CHAPTER 4
PROJECT EVALUATION AND RECOMMENDATION

CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATION

4.1 Project Effect

The implementation of the Project under the Grant Aid is judged viable for the following reasons :

(1) The beneficiaries of the Project are the small scale farmers with their families and agricultural extension staffs participating in the trainings of the Mukono DFI. With the project implementation , crop diversification and increase of agricultural productivity are expected in farms of trainee-farmers and their surrounding farmers in addition to contact farmers in the present agricultural extension system. The total number of the trainee-farmers is estimated to be 520 including the residential trainees of 160, whereas the number of extension staffs' trainee is 340 and that of the non-agricultural trainees is 1,200. Direct beneficiaries, therefore, is expected to be about 2,000 per year in total.

Farmers surrounding the trainee-farmers can be benefited indirectly by influence of trainee-farmers' performance supported by the extension staffs. When a trainee-farmer has 10 farmers in his group or neighbours, 1,600 farmers are added to the beneficiaries of the Mukono DFI. Accordingly, approximately 10 percent of 146,000, the total number of farm households in Mukono District , will be covered for 10 years.

(2) In Mukono District approximately 75 percent of the farm households belong to the small scale farmers with the land possession of less than 2 hectares. By the proposed linkage of extension staff and small scale trainee-farmers, the crop diversification and productivity increase will be attained , which will bring about activation of rural market activities , increase in employment opportunities. In addition, the Project encourages the improvement of social status of rural women through the income generating activities such as chicken and rabbit keeping.

(3) Thirty seven (37) years have passed since the Mukono DFI was established in 1960 and the buildings and facilities have been superannuated in most cases and some of them are in dangerous status. The existing water facilities can no longer guarantee the quality nor supply the necessary amount of water. By the improvement of buildings and its facilities, training environment will be dramatically improved.

(4) The project will improve present training farm, farm access road, irrigation facility and livestock farm in order to execute practical farm training and farm demonstration and increase farm production in the training farm. By the production increase, the net benefit of farm product will increase to be more than 8.5 times than present one, from the current Ush 13 million to 113 million. This income generation will enable to cover farmers' training cost and part of O&M cost of constructed facilities and procured equipment.

(5) The Department of Agricultural Extension (DAE), the implementing agency of the Project, has been in charge of all the agricultural extension activities and DFI in national level. DAE has been involved in the renovation of 5 DFIs in the past. It is judged from a view-point of the project scale that DAE can manage and implement the project under Japan's grant aid scheme.

(6) DAE intends to renovate superannuated facilities of the DFI, including Masaka DFI, in the country. The Mukono DFI's improvement with the project will have a great impact on the other DFIs' improvement and management as a model case, since the Mukono DFI is located in central part of the country and close to the capital, Kampala and functions as the center of nation-wide DFI.

(7) As the Project mainly focuses on the crop diversification, raise of productivity and the living standard of the small farmers, the Project harmonize well with the national program "Medium-Term Plan for Modernization of Agriculture (MTPMA)".

4.2 Recommendation

It is concluded, as a result of the field investigation in Uganda and analyses in Japan, that the implementation of the Project is suitable and viable for Japan's Grant Aid. The study results proves that the project will significantly contribute both to the small scale farmers through their income generation and to the national economy by the increase in food supply and the diversification of crop production. This will lead to stabilization of public welfare in Uganda.

GOU and MAAIF faces budgetary constraints recently, however, the DAE's continuous support to the Mukono DFI is inevitable in terms of finance and technology though the Mukono DFI will adopt partial self-accounting system. The farmers' trainings will be opened by MAAIF, however, the Mukono DFI has no experience of the farmers' training. Accordingly, it is necessary for MAAIF to arrange more strong linkage between the DFI and the Mukono agricultural district office.

Under the Japan's Grant Aid Scheme, Japanese nationals regarding to the project implementation shall be exempted from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services. In Uganda, however, the amount imposed for the duties, the taxes and the levies on the Japanese nationals shall be paid by the executing agency. Accordingly, MAAIF, as the executing agency of the project, must prepare the budget for tax exemption to the Japanese nationals and disburse required amount to tax offices promptly whenever required.

Judging from the circumstances around the project, it is expected that the project will be implemented smoothly and effectively with due consideration to and realization of following commitment by the concerned parties :

(1) To carry out land acquisition for the site of the pump house and its pipeline located outside of present DFI's land in line with the implementation schedule,

(2) To install the three phase electric line to the existing transformer point within the DFI's land. And, to install a wooden fencing around the grazing land,

(3) To prepare the budget for tax exemption to the Japanese nationals and disburse required amount to tax offices promptly whenever required.

