agr Lab (Soil/Plant)
2.19	Chlorophyll Meter	5	unit	Agr Lab (Soil/Plant)
2.20	Permeameter	5	unit	Agr Lab (Soil/Plant)
2.24	Soil infiltrometer	5	unit	Agr Lab (Soil/Plant)
2.25	Soil Tensiometer	5	unit	Agr Lab (Soil/Plant)
2.26	Capacitance Probe	5	unit	Agr Lab (Soil/Plant)
2.27	Time Domain Reflectometry System	5	unit	Agr Lab (Soil/Plant)
2.28	Cone Penetrometer	5	unit	Agr Lab (Soil/Plant)
2.29	Pressure Extractor Set	1	set	Agr Lab (Soil/Plant)
2.30	Soil temperature and water potentiometer	5	unit	Agr Lab (Soil/Plant)
2.31	Munsell Soil Color Chart	30	unit	Agr Lab (Soil/Plant)
2.32	Wind speed anemometer	2	unit	Agr Lab (Soil/Plant)
2.33	Soil Core Sampler	5	unit	Agr Lab (Soil/Plant)
2.34	Soil Sampling auger	5	unit	Agr Lab (Soil/Plant)
2.35	Environmental Monitoring Equipment	1	unit	Agr Lab (Soil/Plant)
6.1	Tractor with PTO & Attachments	1	unit	New Model Farm
6.1.1	Trailer	1	unit	New Model Farm
6.1.2	Disc plough	1	unit	New Model Farm
6.1.3	Disc harrow	1	unit	New Model Farm
6.1.4	Mould board plough	1	unit	New Model Farm
6.1.5	Rotary disk mower	1	unit	New Model Farm
6.2	Generator 5kva - diesel	1	unit	New Model Farm
6.3	Portable lawn mower	1	unit	New Model Farm
6.4	Water pump - diesel	1	unit	New Model Farm
6.10	Storage refrigerator - standard	1	unit	New Model Farm
6.11	Storage freezer - standard	1	unit	New Model Farm
6.12	Tools kit for maintenance of farm machinery	1	unit	New Model Farm
6.14	Rice milling machine	2	unit	New Model Farm
6.15	Hanging Scale	2	unit	New Model Farm
6.16	Weighing scale for animals	2	unit	New Model Farm
6.17	Hammer mill	1	unit	New Model Farm
6.18	Animal Feed mill / grinder	1	unit	New Model Farm
6.19	Feed pelletter	1	unit	New Model Farm
6.20	Feeding bins	10	unit	New Model Farm
6.21	Feeding bucket	10	unit	New Model Farm
6.22	Ear tag applicator	2	unit	New Model Farm
6.23	Metal cages	5	unit	New Model Farm
6.24	Emasculator	2	unit	New Model Farm
6.25	Tape measure	2	unit	New Model Farm

