

資 料

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資料 1. 調査団員・氏名

資料 1. 調査団員・氏名

第 1 回 現地調査

役割	氏名・所属等
総括	山崎 潤 JICA 農村開発部 水田地帯第一課 主任調査役
業務主任/農業人材育成計画	須田 正美 システム科学コンサルタンツ株式会社 常務取締役
教育機材計画	岡田 賢司 システム科学コンサルタンツ株式会社 コンサルティング本部 シニアコンサルタント
施設・設備計画/運営維持管理	谷 和明 システム科学コンサルタンツ株式会社 コンサルティング本部 シニアコンサルタント (建築士)
農業資機材計画/積算	松縄 孝太郎 株式会社日本開発サービス 調査部 主任研究員
施工・調達計画/積算	中西 吉也 システム科学コンサルタンツ株式会社 コンサルティング本部 コンサルタント (建築士)

DF 説明現地調査

役割	氏名・所属等
総括	金子 健二 JICA 農村開発部 水田地帯第一課 企画役
業務主任/農業人材育成計画	須田 正美 システム科学コンサルタンツ株式会社 常務取締役
施設・設備計画/運営維持管理	谷 和明 システム科学コンサルタンツ株式会社 コンサルティング本部 シニアコンサルタント (建築士)

資料 2. 調査行程

資料 2. 調査行程

第 1 回現地調査日程

担当		総括	業務主任/農業 人材育成計画	教育機材計画	施設・設備計画/ 運営維持管理	農業資機材計画/ 積算	施工・調達計画/ 積算
氏名		山崎 潤	須田 正美	岡田 賢司	谷 和明	松縄 孝太郎	中西 吉也
日程		訪問先・業務内容					
2012年7月8日	日	成田→バンコク→ヤンゴン			成田→バンコク→ヤンゴン		
2012年7月9日	月	JICA事務所、KOICA ヤンゴン→ネピドー			再委託先調査 ヤンゴン→ネピドー	JICA事務所、 KOICA ヤンゴン→ネピドー	
2012年7月10日	火	農業灌漑省農業計画局、YAU（インセ プションレポート説明）			YAU（既存施設 調査）	YAU畜産学科 （聞き取り調査・既 存機材調査）	
2012年7月11日	水	農業灌漑省農業局、シードバンク、 YAU、（インセプションレポート説明）			YAU（既存施設 調査）	YAU畜産学科 （聞き取り調査・既 存機材調査）	
2012年7月12日	木	YAU（施設予定地調査）			YAU（施設予定 地調査、既存施設 調査）	YAU農業工学科 （既存機材調査）	
2012年7月13日	金	YAU（ミニッツ協議）			YAU（既存施設調査・既存機材調査）		
2012年7月14日	土	団内会議・資料整理		成田→バンコク→ ヤンゴン	団内会議・資料整理		
2012年7月15日	日	資料整理		ヤンゴン→ネピドー	資料整理		
2012年7月16日	月	農業灌漑省農業計画局、YAU（ミニッ ツ協議）		YAU（既存施設・既存機材、要請機材等調査）			
2012年7月17日	火	ネピドー→ヤンゴン （JICA事務所）	YAU、DAR（既存機材・要請機材調 査）		YAU（既存施設 調査）	YAU畜産学科・農 業工学科（既存 機材・要請内容調 査）	
2012年7月18日	水	成田	YAU、DAR（既存機材・要請機材調 査）		YAU（既存施設 調査）	YAU畜産学科・農 業工学科（既存 機材・要請内容調 査）	
2012年7月19日	木		団内会議・資料整理				
2012年7月20日	金		YAU（既存機材・要請機材調査）		YAU（既存施設調 査）	YAU畜産学科・農 業工学科（既存 機材・要請内容調 査）	

担当	総括	業務主任/農業 人材育成計画	教育機材計画	施設・設備計画/ 運営維持管理	農業資機材計画/ 積算	施工・調達計画/ 積算	
氏名	山崎 潤	須田 正美	岡田 賢司	谷 和明	松縄 孝太郎	中西 吉也	
日程	訪問先・業務内容						
2012年7月21日	土		団内会議・資料整理				
2012年7月22日	日		資料整理				
2012年7月23日	月		YAU (要請機材、既存機材、既存施設調査)				成田→バンコク→ ヤンゴン
2012年7月24日	火		YAU (要請機材、既存機材、既存施設調査)				ヤンゴン→ネビドー YAU (既存施設 調査)
2012年7月25日	水		ネビドー→ヤンゴン	YAU、DAR (既 存機材、要請機材 調査)	YAU (既存施設 調査、施設内容協 議)	ネビドー→ヤンゴン	YAU (既存施設 調査、施設内容協 議)
2012年7月26日	木		VFRDC、CARTC (インセプションレ ポート説明)	YAU、DAR (既 存機材、要請機材 調査)	YAU (既存施設 調査、施設内容協 議)	VFRDC (既存機 材・維持管理等調 査、要請機材確 認)	YAU (既存施設 調査、施設内容協 議)
2012年7月27日	金		VFRDC (運営・研 究内容等調査)	YAU、DAR (既 存機材、要請機材 調査)	YAU (既存施設 調査、施設内容協 議)	VFRDC (既存機 材・維持管理等調 査、要請機材確 認)	YAU (既存施設 調査、施設内容協 議)
2012年7月28日	土		資料整理				
2012年7月29日	日		資料整理		ネビドー→ヤンゴン →バンコク	資料整理	
2012年7月30日	月		CARTC (既存機 材、運営・研究・研 修内容等調査)	YAU、DAR (既 存機材、要請機 材・研究内容等調 査)	バンコク (ビザ申 請)	CARTC (既存機 材、維持管理等調 査、要請機材確 認)	YAU (既存施設 調査、施設内容協 議)
2012年7月31日	火		CARTC (既存機 材、運営・研究・研 修内容等調査)	YAU、DAR (既 存機材、要請機 材・研究内容等調 査)	バンコク (ビザ受 領)	CARTC (既存機 材、維持管理等調 査、要請機材確 認)	YAU (既存施設 調査、施設内容協 議)
2012年8月1日	水		VFRDC (運営・研 究内容等調査)	YAU、DAR (既 存機材、要請機 材・研究内容等調 査)	バンコク→ヤンゴン	ヤンゴン (現地調 達事情調査)	YAU (既存施設 調査、施設内容協 議)
2012年8月2日	木		資料整理		ヤンゴン→ネビドー	資料整理	
2012年8月3日	金		ヤンゴン (JICA事 務所報告)	YAU (既存機材、 要請機材・研究内 容等調査)	YAU (既存施設 調査、施設内容協 議)	ヤンゴン→バンコク →	YAU (既存施設 調査、施設内容協 議)
2012年8月4日	土		ヤンゴン→バンコク →	ネビドー→ヤンゴン	資料整理	成田	資料整理

担当		総括	業務主任/農業 人材育成計画	教育機材計画	施設・設備計画/ 運営維持管理	農業資機材計画 /積算	施工・調達計画/ 積算
氏名		山崎 潤	須田 正美	岡田 賢司	谷 和明	松縄 孝太郎	中西 吉也
日程		訪問先・業務内容					
2012年8月5日	日		成田	資料整理			資料整理
2012年8月6日	月			ヤンゴン（現地調 達事情調査）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月7日	火			ヤンゴン（現地調 達事情調査） ヤン ゴン→バンコク	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月8日	水			バンコク（ビザ申 請）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月9日	木			バンコク（ビザ受 領）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月10日	金			バンコク→ヤンゴン	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月11日	土			ヤンゴン→ネピドー	資料整理		資料整理
2012年8月12日	日			資料整理			資料整理
2012年8月13日	月			YAU、DAR（既 存機材、要請機材 調査）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月14日	火			YAU、DAR（既 存機材、要請機材 調査）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月15日	水			YAU、DAR（既 存機材、要請機材 調査）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月16日	木			YAU、DAR（既 存機材、要請機材 調査）	YAU（既存施設 調査、施設内容協 議）		YAU（既存施設 調査、施設内容協 議）
2012年8月17日	金			YAU、DAR（既 存機材、要請機材 調査）	YAU（施設内容 につき学長と協議）		YAU（施設内容 につき学長と協議）
2012年8月18日	土			ネピドー→ヤンゴン→			ネピドー→ヤンゴン →
2012年8月19日	日			成田			成田