(4) To establish a project management system including project management office not only for construction but also for O&M period and to prepare the budget required for its operation. For the first year of implementation, in particular, it is necessary to obtain at least Ush 9.7 million in order to start partial self-accounting system. The net reserve gained by the Mukono DFI through the training and the agricultural production activities must be secured for the O&M cost for the following year.

Tables

Table 2.2.1 Future Training Program in Mukono DFI (1/2)

(1) First Year Target after Farm Development

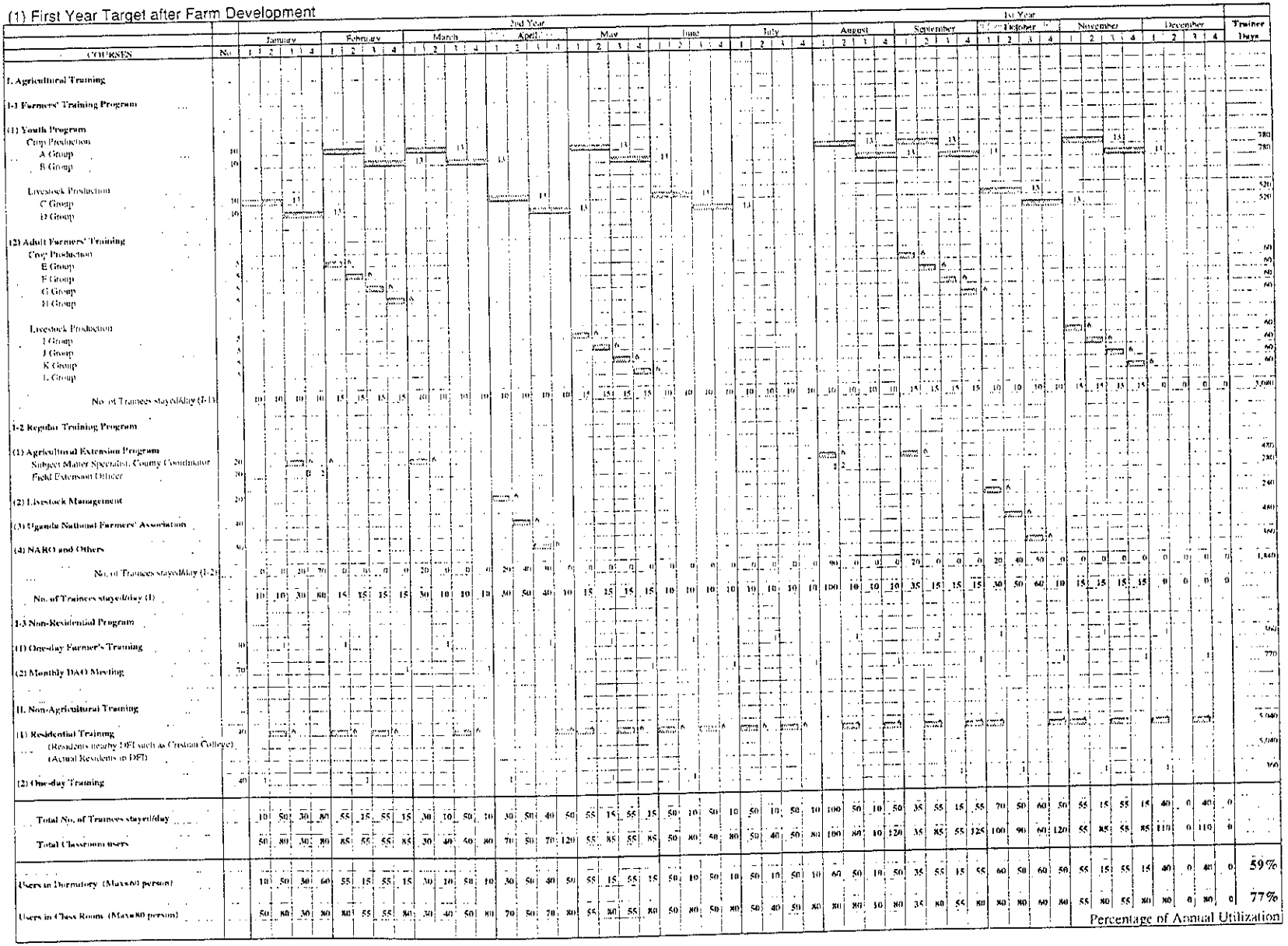


Table 2.2.1 Future Training Program in Mukono DFI (2/2)

(2) Final Target (5th Year after Farm Development)