Code No.	Description	Q'ty	Unit	Location
J	J. Science Section			Science Section
1.1	Electronic Balance	2	set	Lab (Common)
1.4	pH meter - Bench	4	unit	Lab (Common)
1.8	Conductivity Meter	1	unit	Lab (Common)
1.9	Digital Hygro-Thermometer	2	unit	Lab (Common)
1.10	Thermometer, Mercury	10	set	Lab (Common)
1.12	Automatic Pipette	6	set	Lab (Common)
2.1	Spectrophotometers	4	unit	Lab (Common)
2.2	UV-VIS Spectrophotometer	1	unit	Lab (Common)
3.1	Paper Chromatography	4	unit	Lab (Common)
3.2	Thin Layer Chromatography	1	unit	Lab (Common)
3.3	Electrophoresis apparatus	1	set	Lab (Common)
4.1	Bunsen Burner	25	unit	Lab (Common)
4.2	Auto Vortex Variable speed mixer	2	unit	Lab (Common)
4.3	Blender	2	unit	Lab (Common)
4.4	Homogeniser	2	unit	Lab (Common)
4.5	Magnetic Stirrer with Hotplate	1	set	Lab (Common)
4.7	Stirred Water bath	2	unit	Lab (Common)
4.8	Centrifuge - Bench Top	2	unit	Lab (Common)
4.9	Universal refrigerated centrifuge	1	unit	Lab (Common)
4.10	Distilled water/ Deionised Water Machine	2	unit	Lab (Common)
4.11	Freeze-Dryer	1	unit	Lab (Common)
4.12	Heating mantles, Fire Resistant	2	set	Lab (Common)
4.13	Incubator	2	unit	Lab (Common)
4.14	Laboratory Furnace	1	unit	Lab (Common)
4.15	Oven	1	unit	Lab (Common)
4.16	Refrigerator	2	unit	Lab (Common)
4.17	Deep Freezer	1	unit	Lab (Common)
4.18	Microtome	1	unit	Lab (Common)
4.19	Microtome Equipment	1	unit	Lab (Common)
5.1	Disposable Dust Mask	300	pc	Lab (Common)
5.2	Face shield	20	pc	Lab (Common)
5.3	Safety Spectacles	60	pc	Lab (Common)
5.4	Lab. Coat	60	pc	Lab (Common)
5.5	Gloves, Disposable	300	pair	Lab (Common)
5.6	Gloves, Leather	20	pair	Lab (Common)
5.7	Gloves, Rubber	20	pair	Lab (Common)
5.8	Laboratory First-Aid Chart for teaching purpose	3	pc	Lab (Common)
6.1	Flame Spectrometry	1	unit	Chem/Agr Lab
6.2	Gas Chromatography	1	unit	Chem/Agr Lab
7.1	Dissecting Instrument Set	1	set	Biology/Agr Lab
8.1	Microscope	25	unit	Biology/Agr Lab
8.2	Dissecting microscope	7	unit	Biology/Agr Lab
8.3	Hand lense	50	pc	Biology/Agr Lab
8.5	Microscope, phase contrast with TV system	1	set	Biology/Agr Lab
8.6	Dry Cabinet for Microscopes	2	unit	Biology/Agr Lab
9.1	Autoclave	1	unit	Biology Lab
9.3	UV Fluorescent tube for Room Sterilization	1	set	Biology Lab
9.4	UV lamp	1	unit	Biology Lab
9.5	Ultrasonic Distintegrator	1	unit	Biology Lab
9.6	Laminar Flow Workstation	1	unit	Biology Lab
10.1	Educational media set	1	set	Biology/Agr Lab
11.1	Teaching model set (Biology)	1	set	Biology Lab
12.1	Teaching model set (Chemistry)	1	set	Chemistry Lab
K	K. Equipment for Other Lecture Theaters & Classrooms			Lecture Rooms
1.1	TV Monitor	1	unit	New Lecture Room (Old Library)
1.2	VHS Video player	1	unit	New Lecture Room (Old Library)
1.3	CD/DVD Player	1	unit	New Lecture Room (Old Library)
1.4	Steel Cabinet for the above TV,VTR,CD/DVD player	1	unit	New Lecture Room (Old Library)
1.5	OHP	1	unit	New Lecture Room (Old Library)
1.6	Projector Screen	1	unit	New Lecture Room (Old Library)
1.7	Extension power reel	1	unit	New Lecture Room (Old Library)
1.8	Multimedia Projector	1	unit	New Lecture Room (Old Library)
1.9	Computer	1	unit	New Lecture Room (Old Library)
2.6	Pin Spotlight, Follow	3	set	Old Lecture Theater