第2回現地調査

担当		業務主任/農業人材育成計画 須田 正美
2012年8月27日	月	成田→バンコク→ヤンゴン
2012年8月28日	火	JICA事務所 ヤンゴン→ネピドー
2012年8月29日	水	YAU (YAUカリキュラム、教官数、研究内容等調査)
2012年8月30日	木	YAU (学長と農業機械を中心とした機材内容につき協議調査)
2012年8月31日	金	YAU (施設内容、要請機材内容協議)
2012年9月1日	土	資料整理
2012年9月2日	日	資料整理
2012年9月3日	月	YAU (大学予算、農業機械の調達目的等調査)
2012年9月4日	火	YAU (YAU近隣状況調査)
2012年9月5日	水	YAU (学長・副学長 農業機械内容について合意)
2012年9月6日	木	DAR (研究内容、各研究所状況確認等)
2012年9月7日	金	DAR (研究内容、各研究所状況確認等)
2012年9月8日	土	資料整理
2012年9月9日	日	資料整理
2012年9月10日	月	YAU (農業機械優先リスト協議等)
2012年9月11日	火	ネピドー→ヤンゴン
2012年9月12日	水	CARTC、VFRDC (要請機材内容協議)、YAU再委託報告書受領
2012年9月13日	木	JICA事務所 (調査結果報告)
2012年9月14日	金	JICA事務所、ヤンゴン→バンコク→
2012年9月15日	土	成田

第3回現地調査

担当		総括 金子 健二	業務主任/農業人材育成計画 須田 正美	施設・設備計画/運営維持管理 谷 和明
2012年12月12日	水		成田→バンコク→ヤンゴン	
2012年12月13日	木		JICA事務所、在ミャンマー日本大使館 ヤンゴン→ネピドー	
2012年12月14日	金		農業灌漑省農業局、DAR、YAU、(関係施設最終機材リスト確認)	
2012年12月15日	土		資料整理	
2012年12月16日	日		ネピドー→ヤンゴン	資料整理
2012年12月17日	月		CARTC (最終機材リスト確認)	YAU (施設計画確認、機材配置確認)
2012年12月18日	火	成田→バンコク→ヤンゴン	VFRDC (最終機材リスト確認)	YAU (施設計画確認、機材配置確認)
2012年12月19日	水	ヤンゴン→レグー CARTC、VFRDC (施設視察、最終機材リスト確認) レグー→ネピドー YAU (機材リスト最終確認)		YAU (施設計画確認、機材配置確認)
2012年12月20日	木	農業灌漑省農業計画局 (ミニッツ協議、内容合意)、YAU、DAR (施設視察) ネピドー→ヤンゴン	農業灌漑省農業計画局 (ミニッツ協議、内容合意)、YAU、DAR (施設視察)	YAU (施設計画確認、機材配置確認)
2012年12月21日	金	JICA事務所報告、在ミャンマー日本大使館報告、ヤンゴン→バンコク→	YAU、DAR (最終機材リスト詳細確認)	YAU (施設計画確認、機材配置確認)
2012年12月22日	土	成田	資料整理	
2012年12月23日	日		ネピドー→ヤンゴン	資料整理
2012年12月24日	月		JICA事務所報告 ヤンゴン→バンコク→	YAU (施設内用最終確認)
2012年12月25日	火		成田	YAU (施設内用最終確認)
2012年12月26日	水			ネピドー→レグー CARTC (最終機材内容確認) レグー→ヤンゴン→バンコク→
2012年12月27日	木			成田

資料 3. 関係者（面会者）リスト

資料 3. 関係者（面会者）リスト

面会者リスト

1. 在ミャンマー日本大使館

面談者	役職、部署、機関
松尾 秀明 氏	参事官（経済・経済協力担当）
和田 英紀 氏	二等書記官

2. JICA ミャンマー事務所（Japan International Cooperation Agency, Myanmar Office）

面談者	役職、部署、機関
田中 雅彦 氏	所長
齋藤 克義 氏	次長
吉田 実 氏	企画調整員
Mr. Tun Myint Thein	Program Officer

3. イエジン農業大学(Yezin Agricultural University : YAU)

面談者	役職、部署、機関
Dr. Tin Htut	Rector
Prof.Dr.Myo Kywe	Pro-Rector (Academic)
Dr. Nang Hseng Hom	Associate Professor, Department of Agricultural Botany
Ms. Cho Cho Oo	Lecturer, Department of Agricultural Botany
Ms. Thuzar Nare	Assistant Lecturer, Department of Agricultural Botany
Ms. Hlaing Htay	Assistant Lecturer, Department of Agricultural Botany
Dr. Soe Soe Thein	Professor, Department of Agricultural Chemistry
Ms. Daw Nang Ohn Myint	Lecturer, Department of Agricultural Chemistry
Dr. Aung Kyaw Myint	Assistant Lecturer, Department of Agricultural Chemistry
Dr. Dolly Kyaw	Professor and Head of Department, Department of Agricultural Economics
Dr. Nay Myo Aung, Ph. D	Assistant Lecturer, Department of Agricultural Economics
Dr. Hnin Yu Lwin	Department of Agricultural Economics
Mr. Arkar Minn	Senior Lecturer, Department of Agricultural Engineering
Ms. Htay Htay Oo	Department of Agricultural Engineering
Mrs. Aye Thida Kyaw	Department of Agricultural Engineering
Ms. Khin Zar Zar Tun	Department of Agricultural Engineering
Mr. Hla Moe Oo	Tractor Driver, Department of Agricultural Engineering
Dr. Mar Mar Kyu	Professor and Head of Department, Department of Agronomy
Dr. Than Da Min, Ph. D	Associate Professor, Department of Agronomy
Dr. Tin Wan	Head of Administration Department and Animal Science Department
Mr.Aye Soe	Instructor, Department of Animal Science
Ms. Daw Aye Aye Maw	Demonstrator, Department of Animal Science
Dr. Ei Ei Win Maung	Demonstrator, Department of Animal Science
Dr. Thi Tar Oo	Professor and Head of Department, Department of Entomology and Zoology
Dr.Ah Nge Htwe, Ph.D	Assistant Lecturer, Department of Entomology and Zoology

Dr. Nyo Nyu	Professor, Department of Horticulture
Dr. Khin Thida Myint, Ph.D	Associate Professor, Department of Horticulture
Mr. San Shwe Myint	Assistant Lecturer, Department of Horticulture
Dr. Maung Maung Myint	Professor and Head of Department, Department of Plant Pathology
Dr. Chit Chit Win	Lecturer and Head of Department, Myanmar Department
Ms. Tin Hnin Caff Htay	Head of Department, Mathematics Department
Ms. Thin Thin Hlaing	Head of Department, English department
Ms. Khaing Wai Nyunt	Head of Department, Physics Department
Ms. Winn Lei Lei Than	University Librarian
Mr. Tin Ko Ko	Registrar Grade I

4. 農業研究局、農業灌溉省 (Department of Agricultural Research, Ministry of Agriculture and Irrigation : MOAI)

面談者	役職、部署、機関
Dr. Aung Kyi	Deputy Director General
Ms. Khin San Wai	Director, Biotech, PGR and PP Division
Mr Maung Maung Thein	Director, Industrial Crops and Horticulture Division
Ms. Myint Tin Tin	Director, Rice Division
Ms. Than Than Soe	Director, Agronomy, Agricultural Economics and Statistics Division
Mr. Myint Aung	Director,
Ms. Yi Yi Myint	Head of Seed Bank
Dr. Khin Mar Hday	Head of Water Utilization Research Section
Dr. NewNew Yin	Head of Entomology Section
Ms. Myint Myint Sann	Research officer, Pathology Section
Ms. Ten Yi	Head of Biotechnology Section
Dr. Su Su Win	Head of Soil Science Section
Dr. Maung Maung Tar	Research officer, Industry Crop Section
Dr. Ohm Mar Saw	Seed Bank