Code No.	Description	Qty	Unit	Location
2.7	Stage Spotlight, Plano-convex	6	unit	Old Lecture Theater
2.8	Stage Spotlight, Fresnel	10	unit	Old Lecture Theater
2.9	Cable Terminal Box	1	set	Old Lecture Theater
2.10	Lighting Control Board	1	unit	Old Lecture Theater
2.12	Audio System	1	set	Old Lecture Theater
3.1	TV System	4	set	Classrooms (EF, HE, MC, SSC)
4.2	TV Monitor	1	unit	Life Skills Center
4.3	VHS Video player	1	unit	Life Skills Center
L	L. Equipment for Design & Technology Section			Design & Technology Section
1.1	Metal Lathe	2	unit	Metal Workshop
1.2	Power Hacksaw	4	unit	Metal Workshop
1.3	Welder	2	unit	Metal Workshop
1.4	Spot Welder	1	unit	Metal Workshop
1.5	Compressor	1	unit	Metal Workshop
1.6	Tube Bender	1	unit	Metal Workshop
1.7	Industrial Vacuum Cleaner	1	unit	Metal Workshop
2.1	Woodworking Lathe	2	unit	Wood Workshop
2.2	Dust Extractor	3	unit	Wood Workshop
M	M. Equipment for Home Economics Section			Home Economics Section
1.1	Electric Sewing Machine	10	unit	Clothing Lab
2.1	Refrigerator	1	unit	Food Lab
2.2	Freezer	1	unit	Food Lab
2.3	Household Electric Stove	4	unit	Food Lab
2.5	Educational Video programs	1	set	Food Lab
2.6	Computer	1	unit	Teachers Room (Common)
2.7	UPS	1	unit	Teachers Room (Common)
2.8	Steam Presser	1	unit	Clothing Lab
N	N. Equipment for Technical Vocational Section			Technical Vocational Section
1.1.1	Vernier Caliper	2	pc	Lathe & Milling Workshop
1.1.2	Micro Meter	2	pc	Lathe & Milling Workshop
1.2	Surface Gauge	2	unit	Lathe & Milling Workshop
1.3	Vernier Height Gauge	2	unit	Lathe & Milling Workshop
1.4	Dial Indicator gauge	2	pc	Lathe & Milling Workshop
1.5	Marking out table	2	pc	Lathe & Milling Workshop
2.1	Blow lamp, medium	3	unit	Plumbing Workshop
2.2	Pipe cutter, 3"	3	set	Plumbing Workshop
2.3	Tube bender	2	set	Plumbing Workshop
2.4	Tinsnips (straight)	4	pc	Plumbing Workshop
2.5	Rivet gun	3	pc	Plumbing Workshop
2.6	Silicon gun	3	pc	Plumbing Workshop
2.7	Tinsnips (right hand)	4	pc	Plumbing Workshop
2.9	Stillson	3	pc	Plumbing Workshop
2.10	Guillotine, Manual	2	unit	Plumbing Workshop
2.11	Bender, Galvanize bender	2	unit	Plumbing Workshop
2.12	Scriber (metal)	3	pc	Plumbing Workshop
2.13	Hacksaw	3	pc	Plumbing Workshop
2.14	Claw Hammer	8	pc	Plumbing Workshop
2.15	Plunger 4"	5	pc	Plumbing Workshop
2.16	Flaring tool	2	set	Plumbing Workshop
2.17	Copper tube expander	2	set	Plumbing Workshop
3.1	Combination Square (adjustable)	4	pc	Carpentry Workshop
3.2	Tape Measure set	4	set	Carpentry Workshop
3.3	Claw hammer set	4	pc	Carpentry Workshop
3.4	Chisels set	4	set	Carpentry Workshop
3.5	Screw Driver set	4	set	Carpentry Workshop
3.6.1	Handsaw, 28 inches- Saw set	4	set	Carpentry Workshop
3.7.1	Hand Plane, Medium- Smoothing plane	2	set	Carpentry Workshop
3.8	Ratchet screw driver	3	pc	Carpentry Workshop
3.9	Screw driver bit set	2	set	Carpentry Workshop
3.10	Hand Brake Drill	4	pc	Carpentry Workshop
3.11	Spiral Brace	4	pc	Carpentry Workshop
3.12	Power Drill (Portable)	3	unit	Carpentry Workshop
3.13	Battery Operated Drill (Portable)	1	unit	Carpentry Workshop
3.14	Disc Grinder (Portable)	2	unit	Carpentry Workshop
3.15	Electric Jig saw (Portable)	1	unit	Carpentry Workshop

Code No.	Description	Q'ty	Unit	Location
3.16.1	Electric Sander - Vibrating Type	1	unit	Carpentry Workshop
3.16.2	Electric Sander - Belt Sander Type	1	unit	Carpentry Workshop
3.17	Electric Portable Router	1	unit	Carpentry Workshop
3.18	Sliding Bevel	4	pc	Carpentry Workshop
3.19	Marking knife	4	pc	Carpentry Workshop
3.20	Nail pincher	4	pc	Carpentry Workshop
3.21	Extension drill bit set	4	set	Carpentry Workshop
3.22	Triangular file	4	set	Carpentry Workshop
3.23	Sawset	4	pc	Carpentry Workshop
3.24	Sledge hammer	2	pc	Carpentry Workshop
3.25	Dampy level set	1	pc	Carpentry Workshop
3.26	Wrench Spanner, 200mm long	2	pc	Carpentry Workshop
3.27	Wrench Spanner, 150mm long	1	pc	Carpentry Workshop
3.28	Open end spanner set	1	set	Carpentry Workshop
3.29	Ring spanner set	2	set	Carpentry Workshop
3.30	Folding ruler	2	pc	Carpentry Workshop
3.31	Fix square/try square	2	pc	Carpentry Workshop
4.1	Welder	1	set	Metal Fab/Welding Workshop
4.2	Easy/Portable welder	1	set	Metal Fab/Welding Workshop
4.3	Power Hacksaw Machine	1	set	Metal Fab/Welding Workshop
4.4	Metal Cutter	1	set	Metal Fab/Welding Workshop
4.5	Pipe Bender	1	set	Metal Fab/Welding Workshop
4.6	Electrode hot warmer	1	set	Metal Fab/Welding Workshop
4.9	Steel rule	5	set	Metal Fab/Welding Workshop
5.1.1	Multi Tester - Digital	2	pc	Automotive (Elec) Workshop
5.1.2	Multi Tester - Analog	2	pc	Automotive (Elec) Workshop
5.2.1	Battery Charger - Booster	1	unit	Automotive (Elec) Workshop
5.2.2	Battery Charger - Trickle	1	unit	Automotive (Elec) Workshop
5.3	Ammeter	1	pc	Automotive (Elec) Workshop
5.4	Voltmeter	1	pc	Automotive (Elec) Workshop
5.5	Capacitance Meter	1	pc	Automotive (Elec) Workshop
5.6.1	Soldering iron - Small/Medium	1	set	Automotive (Elec) Workshop
5.6.2	Soldering iron - Large	1	unit	Automotive (Elec) Workshop
5.7	Hydrometer	1	set	Automotive (Elec) Workshop
5.8	Cadmium Tester	2	pc	Automotive (Elec) Workshop
5.9	Lug Crimper	1	pc	Automotive (Elec) Workshop
5.10	Wire cutter	1	pc	Automotive (Elec) Workshop
5.11	Electrical Tool	2	set	Automotive (Elec) Workshop
5.12	OHM Meter	2	pc	Automotive (Elec) Workshop
5.13	Test Bench	1	unit	Automotive (Elec) Workshop
6.1	Screw Driver set	1	set	Motor Mechanic Workshop
6.2	Diagnal/side cutter plier	1	pc	Motor Mechanic Workshop
6.3	Combination Plier	1	pc	Motor Mechanic Workshop
6.4	Long Nose/pointer	1	pc	Motor Mechanic Workshop
6.5	Circclip plier (internal)	1	set	Motor Mechanic Workshop
6.6	Circclip Plier (external)	1	set	Motor Mechanic Workshop
6.7	Vice Gripping plier	1	pc	Motor Mechanic Workshop
6.8	Torque Wrench - 1/2 inch Drive	1	pc	Motor Mechanic Workshop
6.9	Torque Wrench - 3/4 inch Drive	1	pc	Motor Mechanic Workshop
6.10	Adjustable Wrench	1	pc	Motor Mechanic Workshop
6.11	File (Meta)	1	set	Motor Mechanic Workshop
6.12	Chain Block	1	unit	Motor Mechanic Workshop
6.13.1	Combination Spanners	1	set	Motor Mechanic Workshop
6.16	Multi-metre	2	pc	Motor Mechanic Workshop
6.17	Air Pressure Gauge (reading)	1	pc	Motor Mechanic Workshop
6.18	Floor Jack	1	unit	Motor Mechanic Workshop
6.19	Safety stand	4	unit	Motor Mechanic Workshop
P	P. Other			Common Facility
1	Standy Generator	1	unit	Generator Shed