5. 蔬菜果樹研究開発センター(VFRDC)

面談者	役職、部署
Mr. Thet Zin Maung	Assistant Director, Vegetable and Plant Protection Laboratory
Mrs.Tin Tin Cho	Assistant Director, Vegetable and Plant Protection Laboratory
Mrs. Khin Khin Tun	Senior Officer, Fruit Science Laboratory
Mr. Kyaw Soe Win	Senior Officer, Plant Protection Laboratory
Ms. May Thin Khaing	Senior Staff Officer, Plant Tissue Culture Laboratory
Mr. Than Htike	Senior Officer, Plant Tissue Culture Laboratory
Ms. Khin Lay Naing	Officer, Plant Tissue Culture Laboratory
Ms. Aye Aye Nwe	Senior Officer, Soil and Nutrition Laboratory
Mr. Than Aye	Officer, Vegetable and Fruit Production
Ms. Ei Ei Htwe	Senior Officer, Vegetable Science Laboratory
Ms. Theingi Swe	Senior Officer, Vegetable Science Laboratory
Mr. Phyo Wai Aung	Senior Officer, Nursery Management

6. 中央農業研究訓練センター(CARTC)

面談者	役職、部署
Mr. Thura Soe	Principle
Mr. Thet Lwin	Deputy Principle
Mrs. Cho Mar Tin	Staff Officer
Mrs. Myint Myint San	Staff Officer, Head of Soil Science Laboratory
Ms. Aye Myat Thwe	Deputy Assistant Staff Officer, Soil Science Laboratory
Ms. Khin Khin Aye	Deputy Assistant Staff Officer, Training Management Section
Ms. Ni Ni Khaing	Staff Officer, Head of Plant Protection Laboratory
Ms. Kyu Kyu Thin	Deputy Assistant Staff Officer, Plant Protection Laboratory
Ms. Myint Myint Win	Staff Officer, Head of Plant Tissue Culture Laboratory
Mr. Kyaw Soe	Head of Audio Room
Ms. Tar Yar Wai Lwin	Staff Officer, Computer Room
Ms. Khin Htwe	Head of Photo Room
Mr. Sai Than Htay	Deputy Staff Officer, Head of Printing Room

7. 農業灌溉省 (Ministry of Agriculture and Irrigation : MOAI)

面談者	役職、部署、機関
Mr. Hla Kyaw	Director General, Department of Agricultural Planning
Mr. Aung Hlaing	Director, International Relation and Trade, Department of Agricultural Planning
Mr. Kyaw Win	Director General, Department of Agriculture (DOA)
Mr. Thein Lin	Director, Seed Division, DOA
Mr. Tin Win	Deputy Director, Project Planning, Management and Evaluation Division, DOA

8. 韓国国際協力団 (KOICA)

面談者	役職、部署、機関
Mr. Kim Jin Taek	Korea Overseas Volunteers' Coordinator

9. 専門家

面談者	役職、部署、機関
藤井氏	DAR

10. その他

面談者	役職、部署、会社名
Mr. Tin Ngwe	Sales Representative, Satake Corporation Yangon Representative Office
Mr. Kyaw Tun	Senior Engineer, Satake Corporation Yangon Representative Office
松島勇治氏	株式会社クボタヤンゴン事務所長

資料 4. 討議議事録 (M/D)

Minutes of Discussions
on
the Preparatory Survey (for Outline Design)
on
the Project for Improvement of Equipment for Human Resource Development in Agriculture
in the Republic of the Union of Myanmar

In response to a request from Yezin Agricultural University (hereinafter referred to as “YAU”) under Ministry of Agriculture and Irrigation, the Republic of the Union of Myanmar, Japan decided to conduct a Preparatory Survey on the Project for Improvement of Equipment for Human Resource Development in Agriculture (hereinafter referred to as “the Project”) and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as “JICA”).

JICA sent to Myanmar the Preparatory Survey Team (hereinafter referred to as “the Team”), headed by Mr. Jun Yamazaki, Deputy Director of Paddy Field Based Farming Area Division 1, Rural Development Department, JICA. It is scheduled to stay in the country from 8 July to 18 August, 2012.

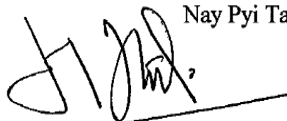
The Team held discussions with the officials concerned of the Government of Myanmar and conducted field survey.

In the courses of discussions and field survey, both sides have confirmed items described in the attached sheet.

Nay Pyi Taw, 16 July, 2012



Mr. Jun Yamazaki
Team Leader
Preparatory Survey Team
Japan International Cooperation Agency



Dr. Tin Htut
Rector
Yezin Agricultural University
Ministry of Agriculture and Irrigation
The Republic of the Union of Myanmar

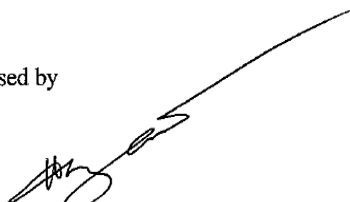


Dr. Thein Lwin
Director General
Department of Agricultural Research
Ministry of Agriculture and Irrigation
The Republic of the Union of Myanmar



U Kyaw Win
Director General
Department of Agriculture
Ministry of Agriculture and Irrigation
The Republic of the Union of Myanmar

Witnessed by



U Hla Kyaw
Director General
Department of Agricultural Planning
Ministry of Agriculture and Irrigation
The Republic of the Union of Myanmar

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the capacity of Human Development Institutions and to strengthen the training capacity of research institutions in Agriculture by constructing architecture building(s) at Yezin Agricultural University (YAU), and by supplying necessary equipment to YAU, the Department of Agricultural Research (DAR), the Vegetable and Fruit Research and Development Center (VFRDC), and the Central Agriculture Research and Training Center (CARTC) under Department of Agriculture (DOA).

2. Title of the Project

Both parties agreed that the Project title would be “the Project for Strengthening Human Development Institutions in Agriculture”. After consultation with the Government of Japan, the Project title shall be finalized.

3. Project site

3-1. The main campus of Yezin Agricultural University (YAU)

3-2. Department of Agricultural Research (DAR) at Yezin

3-3. Vegetable and Fruit Research and Development Center (VFRDC) under Department of Agriculture (DOA)

3-4. Central Agricultural Research and Training Center (CARTC) under DOA

4. Responsible and Implementing Agency

The both sides agreed in principle on the following management structure of the Project.

4-1. The Responsible Agency: Yezin Agricultural University (YAU), Ministry of Agriculture and Irrigation (MOAI)

4-2. The Implementing Agency: Yezin Agricultural University (YAU), Department of Agricultural Research (DAR), and Department of Agriculture (DOA), the Ministry of Agriculture and Irrigation

4-3. The Steering Committee

The Ministry of Agriculture and Irrigation will establish the Steering Committee. The tentative member of the Committee will be as follows.

(a) Deputy Minister, MOAI (Chair)

(b) Director General, Department of Agricultural Planning(DAP), MOAI

(c) Director General, DAR, MOAI

(d) Director General, DOA, MOAI

(e) Rector, YAU, MOAI (Secretary)

YAU will be responsible for administration of the Project regarding the measures to be taken by the Myanmar side as described in Annex-4, including: (a) ensuring all implementation agencies make necessary preparation of land, utility and facilities; (b) making necessary arrangement of tax exemption and custom clearance; (c) bearing necessary expense for administrative arrangement such as bank commission; and (d) conducting inspection on behalf of MOAI. It is, however, on each agency's responsibility to ensure the operation and maintenance cost after the Project. In case of any delay or difficulties in implementation stage, the Steering Committee will arrange timely decisions and necessary actions.

After official explanation from JICA Myanmar Office and consultation with the Union Minister for Agriculture and Irrigation, the Myanmar side shall finalize the management structure of the Project and inform to JICA Myanmar Office as soon as possible.

5. Requested Components

After discussions with the Team, the components described in Annex-1 were finally requested by

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the Myanmar side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

6. Japan's Grant Aid Scheme

6-1. The Myanmar side understood the Japan's Grant Aid Scheme explained by the Team, as described in Annex-3.