Annex-II Schedule of Activities

No.	Identified Work/Activity	Cost in PNG Kina	Duration in Weeks	Commencement of Work	Completion	Remarks/Comments
1	Farm Development, incl. site clearing, construction of garage & tool shed, etc.	120,000	21	02/02/2004	End of June 2004	
2	Printery Set-up Relocation	60,000	8	02/02/2004	End of March 2004	
3	New Library Fit-out	80,000	12	02/02/2004	End of April 2004	
4	New Lecture Room to Old Library (100 seat)	50,000	6	Awaiting transfer to New Library		
5	New Audio Visual Store Room to Old Library	30,000	4			
6	New Science/Agriculture Lab to Old Library	90,000	12			
7	Audio Visual Workshop Relocation to Buildings & Estates	20,000	8	02/02/2004	End of March 2004	
8	Security Grills - All Buildings	50,000	8	27/01/2004	End of March 2004	
9	Renovation - Music and Multi-Purpose Facility	60,000	8	02/02/2004	End of March 2004	
10	Old Printery and Audio Visual Room Renovation to Science Lab	80,000	12	Awaiting transfer of Audio Visual and Printery		
11	Old Conference Room Renovation to Female Computer Lab	50,000	8	02/02/2004	End of March 2004	
12	Staff Recruitment for Audio Visual-related Position	60,000	-	Advertise in February	Make offer in March	
13	Language Lab Renovation	25,000	8	02/02/2004	End of March 2004	
14	Electrical Connection to New Standby Generator	250,000	12	02/02/2004	End of April 2004	Awaiting approval for design
15	Contingencies	100,000	-			
TOTAL		1,125,000				

Note: 1) Above works are identified in the VC's commitment letter to JICA Basic Design Study Team dated 10 December 2003.

2) All the above works are approved for execution as of 28/01/2004, and represent about 33% of the total cost of works from the PNG side of commitment under this project.

Annex -III Management and Maintenance System at UOG

Section/Division etc.	Management Staff*			Technical Staff**			
	Responsible Person	Job Title	Job Title	Name of Person	Qualification	Experience	
Library	N. Amarasinghe	Librarian	Chief Technician	Kal Ongugko	B. Eng. (Elect.)	> 8 years	
AV Section (AV equipment)	N. Amarasinghe	Librarian	Chief Technician	Kal Ongugko	B. Eng. (Elect.)	> 8 years	
Printery Section	N. Amarasinghe	Librarian	Chief Technician	Kal Ongugko	B. Eng. (Elect.)	> 8 years	
Lecture Theatre	Eric Kombeakali	Director Planning	Chief Technician	Kal Ongugko	B. Eng. (Elect.)	> 8 years	
Ex. Arts - Music Section	Dr. Michael Mel	Head, EARE	Music Lecturer	John Ga'a	B.A (Music); Dip. Teach.	7 years	
Agriculture Section (Farm)	Michael Kapari	Head, SAH	Farm Manager	Anson Barish	PETT; CHTE stg 2+3	15 years	
Science Section (Agriculture)	Michael Kapari	Head, SAH	Tech. Officer	Anson Barish	PETT; CHTE Stg. 2+3	5 years	
Science Section (Chemistry)	Michael Kapari	Head, SAH	Lab. Assistant	Kevin Barakove	Grade 8 with >20 years of work exp.	+20 years	
Science Section (Biology)	Michael Kapari	Head, SAH	Tech. Officer	Hubert Kui	Higher Cert. in Sci. & Tech. Gr.8	+15 years	
Design & Tech. Section (Wood)	S. Kanan (Ms)	Head, HEDT	Sen. Tutor (Nat'l)	Simeon Yossam	Dip. in Sec. Teach.; B. Ed	> 5 years	
Design & Tech. Section (Metal)	S. Kanan (Ms)	Head, HEDT	Shr. Tut. (O.Seas)	Amado Perez	B. Sc & Indust. Ed.	>20 years	
Design & Tech. (IVE)	S. Kanan (Ms)	Head, HEDT	Lecturer (O.Seas)	Edward Wanigasekera	B. Ec(Nons), PGDE, M.FMgt., M.Ed	>25 years	
Home Eco. Section	S. Kanan (Ms)	Head, HEDT	Lab Assistant	Ms. Barbara Lahone	-Grade 10 Cert. - Basic Secretarial	8 Years	
Maths & Computing Dept.	Dr. Wilfred Kaleva	Head, MC	Lab Manager	Paul Pinjik	B. Sc (Computer Sci)	4 Years	
IT Section	Dr. Michael Mel	IT Committee Chair	IT Sup't Technician	I. Kisokau	Dip. Comp. Sci.	-	
Social Science Section	Dr. Goru Hane-Nou	Head, SSC	Chief Technician	Kal Ongugko	As shown above	> 8 years	
Education Tech. (C&I)	Dr. James Yoko	Head, C&I	Lecturer (O.Seas)	Dr. Robert Bruce	B.A., M.Phil., Ph.D.	>20 years	

* The person responsible for security measures of the equipment in each section, division, etc. as a manager.
 ** Technical personnel responsible for operation and maintenance of the equipment.