6-2. The Myanmar side will take the necessary measures, as described in Annex-4, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

7. Schedule of the Study

7-1. The consultants will proceed to further studies in Myanmar until 18 August, 2012, in addition, a supplemental study will be conducted if necessary.

7-2. JICA will prepare the draft final report in English and dispatch the draft report explanation mission to Myanmar order to explain its contents around December, 2012.

7-3. In case that the contents of the draft final report is accepted in principle by the Myanmar side, JICA will complete the final report and send it to the Myanmar by March, 2013.

8. Other relevant issues

8-1. Selection Criteria of Equipment at YAU

Both sides agreed on the following priority for selecting equipment and material to be procured in the Project.

Priority A: Equipment for education and experimentation necessary for undergraduate program

Priority B: Laboratory Equipment necessary for research activities by postgraduate students and teaching staff, excluding ones which require high maintenance cost and careful operation skills.

Requested general equipment and material will be examined carefully by the Team from the point of view of maintenance cost, operation skill, and the relevance to the objective of the Project. It is noted that the Myanmar side strongly requested buses for transporting students for field trip based on the extension curriculum of undergraduate program.

8-3. Selection Criteria for Equipment at DAR, VFRDC, and CARTC

Both sides confirmed that the objective of the Project is to improve the educational and training function of Agricultural institutions. Since the items requested by DAR, VFRDC, and CARTC include equipment for various purposes, the Team will examine the requested and existing equipment and will conclude the suitable items in consideration of the following criteria.

(a) Applicability to the educational and training activities to students, extension worker etc.

(b) Necessity of replacement (condition and needs)

(c) Necessity to install additional equipment for the current needs in Agriculture sector

8-4. Activities with Other Organizations

YAU confirmed that the facilities and equipment supported by the Project shall be utilized for the education and research activities of YAU, and these shall not exclusively be used by other organizations including foreign donors and institutions.

8-5. Operation and Maintenance of Equipment and Facilities

The Myanmar side shall allocate necessary budget and human resources (teaching staff and technician etc.) for operation and maintenance of the equipment and facilities procured/constructed in the Project. The necessary operation and maintenance cost and number of staff will be calculated and reported by the Team. The Myanmar side will take necessary actions to secure the budget before and during implementation of the Project.

8-6. Equipment at Remote Campuses

The Myanmar side explained that remote campuses are intended to be used for field training of the final year students for exposing to farmers problems and it is not necessarily to install large scale laboratory equipment in the Project. The Myanmar side also explained that necessary equipment based on the curriculum is to be covered by the Myanmar side.

Annex-1: Components Requested by the Myanmar Side

Annex-2: Proposed Location of Facilities at YAU

Annex-3: Japan's Grant Aid Scheme

Annex-4: Major Undertakings by each Government

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Annex-1 Facilities and Equipment for YAU, and Equipment for DOA and DAR

Annex-1 (01)

Facilities for YAU

No.	Major Components	Q'ty	Remarks (Following matter should be respected)	Priority
1	Laboratory Buildings	2	Laboratory Buildings with necessary infrastructure (Electricity, Water supply and drainage, etc.) 2 stories, Reinforced concrete structure buildings. Laboratory Building - 1 (6 rooms) Laboratory Building - 2 (4 rooms)	A
2	Library	1	Library with IT room and etc. included 2 stories, Reinforced concrete structure building.	B

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Annex-1 (02) EQUIPMENT

Equipment for YAU

Name of Department: Agricultural Botany

No.	Name of Equipment	Quantity	Frequency of Use	Priority
1	Automatic digital osmometer	10	Teaching aid at weekly practical.	A
2	Potometer	10	Teaching aid at weekly practical	A
3	Urometer	5	Teaching aid at weekly practical.	A
4	Spectrophotometer	5	Teaching aid at weekly practical.	A
5	Plant Photosynthesis meter	1	Teaching aid at weekly practical.	A
6	Soil moisture meter	2	Teaching aid at weekly practical.	B
7	Auxanometer	5	Teaching aid at weekly practical.	A
8	Thistle funnels	20	Teaching aid at weekly practical.	A
9	Measuring cylinders	10	Teaching aid at weekly practical.	B
10	Micro Pipette	10	Teaching aid at weekly practical.	B
11	Test Tube + Stand	100 + 10	Teaching aid at weekly practical.	B
12	Chlorophyll Meter	2	Teaching aid at weekly practical.	A
13	Leaf Area Meter	2	Teaching aid at weekly practical.	A
14	Temperature-Humidity-Illumination Meter	2	Teaching aid at weekly practical.	B
15	Permanent slides	5 set	Teaching aid at weekly practical.	A
7	Plant Growth Chamber	1	Weekly practical work	A
8	Digital Hand-Held Refract meter	2	Measure the sugar content and temperature	B
9	Photometer	2	Weekly practical work	A
10	Hot water flask	10	Weekly practical work	B
11	Thermometer	10	Weekly practical work	B
12	Pipette	15	Weekly practical work	B
13	Moisture tester	10	Weekly practical work	A
14	Digital Scale	10	Teaching aid at weekly practical.	B

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15	Digital Balance	10	Teaching aid at weekly practical.	B
16	VWR-vista vision microscope slides	10 packs	Teaching aid at weekly practical.	A
17	VWR-vision cover glasses	10 packs	Teaching aid at weekly practical.	A
18	Microscope with camera and computer (complete set)	2	Teaching aid at weekly practical.	A
19	Microscope	20	Teaching aid at weekly practical.	B
20	Stature of Biology	5 set	Teaching aid at weekly practical.	B
21	Slide box	5 set	Teaching aid at weekly practical.	A
22	DNA structure, DNA model, DNA simulation kits etc.	3 sets	Teaching aid at weekly practical.	A
23	Model of plant cell division etc.	3 sets	Teaching aid at weekly practical.	B
24	Fluorescence microscope joining with computer (complete sets)	2	Teaching aid at weekly practical.	A
25	Cavity Slide	10 packs	Teaching aid	A
26	LCD Projector + Computer + Scanner (Set complete)	1	Teaching aid at weekly practical.	A
27	Air-condition (Split type 2.0 HP and above)	5	Using daily in Laboratory	A
28	Safe Guard (any type)	5	Using daily in Laboratory	B
29	Generator 20 KW	1	Using daily in Laboratory	B
30	Laboratory Refrigerator	5	Using daily in Laboratory	A
31	Motor	2	Using daily in Laboratory	B
33	Steel shelves	3	Using daily in Laboratory	B
34	Lab table	1	Using daily in Laboratory	A
35	Side table	1	Using daily in Laboratory	A
36	Side table	1	Using daily in Laboratory	B
37	Lab chair	5	Using daily in Laboratory	A
38	Steel basin	1	Using daily in Laboratory	B

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39	Steel Sink tap	1	Using daily in Laboratory	B
40	Single Chamber Storage Refrigerator or Freezer	1	Using daily in Laboratory	B
41	Digital Balance	1	Using daily in Laboratory	A
42	Leaf area meter	1	Using daily in Laboratory	B
43	Lux meter	1	Using daily in Laboratory	B
44	Air compressor	1	Using daily in Laboratory	B
45	Digital camera	1	Using weekly in Laboratory	B
46	Quantum Light Meter	1	Using weekly in Laboratory	B
47	Vacuum Emasculator	1	Using daily in rice field practical	A
48	Silica gel	5 Package	Using weekly in Laboratory	A
49	Plastic measuring cup	5 sets	Teaching aid at weekly practical.	B
50	Plastic measuring cylinder	5 sets	Teaching aid at daily practical.	B
51	Plastic beaker	5 sets	Teaching aid at daily practical.	B
52	Desiccator (Vacuum)	2	Teaching aid at daily practical.	A
53	Petri dish	50	Teaching aid at daily practical.	A
54	Measuring vernier caliper	2	Teaching aid at weekly practical.	A
55	Magnifier	5	Teaching aid at daily practical.	B
56	Filter paper	3Boxes	Teaching aid at weekly practical.	B
57	Measuring tape	2	Teaching aid at daily practical.	A
58	Scissor	30	Teaching Aid at daily practical.	A
59	Forceps	30	Teaching Aid at daily practical.	A

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Name of Department: Department of Research Farm

First priority (Option-1): All complete set of meteorology instrument from Japan is available.