資料 7. 基本設計概要表

1. 案件名
パプアニューギニア国 ゴロカ大学教育用機材整備計画
2. 要請の背景（協力の必要性・位置付け）
<p>PNG 国の教育分野の課題（初等教育での極めて高い退学率、上位学校への進学率の低迷、教育管理部門の弱体と予算配分の不足・不備等）に対処するため、学制改革、カリキュラム改革を骨子とする国家教育開発計画が策定された。これまでの小学校 6 年(Grade 1-6)、中学校 4 年(Grade 7-10)、高校 2 年(Grade 11-12)の体系から、基礎学校 3 年(Preparatory, Grade 1-2)、初等学校 6 年(Grade 3-8、以上が基礎教育)、初級中学 2 年(Grade 9-10)、上級中学 2 年(Grade 11-12)という体系に変更され、中等学校レベルではこれまでの Grade7-8 が初等学校に移行する一方、Grade11-12 が高校から移行してきたため、教育内容はこれまでよりも高いレベルに変わった。また、すべての教育レベルにおいて技術・農業・商業・理科等の職業科目、理系科目の充実が図られることになった。</p> <p>ゴロカ大学は PNG 国の国立大学 4 校のうち唯一の教員養成系大学として教育学部、人文学部、理学部の 3 学部で中等学校及び中等レベルの職業学校を対象とした新規教員の養成、現職教員の資格向上、各種研究等を実施している。国家教育計画等の上位計画に基づき、中等学校の教育に旧制の高校レベルの教育が上乘せ (top-up) されたため、中等教員養成課程の教育内容も高度化が求められている。このため、ゴロカ大学に対しては質の高い教員、特に職業科目や理科系の有資格教員の養成が求められている。</p> <p>全国の教員の動向を見ると、現職教員の自然減（定年退職、中途退職）に対応するため増員を行う必要がある。また、これまで全体で 5-6%を占めていたといわれる外国人教員の現地人化による新規教員の需要がある。更に、カリキュラム改革に伴う教育内容の深化・高度化に対応できる教員の能力・資質向上や仮登録教員の資格向上が不可欠となっている。このため、同国で唯一の中等学校教員養成機関であるゴロカ大学の果たす役割が増大している。しかし、既存の教育用機材の老朽化・旧式化、学生数の増加による実習機材の数量不足及びカリキュラムの改訂に伴う新規学科の実習機材が未整備で、十分な改革の実績は上がっていない。特に、コンピュータ室は学生の利用頻度が高いため現在男子学生用、女子学生用の 2 室設けられているが、女子用のコンピュータ室の機材は男子学生に占有されることが多く、女子学生が安心して学習に取り組むことができない状況にある。また、同大学の教育用機材維持管理は学科ごと、担当セクションごとばらばらに行われているため機材の活用度がまちまちで、部品や消耗品の調達が重複したりするなどの弊害が出ている。</p> <p>こうした中等教員の質・量両面での不足を解決するため、PNG 国政府はゴロカ大学の教員養成課程の教育内容の深化を図り、質の高い中等教員を養成しようと計画している。同国政府の計画では、上記の国家目標を達成するためゴロカ大学の教育施設・設備・機材等を整備することとしている。これにより、ゴロカ大学における教員養成能力の向上が図られ、全国の中等教育機関それぞれのニーズに対応した質の高い教科指導が提供できることが期待されている。こうした中で我が国無償資金協力による事業は、ゴロカ大学で必要とされる教育用機材を整備するものである。</p>

3. プロジェクト全体計画概要

(1) プロジェクト全体計画の目標

実践的な知識と能力を有する新制中等学校の教員（新卒、現職）を養成する

【裨益対象の範囲及び規模】

- ①ゴロカ大学の学生及び教員（合計約 1,500 名/年） - 直接裨益
- ②全国の中等教育機関の教員（約 4,400 名） - 間接裨益（現職教員の再教育機会）
- ③全国の中等教育機関の学生（約 97,000 人） - 間接裨益（教員による波及効果）

(2) プロジェクト全体計画の成果

- ①ゴロカ大学の教育が座学から実習に重点が移行し、より実践的な教育が可能となる
- ②ゴロカ大学において、後期中等学校レベル（旧高校レベル）の教員の養成が可能となる
- ③女子学生用の教育設備が充実する
- ④教育機材の全学的な維持管理システムが構築される