Second priority (Option-2): All set of digital agro-meteorology instrument.

RainWise Portable Weather Logger

The instruments record the following parameters:

- Wind Speed
- Wind Direction
- Temperature
- Humidity
- Dew Point
- Barometer
- Rainfall
- Solar radiation

Third priority (Option-3): Manual agro-meteorology instrument.

No.	Item	Unit	Frequency of Use	Priority
1	Evaporation Pan	1 Complete set	Daily records	A
2	Cup Counter Anemometer	1	Daily records	A
3	Wind Vane	1	Daily records	A
4	Maximum/Minimum Thermometer	1 set	Daily records	A
5	Stevenson screen 26" x 20" x 24" (WxDxH)	1	Daily records	A
6	Hygrometer	1	Daily records	A
7	Barometer	1	Daily records	A
8	Sunshine recorder	1	Daily records	A
9	Rain fall recorder	1	Daily records	A
10	Flux meter	1	Daily records	A
11	Digital soil temperature meter	1	Daily records	A
12	K14 In/Out Minimum and Maximum Thermometer	1	Daily records	B
13	Light intensity meter	5	Daily records	B
14	Green House			B

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Name of Department: Agricultural Chemistry

No	Name of Equipment	Q'ty	Frequency of Use	Priority
1	Atomic Absorption Spectrophotometer	1	weekly to monthly	A
2	Oil Content Tester (Multi sample Soxhlet Extraction Unit)	1	weekly to monthly	A
3	Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	1	weekly to monthly	A
4	Gas Chromatography (with different column)	1	weekly to monthly	A
5	Grinder (Soil, Plant)	1	weekly to monthly	A
6	Oven (0 - 120°C)	2	Daily to weekly	A
7	Auto Burette	2	Daily to weekly	A
8	Electrical Conductivity Meter	2	weekly to monthly	A
9	Muffle Furnace	1	weekly to monthly	A
10	Soil Sampling Apparatus	1 set	monthly	A
11	Water sampling and field analysis set	1 set	monthly	A
12	Casagrande's apparatus	5 set	weekly to monthly	A
13	Chlorophyll meter (SPAD meter)	2	Daily to Weekly	A
14	Tensiometer	5	weekly to monthly	A
15	Water Distillation Unit	1	Daily	A
16	Ultra-water distiller (Water purifying apparatus)	1	Daily	A
17	Deionizer	1	Daily	A
18	Refrigerated Centrifuge	1	weekly to monthly	A
19	Centrifuge, top loading	5	Daily to Weekly	A
20	Analytical Balance	2	Daily	A
21	Top Loading Balance	5	Daily	A
22	Vortex Mixer	10	Daily	A
23	Water Bath	3	Daily	A
24	pH Meter	2	Daily to Weekly	A
25	Incubator	2	Daily to Weekly	A
26	Magnetic Stirrer	10	Daily to Weekly	A
27	Laboratory Tables and Furniture	1 Lot	Daily	A
28	Glasswares	1 Lot	Daily	A
29	Refrigerator (for Chemical and Samples)	1	Daily	A
30	Deep Freezer	1	Daily	A

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No	Name of Equipment	Q'ty	Frequency of Use	Priority
31	Ice Making Machine	1	Daily	A
32	Fume Hood	1	Daily to Weekly	A
33	UV-Vis Spectrophotometer	1	Daily to Weekly	A
34	Digestion Block	3	Daily to Weekly	A
35	Wet Sieving Apparatus	1 set	weekly to monthly	A
36	Turbidimeter	2	weekly to monthly	A
37	Thermometers (100 °C and 300 °C)	5 each	Daily to weekly	A
38	Pan Evapometer (Class A Pan)	3	Daily to weekly	A
39	Cold Room (3 x 3 x 3 m); 10 °C	1	Daily to Weekly	A
40	Drying Shelf (Heating system with timer)	2	Daily to Weekly	A
41	Cupboard (Multistorey; Steel Body with Glass Slide Door; with Lock)	5	Daily to Weekly	A
42	Desktop Computer	5	Daily to Weekly	A
43	LCD Projector with Screen	1	Daily to Weekly	A
44	Green House	1	Daily to Weekly	A

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Name of Department: Agricultural Economics

No	Name of Equipment	Q'ty	Frequency of Use	Priority
1	Laptop computers	40	5 days per week	A
2	Color photocopier (all paper sizes)		5 days per week	A
3	Laser printer	2	5 days per week	B
4	scanner	2	5 days per week	B
5	LCD projectors and screens	5	5 days per week	A
6	Computer tables and chairs	40	5 days per week	A
7	Cameras	2	5 days per week	A
8	Video Cameras	1	5 days per week	B
9	Air Condition	4	5 days per week	A
10	Sound box system set	2	5 days per week	B
11	STATA software	1	5 days per week	A
12	EVIEW software	1	5 days per week	A
13	GTAP	1	5 days per week	A
14	GAMS	1	5 days per week	A
15	GPS	1	5 days per week	A
16	GIS	1	5 days per week	A
17	Fascimile	1	5 days per week	C
18	Room partition	3	5 days per week	C
19	White board	5	5 days per week	C

Name of Department: Entomology and Zoology

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1.	Water distiller	1 set	Daily	A
2.	Hot air sterilizer	1 set	Daily	A
3.	Top loading balance	1	Daily	A
4.	Water bath (Ultrasonic cleaning machine)	1	Daily	A
5.	Glass ware	1 lot	Daily	A
6.	Chemical reagent	1 lot	Daily	A
7.	Temp. humidity control room	1	Daily	A
8.	Incubator	4 sets	Daily	A
9.	Analytical balance	2	Daily	A
10.	Autoclave(vertical)	1	Weekly	A
11.	Electric Soil sterilizer (50L)	1		B
12.	Refrigerator	1	Daily	A
13.	Laboratory tables and furniture	1 lot	Daily	A

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14.	Fume hood	1 set	Daily	A
15.	Ocular Micrometer	5	Daily	A
16.	GPS	1	Monthly	A
17.	Dissecting sets	10	Daily	A
18.	Corning Volumetric pipettes Pipetvolumetric Pyrex	5 each	Daily	A
19.	HPLC	1 set	Weekly	A
20.	Rotator evaporatory	1 set	Weekly	A
21.	Glass ware for pesticide residue analysis	1 Lot	Weekly	A
22.	Drying Oven	1	Everyday	A
23.	Homogenizer	1 set	Weekly	A
24.	Nitrogen and Hydrogen gas cylinder	1 set	Weekly	A
25.	Reagent and Analytical standard Pesticides for residue analysis	1 Lot	Weekly	A
26.	Hot plate and magnetic stirrer	2	Weekly	A
27.	Pipetter filler	10	Daily	A
28.	Hamilton Repeating Dispenser plus a 10- µL microsyringe	1 pair	Daily	A
29.	Wire mesh screw cap vial	200	Daily	A
30.	40-1600X Binocular biological digital microscope USB connection to PC Integral Camera	1	Daily	A
31.	Clear tumbler cages	100	Daily	A
32.	PCR (Polymerase Chain Reachain) machine	1	Monthly	A
33.	Nano-drop (RNA/ DNA measurement)	1	Monthly	A
34.	UV light illuminator with digital camera	1	Monthly	A
35.	Lattex rubber gloves	1000	Monthly	A
36.	Deep freezer for storing reagents	1	Monthly	A
37.	High speed refrigerated centrifuge	1	Monthly	A
38.	1.5 ml plastic tubes	1000	Monthly	A
39.	QIAGEN RN easy Minikit Catalog no. 74/04	1	Monthly	A
40.	Purelink Genomic DNA kits Catalog no. K 1820-01	1	Monthly	A
41.	Smart Tag premix kit	1	Monthly	A
42.	1% agarose gel	1 Bottle	Monthly	A
43.	100 bp plus DNA ladder	1	Monthly	A
44.	Ethidium Bromide (for staining)	200 ml	Monthly	A
45.	Biological safety cabinet standard	21	Monthly	A
46.	Variable volume Micropipette	22	Monthly	A
47.	Tips for micropipette	1000	Monthly	A
48.	Spin column	1000	Monthly	A
49.	Agarose gel electrophoresis apparatus	1	Monthly	A
51.	Gel Platform and Cool Pack with combs	1	Monthly	A

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52.	Staining box	1	Monthly	A
54.	Safety glasses/goggles	5	Monthly	A
55.	Micro pestles	1	Monthly	A
56.	Vortex shaker	1	Monthly	A
57.	Micro centrifuge tubes	100	Monthly	A
58.	Reagents compatible with the DNA/RNA analysis	1 Lot	Monthly	A
59.	PCR tubes rack	5	Monthly	A
60.	Beaker (Different size)	1 Lot	Monthly	A
61.	Measuring cylinders	20	Monthly	A
62.	Light trap cage	10	Daily	B
63.	Collecting Jars	20	Daily	B
64.	Aspirator	10	Daily	A
65.	Hygrothermometer	5	Daily	B
66.	Photocopier	1	Daily	B
67.	Video Camera	1	Daily	B
68.	Malaise trap	2	Sometimes	B
69.	Sticky traps	200	Sometimes	B
70.	Test tube rack	20	Daily	A
71.	Rack	10	Daily	B
72.	Petridish (Different size)	1 Lot	Daily	B
73.	Entomological Pins (Different Size)	1 Lot	Daily	A
74.	Frog Dissected Model	1	Daily	A
75.	Slide Storage Rack	20	Daily	A
76.	Insect Magnifying Bottle	10	Daily	A
77.	Insect rearing cage	10	Daily	A
78.	Insect net	10		A

Name of Department: Entomology and Zoology (General purpose and office use)

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1.	LCD projector	1	daily	A
2.	Photocopier (Canon iRC 2880)	1	daily	B
3.	Computer (Laptop)	2	daily	A
4.	Digital camera	1	frequent	A
5.	Air Conditioner	3	Daily	A
6.	Green House	1		B

Name of Department: Plant Pathology (Molecular Biology Lab)

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1	DNA thermal cycler and accessories for PCR	1	Weekly	A

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2	Electrophoresis systems and supplies	1	Weekly	A
3	Refrigerated micro centrifuge (250-1400 rpm)	1	Weekly	A
4	Ultra low temperature freezer (-40°C to -80°C)	1	Weekly	A
5	Micropipette (0-25µl) and micropipette tips (5 packs)	5 & 5 packs	Weekly	A
6	Micropipette (20-200µl) and micropipette tips (5 packs)	5 & 5 packs	Weekly	A
7	Micropipette (100-500µl) and micropipette tips (5 packs)	5 & 5 packs	Weekly	A
8	DNA isolation kit (for fungi, bacteria, nematodes and viruses)	each 3	Weekly	A
9	Vortex (× 2)	2	Weekly	A
10	DNA auto-sequencer	1	Weekly	A
11	Vacuum pump	1	Weekly	A
12	UV Trans-illuminator	1	Weekly	A
13	Supplies and reagents for PCR (5)	1	Weekly	A
14	Gel dryer	1	Weekly	A
15	Instant gel camera	1	Weekly	A
16	Step one real time PCR and accessories supply	1	Weekly	A
17	SYBR green master mix (10 packs)	1	Weekly	A
18	Specific primers for check	1	Weekly	A
19	Gene quant 100 (for optical density)	1	Weekly	A
20	pH meter	1	Weekly	A
21	EC meter	1	Weekly	A
22	ATP photometer	1	Weekly	A
23	Monofas DNA purification kit	1	Weekly	B
24	Sonicator	1	Weekly	B
25	Agarose gel powder (100g)	2	Weekly	A
26	Ethanol (10 bottles)	10 bottles	Weekly	B
27	Chloroform	10 bottles	Weekly	B
28	Glass bead and zarconia bead	10 bottles	Weekly	A
29	Isoproponal	10 bottles	Weekly	B
30	Water Distiller	1		A
31	Deionizer	1		A

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32	Analytical Balance	1		A
33	Top Loading Balance	5		A
34	Refrigerator (for storing chemicals & samples)	2		A
35	Deep Freezer	1		A
36	Ice Making Machine	1		A
37	Hot Air Sterilizer	1		A
38	Fume Hood	1		A
39	Glassware	1		A
40	Laboratory Tables and Furniture			A
41	Laminar Flow (Clean Bench)	1		A
42	Stirrer	10		A
43	Shaker	5		A
44	Vortex Mixer	20		A
45	Refrigerated Centrifuge	1		A
46	PCR Machine	1		A
47	Electrophoresis System and Supply	2		A

Name of Department: Plant Pathology (Plant Disease Diagnosis Lab)

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1	Binocular Microscope	30	Daily	A
2	Plant growth chamber	2	Daily	A
3	Autoclave (vertical)	1	Daily	A
4	Portable autoclave (35 L)	1	Daily	B
5	Laminar flow	1	Daily	A
6	Binocular microscope with digital camera attached and software included	1	Daily	A
7	Electric Soil sterilizer (50L)	1	Weekly	A
8	CCD camera with multi-adapter and software driver	1	Weekly	A
9	Colorimeter	1	Weekly	A
10	Haemocytometer	2	Weekly	A
11	Ocular micrometer	10	Weekly	A
12	Hot plate and magnetic stirrer	2	Weekly	A
13	Petri dishes (Glass- 9cm)	1000	Daily	B
14	Water distiller (steel)	1	Weekly	B
15	Hot water bath (10 L)	1	Weekly	B
16	Shaker (Chamber type)	1	Weekly	B
17	Colony counter	1	Weekly	A
18	Camera	1	Weekly	B
19	Video camera	1	Weekly	B
20	Hot Air Sterilizer	1		A
21	Drying Oven	1		A

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22	Vortex Mixer (Test tube shaker)	10		A
23	Ice Making Machine	1		A
24	Centrifuge	1		A
25	Glassware	1		A
26	Laboratory Table and Furniture	1		A
27	Magnetic Stirrer	10		A
28	Green House with equipment			A

Name of Department: Agricultural Engineering

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
Land Survey Instruments				
1	Digital Total Station and Accessories (Reflectorless)	5		A
2	Reflector Set (for Total Station)	5		A
3	Digital Theodolite and Accessories	5		A
4	Digital Auto Level and Accessories	5		A
5	Surveying Compass (with Accessories)	5		A
6	Digital Pointfinder (Distance meter)	10		A
7	Clinometer	10		B
8	Differential GPS Instrument (Base and Rover Unit)	2		A
9	Line Laser Level (height/depth)	5		B
10	GIS Data Collection Equipment and Software	10		A
11	GPS Tracking System Equipment	10		A
12	Plane Table and Accessories (Pole, Tripod, Staff, Sight rule, Plumbing fork and Sprit Level)	10		B
13	Laboratory Tables and Furniture	1 lot		A
Tractor and Equipments				
14	Tractors	5		A
15	Disc Plough, Rotary Cultivator	3 each		A
16	Rice Transplanter	5		A
17	Thresher	2		A
18	Combine Harvester and Mill Machine	1 each		A
19	Sprayer	2		A
20	Seed Drill	1		A
Laboratory Equipment				
21	Prototypes for Engine and Components (cross-section)	10		A
22	Testing Tools (for Engine)	10		A
23	Electric/Electronic Testing Tools	10		A

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24	Measuring Instruments	10		A
25	Water Measuring Instruments	5		A
26	Digital Camera and DV Cam	2+1		A
Teaching Aids				
27	Computer & Accessories	4+1		A
28	Projector and Board (overhead/stand)	1		A
29	Teaching Aid Instruments			A
30	Laser Printer	2		A
31	Digital Copier	1		A
32	Scanner	1		A
Research and Development				
33	Workshop with Equipment and Instruments	1		A
34	Air-conditioning System	6		A
35	Engineering Drawing Kit	1		A
36	Rotary Tiller	5		A