(3) プロジェクト全体計画の主要活動

- ①ゴロカ大学の教育用機材を整備する
- ②ゴロカ大学の維持管理システム構築の技術訓練を実施する

(4) 投入(インプット)

ア. 日本側：無償資金協力 2.79 億円

教育用機材（理化学機器、農業機械、工作機械、ミシン、調理器、コンピュータ、工具類、楽器等）、教育支援用機材（AV 機器、照明機器、コンピュータ、印刷機械、発電機等）、教材・模型等（ビデオ、模型等）、家具類（机、椅子、書架、キャビネット等）及び全学的な機材維持管理システム構築のための技術指導

イ. 相手国側

（ア）必要な人員：機材管理責任者、保守責任者、計 20 人

（イ）施設・機材の運営・維持管理に係る経費：0.89 億円

(5) 実施体制

実施機関：ゴロカ大学

主務官庁：国家計画・地方開発省二国間援助局

4. 無償資金協力案件の内容

(1) サイト

PNG 国東ハイランド州 ゴロカ大学

(2) 概要

- ①ゴロカ大学の中等教員養成課程で使用される教育用機材の調達
- ②機材維持管理者を対象とする維持管理システム構築に関する技術指導

(3) 相手国側負担事項

調達機材のための建物建設・改修、電気設備工事、配管設備工事、空調換気工事、防災設備工事、機材移設工事等。

(4) 概算事業費

概算事業費 3.68 億円（無償資金協力 2.79 億円、PNG 国側負担 0.89 億円）

(5) 工期

詳細設計期間を含め約 12 ヶ月（予定）

<p>(6) 貧困、ジェンダー、環境及び社会面の配慮 ジェンダーバランスに配慮し、女子学生用の教育機材を優先的に計画した</p>
<p>5. 外部要因リスク（プロジェクト全体計画の目標の達成に関するもの）</p> <p>(1) 学制改革が計画通り実施される (2) 治安状況が良好に維持される</p>
<p>6. 過去の類似案件からの教訓の活用</p> <p>プロジェクト全体計画のモニタリングを強化するため、機材運営・維持管理に係る要員配置、必要経費に係る予算措置の進捗状況を日本側に定期報告することを義務付ける。</p>
<p>7. プロジェクト全体計画の事後評価に係る提案</p> <p>(1) プロジェクト全体計画の目標達成を示す成果指標</p> <p>① ゴロカ大学における教育用機材を利用した実習時間数の増加</p> <p>② 現職教員の再訓練により、後期中等学校レベル（旧高校レベル）の教科内容を指導できる中等学校教員の増加</p> <p>(2) その他の成果指標</p> <p>①後期中等学校レベル（旧高校レベル）の教科指導訓練を受けた中等学校教員により指導を受けることができる全国の中等学校生徒の増加</p> <p>(3) 評価のタイミング</p> <p>2009年以降（機材稼働開始後4年経過後）</p>

資料8. 入手資料リスト

	資料名称	数量	発行元	内容
1	国家高等教育計画 II、2000-2004	1	高等教育局	高等教育改革計画、および行動計画
2	遠隔・弾力的教育に係る フューチャー研究報告	1	高等教育局	遠隔・弾力的教育に対する研究、および提案
3	パプア・ニューギニア教育指標、2001	1	教育省	2001年の教育指標
4	グレード12の学生のための案内	1	ゴロカ大学	入学希望者への手引き書
5	中期開発計画、1997-2002	1	国家開発大臣	1997年から2002年までの国家中期開発計画
6	中期開発計画、2003-2007 (案)	1	国家開発大臣	2003年から2007年までの国家中期開発計画 (案)
7	質問票に対する回答書	1	高等教育局	基本設計調査に係る質問票に対する回答書
8	2002年高等教育統計	1	高等教育局	高等教育の年間統計
9	PNG国高等教育機関メンテナンス計画	1	高等教育局	全大学における施設メンテナンス計画
10	教育実習ハンドブック 2003	1	ゴロカ大学	実習教育の手引き書
11	視聴覚機器： 使用ガイドライン	1	ゴロカ大学	視聴覚機器の使用に係るガイドライン
12	理学部 2004年コースハンドブック	1	ゴロカ大学	2004年度の理学部コースハンドブック
13	理科・農業・保健学科、 2003年度所有機材一覧	1	ゴロカ大学	既存機材リスト