Name of Department: Animal Science

No.	Name of Equipment	Q'ty	Frequency of use	Priority
1	Dairy cattle housing for 10 dairy cattle	1 set		A
2	Battery Cage housing and equipment for 200 layers	1 set		A
3	Pig housing and equipment for 20 pigs	1 set		A
4	Overhead Water-tank	1		A
5	Small scale feed mill	1set		A
6	Equipment for proximate analysis of feed	1		B
7	Incubator	1		C
8	Deep freezer	1		B
9	Computer and printer	1 set		B
10	Egg candler	2		C
11	Laptop	1		A
12	Digital balance (small, medium & large)	3		A
13	Digital video camera	1		C
14	Dissecting tray	2 set		B
15	White board (4ft x 8 ft)	2		B
16	LCD projector	1 set		C
17	Lactometer	20		B
18	wing band for marking in poultry	1000		B
19	leg band for marking in poultry	1000		B
20	ear notcher for marking swine	20		B
21	tail tags for marking in cattle	500		B
22	ear tags for marking in cattle and swine	500		B
23	Debeaking machine for debeaking chick	5		C
24	Stethoscope	20		B

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25	Update references and text-books for large ruminants, small ruminants, poultry and swine	1 lot		A
26	Soft copy for improved systems for livestock and poultry production	1 lot		A
27	Dairy cattle	10		A
28	Poultry layers	200		A
29	Pig	20		A
30	Laboratory table and furniture	1 Lot		A
31	Glassware for laboratory	1 lot		A

Name of Department: Agronomy

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
Seed Laboratory				
1.	Grain moisture tester	5	frequently	A
2.	CSC infrared moisture balance	1	weekly	B
3.	All-purpose laboratory ovens	2	frequently	A
4.	Digital electronic thermometer	5	frequently	A
5.	hay sampler kit	2	frequently	A
6.	desiccators and Drierite indicating desiccant	5	frequently	A
7.	electric grinding mill	1	weekly	A
8.	Battery operated ultraviolet lamp	2	frequently	A
9.	Aflatoxin, vomitoxin and fumonisin test kits	2	rarely	C
10.	Alpha amylase testing	2	frequently	A
11.	Easi-way portable hectoliter test weight kit	3	frequently	B
12.	hand type density testers	1	weekly	A
13.	computer grain scale	1	frequently	
14.	grain probes	3	frequently	B
15.	Grain sampling canvas	10	daily	
16.	pneumatic sampling systems	1	frequently	C
17.	precision divider	1	weekly	A
18.	Dockage tester and sieves	1	frequently	A

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19	Sieve shaker	2	frequently	A
20	select germinator	2	frequently	B
21	germination paper	10	frequently	A
22	germination blotters	10	frequently	A
23	Analytical dishes	1	frequently	B
24.	Seed containers	1	frequently	A
25.	Seed measures	5		B
26.	inverted display bottles	100	frequently	A
27.	Shelving units	2	frequently	B
28.	Heavy duty utility carts	2	frequently	B
29.	seed counters	2	weekly	A
30.	hygrothermograph	2	frequently	A
31.	portable dual-purpose scopes	5	frequently	A
32.	counting and placement trays	5	frequently	A
33.	tetrazolium powder	2	weekly	A
34.	Seed storage room dehumidifier	1	daily	A
35.	electric seed scarifier	2	weekly	B
36.	gravity separator	1	frequently	A
37.	Laboratory model centriccoater	1	frequently	C
38.	table mounted electronic packer	1	weekly	C
39.	Laboratory seed and grain dryer	1	frequently	A
40.	Port-a-pic grain inspection table	2	frequently	A
41.	Custom brass sieves	10	weekly	B
42.	forceps	30		
43.	De-stoner	1	frequently	A
44.	Triangular Sample Pans	10	frequently	B

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45.	Half gallon and gallon Containers	10	frequently	A
46.	Spouted sample pans	5	weekly	C
47.	Bag Sealers	1	rarely	C
48.	Polyethylene Grain Sample Bags	100	frequently	A
49.	UV-VIS Spectrophotometer	1	frequently	A
50.	Gas Chromatograph	1	rarely	C
51.	Freeze Dryer	1	rarely	C
52.	Hot Water Bath	2	daily	A
53.	20L Rotary Evaporator	1	weekly	A
54.	Hot plate magnetic stirrer	2	frequently	A
55.	Laboratory refrigerated centrifuge	1	weekly	B
56.	Storage cabinets	2	frequently	A
57.	Harvest monitor	2	weekly	B
58.	Near Infrared component analyzer	1	frequently	A
59.	Single grain inspector	1	frequently	A
60.	Rice freshness tester	1	frequently	B
61.	Grain crusher	1	weekly	B
62.	Laboratory fume hood	1	frequently	A
63.	Lab stools	20	frequently	B
64.	First aid kit	1		A
65.	Grain & feed safety signs	1	frequently	A
66.	Cool room for seed storage	1	frequently	A
67.	Air conditioner	2	frequently	A
68.	Computer and its accessories	3	frequently	A
69.	Vortex mixture		frequently	A
70.	Micropipettes	4	daily	A

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71.	Photometric Colorimeter	1	frequent	A
72.	Water Distiller	1	frequent	A
73.	Deionizer	1	frequent	A
74.	pH Meter	3	frequent	A
75.	Autoclave	1	frequent	A
76.	Hot Air Sterilizer	2	frequent	A
77.	Analytical Balance	2	frequent	A
78.	Top Loading Balance	5	frequent	A
79.	Refrigerator (for storing chemicals and sample)	1	frequent	A
80.	Deep Freezer	1	frequent	A
81.	Glassware	1	frequent	A
82.	Laboratory Tables and Furniture	1	frequent	A
Crop Physiology				
1.	Plant Growth Chamber	1	Frequent	A
2.	Brix Hand Refractometer	5	Frequent	A
3.	Soil Moisture Meter	5	Frequent	A
4.	Soil pH Meter	5	Frequent	A
5.	Minolta Chlorophyll Meter	5	Frequent	A
6.	Potable Leaf Area Meter	1	Frequent	A
7.	Photosynthesis Meter	1	Frequent	A
8.	Solar power meter (Potable type)	3	Frequent	A
9.	Operation Manual for temperature and humidity meter (Potable type)	3	Frequent	A
10.	Animometer (Potable type)	3	Frequent	A
11.	Rain Gauge (Potable type)	3	Frequent	A
12.	pH conductivity meter (Potable type)	3	Frequent	A
13.	Water Distiller	1	Frequent	A
14.	Glassware	1	Frequent	A
15.	Laboratory Tables and Furniture	1	Frequent	A
16.	Refrigerator (for samples and reagents)	1	Frequent	A
17.	Top Loading Balance	2	Frequent	A
18.	Drying Oven	1	Frequent	A
19.	Autoclave	1	Frequent	A
20.	Hot Air Sterilizer	1	Frequent	A
21.	Small Green House	1	Frequent	A
General purpose and office use				
1.	LCD projector	1	daily	A
2.	Photocopier	1	daily	B
3.	Computer	2	daily	A
4.	Video camera	1	frequent	A
5.	Digital Camera	1	frequent	A
6.	Air Conditioner	3	daily	A
7.	Green House	1		B

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Name of Department: Horticulture

No.	Name	Q'ty	Frequency of Use	Priority
1.	Drip Irrigation System	1 set	High	A
2.	Sprinkler/mist Irrigation System	2 sets	High	A
3.	Chlorophyll Meter	1	Medium	B
4.	On-table Pressure Bomb	1	Medium	A
5.	Light/ Lux meter	2	High	A
6.	Tensiometer (6 inches depth)	1	High	A
7.	Tensiometer (18 inches depth)	1	High	A
8.	Pectinase Cellulase Enzyme	10 L	Medium	B
9.	Power tiller	1	High	A
10.	Budding knives and grafting knives	30	High	A
11.	Secateurs	30	High	A
12.	Plant growth chamber	2	High	A
13.	Plant growth chamber	1	Medium	A
14.	Steel Cabinet	4	High	A
15.	Photocopier (Canon iRC 2880)	1	High	
16.	Air conditioner/ air cooler	3	High	A
17.	Digital Balance (60 kg)	1 set	Medium	A
18.	Cold storage facilities	1 set	frequently	B
19.	Woodchipper	1	medium	B
20.	Soil sterilizer	2	high	
21.	Chemical protective safety suit	4 sets	high	A
22.	Flammable storage cabinet	1	high	A
23.	Cylinder storage cabinet	1	high	A
24.	Poly Acid/ Corrosive Cabinet	1	high	A
25.	Green House	1	High	B
1.	Water Distiller	1 set	High	A
2.	Deionizer	1 set	High	A
3.	Drying Oven	3 sets	High	A
4.	Autoclave	1 set	High	A
5.	Hot Air Sterilizer	1 set	High	A
6.	Incubator	2 sets	High	A
7.	Vortex Mixer	5 sets	High	A
8.	Water Bath	2 sets	High	A
9.	Refrigerator	1 set	High	A
10.	Deep freezer	1 set	High	A
11.	Ice making Machine	1 set	High	A
12.	Laboratory Table and Furniture	1 lot	High	A
13.	Analytical Balance	2 sets	High	A
14.	Top Loading Balance	3 sets	High	A

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15.	Refrigerated Centrifuge	1 set	High	A
16.	Table-top Centrifuge	3 sets	High	A
17.	Laminar Flow (Clean Bench)	5 sets	High	A
18.	Standard PCR	2 sets	High	A
19.	Real Time PCR	1 set	High	B
20.	Electrophoresis system with Power Supply	2 set	High	A
21.	UV image recorder and printer	2 set	High	A
22.	Liquid nitrogen +Dewar transport container	5 sets	Medium	A
23.	Milling system	1 set	Medium	A
24.	Heating block	1 set	Medium	A
25.	Nano-drop Photometer with Cuvette	1 set	Medium	A
26.	Gel Electrophoresis system	2 sets	Medium	A
27.	UV Gel detection system with camera	2 sets	Medium	A
28.	Incubator with shaking function	2 sets	Medium	B
29.	Tissue culture roller drum	2 sets (one for each option)	High	A
30.	Automatic pipette washer	1	High	A
31.	Automatic glassware washer	1	High	A
32.	Pipette holder	3	High	A
33.	Orbital shaker	3sets	High	A
34.	Medium dispenser		High	A
35.	Filter sterilization unit with complete accessories	1	High	A
36.	Laboratory Vacuum pump	1	High	A
37.	Generator	1	High	A
38.	Ultrasonic cleaner	1	High	A
39.	Electric digital timer	10	High	A
40.	Micropipette holder		High	A
41.	Tips for micropipettes	5 packs	High	A
42.	Hotplate with Magnetic stirrer (including magnetic bar and Stirring bar retriever)	5 sets	High	A
43.	Safety laboratory apparatus	2 sets	High	A
44.	Ergonomic Lab chair	10	High	A
45.	Acclimatization room and facilities for plant tissue culture laboratory	1unit	High	A
46.	Glass wares for plant tissue culture lab	1 lot	High	A
47.	Chemicals for TC lab	1 lot	High	A
48.	Research stereo Microscope	1	High	A

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49.	Biosafety cabinet	1	Medium	A
50.	Humidifier	2	High	A
1.	TDR (Time Domain Refractometry)	1	Medium	A
2.	Plant moisture stress (PMS) analyzer	1	Medium	A
3.	Thermo Hygrometer (Extech Humidity and Temperature Datalogger)	2	High	A
9.	Vernier Caliper	10	High	A
10.	Multi-parameter for pH/ temperature/ conductivity of soil	2	High	A
11.	Photosynthesis Yield Analyzer (miniPPM, WALZ)	1	High	A
12.	Portable Leaf area meter	1	High	A
1.	Refractometer	10		
1-a	Digital hand-held pocket refractometer	2	High	A
1-b	Digital hand-held pocket refractometer	2	High	A
1-c	hand-held refractometer	2	High	A
1-d	hand-held refractometer	2	High	A
1-e	hand-held analog refractometer	2	High	A
2.	Dial Fruit Pressure Tester	2	High	A
3.	Fruit Juice Extractor	2	High	A
4.	Hand-held pH/ conductivity meter	1	High	A
5.	Gas Chromatographs (TCD)	1	Medium	A
6.	Gas Chromatographs (FID)	1	Medium	A
7.	UV-VIS Spectrophotometer	1	Medium	A
8.	Rotary Evaporator	1	Medium	A
9.	Total acidity mini titrator and pH meter	1	High	A

Name of Department: (General Equipment)

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1	Transport facilities - 5 Buses for Student and staff excursion /Study Tour	5	Daily/Weekly	A
2	Auto backup generator	1	Daily/Weekly	A
3	Library facilities - Text Books and Journals (Both printed version and on-line)			A
4	Facilities for student affairs and examination Sections (Computers and Software eg student registration, enrollment for specific course)	1 package	Daily/Weekly	A

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5	Main Server-Internet facilities	1 lot	Daily	A
6	Intercom facilities 100 Lines (Inter-Departmental communications)	1 set	Daily	A
7	Air-conditioning for Auditorium (500 seats) and 3 lecture theaters	6 10	Daily/Weekly Daily/Weekly	A A
8	Audio-Visual Equipment for new Library	1 set	Weekly	A

Name of Department: General Equipment for existing Auditorium /Lecture Theater

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1	AMPLIFIER N S.200 W	3	Every Weekday	A
2	12" SPEAKER BOX	12	Every Weekday	A
3	WIRELESS MIC	3	Every Weekday	A
4	SOUND BOX WIRE	3	Every Weekday	A
5	MEC TRONIC SAFEGUARD	3	Every Weekday	A
6	COOLING FAN	3	Every Weekday	A
7	NPE XL 1200 AMPLIFIER	2	Every Weekday	A
8	15" x 2 SPEAKER BOX	2	Every Weekday	A
9	18" SPEAKER BOX	2	Every Weekday	A
10	TREWEETER	2	Every Weekday	A
11	MIXER SX2442 MODEL	1	Every Weekday	A
12	BOX CABLE	2	Every Weekday	A
13	MIC WIRE 1 BOX	1	Every Weekday	A
14	MIC JECK	6	Every Weekday	A
15	MIC CONNEETOR	1	Every Weekday	A
16	SHURE MIC	3	Every Weekday	A
17	MIC STAND	2	Every Weekday	A
18	MEC TRONIC	2	Every Weekday	A

Name of Department: University Library

No.	Name of Equipment	Q'ty	Frequency of Use	Priority
1	Auto Book Scanner	1		A
2	Barcode Scanner	2		A
3	External Hard Disk	2		A
4	Server Computer	1		B
5	Office Copier	2		B
6	Inverter UPS and Battery	1 set		A

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REQUESTED LIST OF NEW BOOKS - YAU LIBRARY

No.	Title	Q'ty	Edition	Priority
1	Books for Agronomy	1 Lot		A
2	Books for Agricultural Botany	1 Lot		A
3	Books for Agricultural Chemistry	1 Lot		A
4	Books for Animal Science	1 Lot		A
5	Books for Plant Pathology	1 Lot		A
6	Books for Entomology	1 Lot		A
7	Books for Agricultural Economics	1 Lot		A
8	Books for Horticulture	1 Lot		A
9	Books for Agricultural Engineering	1 Lot		A
10	Books for Agricultural Mathematics	1 Lot		A
11	Books for Agricultural Physics	1 Lot		A
12	Books for Learning English Language	1 Lot		A
13	Books for Biotechnology	1 Lot		A
14	Books for Molecular Biology	1 Lot		A
15	Books for Sustainable Agriculture	1 Lot		A
16	Books for Computer Science	1 Lot		A
17	Books for Environmental Science	1 Lot		A
18	LanTTEAL2.0 Yearly Update(The Essential Electronic Agricultural Library)	Yearly		A
19	Statistical Software			A
20	Reference Manager			A
21	Library Furniture	1 Lot		A

Equipment for DOA

1. Equipment for Central Agricultural Research and Training Center (CARTC) 1 lot
2. Equipment for Vegetable and Fruit Research and Development Center (VFRDC) 1 lot

Equipment for DAR

1. Equipment for Seed Bank and other departments 1 lot

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