COURSES	No.	January				February				March				April				May				June				July				August				September				October				November				December				Trainee Days
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
I. Agricultural Training																																																		
1-1 Farmers' Training Program																																																		
(1) Youth Program																																																		
Crop Production																																																		
A Group	20			13				13				13												13				13				13																				1,560
B Group	20				13				13				13												13				13				13																		1,560
Livestock Production																																																		
C Group	20															13				13																															1,040
D Group	20																13				13																														1,040
(2) Adult Farmers' Training																																																		
Crop Production																																																		
E Group	10																																																	120
F Group	10																																																	120
G Group	10																																																	120
H Group	10																																																	120
Livestock Production																																																		
I Group	10																																																	120
J Group	10																																																	120
K Group	10																																																	120
L Group	10																																																	120
No. of Trainees stayed/day (1-1)		20	20	20	20	30	30	30	30	20	20	20	20	20	20	20	20	30	30	30	30	20	20	20	20	20	20	20	20	40	30	30	30	20	20	20	20	0	0	0	0	30	30	30	30	0	0	0	0	6,160
1-2 Regular Training Program																																																		
(1) Agricultural Extension Program																																																		
Subject Matter Specialist, County Coordinator	20																																																	480
Field Extension Officer	70																																																	280
(2) Livestock Management	20																																																	240
(3) Uganda National Farmers' Association	40																																																	480
(4) NARO and Others	30																																																	360
No. of Trainees stayed/day (1-2)		0	0	20	20	0	0	0	0	20	0	0	0	20	20	30	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	0	20	0	0	0	70	40	30	0	0	0	0	0	0	0	0	0	1,840
No. of Trainees stayed/day (1)		20	20	40	40	30	30	30	30	40	20	20	20	40	40	50	20	30	30	30	30	20	20	20	20	20	20	20	20	120	30	30	30	40	20	20	20	20	40	30	0	30	30	30	30	0	0	0	0	
1-3 Non-Residential Program																																																		
(1) One-day Farmer's Training	30		1				1				1				1				1				1				1				1				1				1				1							360
(2) Monthly DAO Meeting	70							1					1				1				1				1				1				1				1				1				1			770
II. Non-Agricultural Training																																																	
(1) Residential Training	40																																																	5,040
(Residents nearby DFI such as Crediam College)																																																	4,040
(Actual Residents in DFI)																																																	1,000
(2) One-day Training	40		1				1				1				1				1				1				1				1				1				1				1							360
Total No. of Trainees stayed/day		20	60	40	90	30	30	30	30	40	60	60	60	40	60	50	60	30	30	30	30	60	60	60	60	60	60	60	60	120	30	30	30	40	60	60	60	60	80	30	60	30	30	30	30	40	40	40	0	
Total Classroom users		60	90	40	90	60	70	30	100	40	90	60	130	80	60	80	130	30	100	30	100	60	130	60	130	60	90	60	130	120	60	30	100	40	90	100	130	90	80	30	110	30	100	30	100	110	40	110	0	
Users in Dormitory (Max=60 person)		20	60	40	60	30	30	30	30	40	60	60	60	40	60	50	60	30	30	30	30	60	60	60	60	60	60	60	60	60	30	30	30	40	60	60	60	60	40	30	30	30	30	30	30	40	40	40	0	73%
Users in Class Room (Max=80 person)		60	80	40	80	60	70	30	80	40	80	60	80	80	60	80	80	30	80	30	80	60	80	60	80	60	80	60	80	80	60	30	80	40	80	80	80	80	80	30	80	30	80	80	40	80	0	80%

Percentage of Annual Utilization

Table 2.2.2 Subjects for Farmer's Training Programs by Product and County (1/2)

(1) Subjects by Product

Crops	Subjects
1. Coffee	Management - weeding, pruning, desuckering stumping
	Use of clonal variety
	Pest and disease control
	Quality control - pre and post harvest technical storage
2. Ground nuts	Variety selection
	Timely planting
	Spacing
	Pest and disease control
3. Sweet potato	Variety selection
	Vine cutting for planting
	Ridging
	Spacing
	Pest and disease control
4. Cassava	Variety selection
	Stem (size) preparation
	Spacing
	Planting techniques
	Pest and disease control
5. Banana	Variety selection
	Land preparation
	Spacing
	Hole digging
	Sucker preparation
	Pest and disease control
	Planting
	Management weeding, mulching, desuckering, pruning
6. Horticultural production	For tomato, pineapple and vegetable production and passion fruit
	Variety selection
	Seed preparation
	Nursery management
	Spacing
	Planting techniques
	Pest and disease control
	Other management practices
7. Beans	Variety selection
	Spacing
	Land preparation
	Management practices, weeding
	Pest and disease control
	Storage

Table 2.2.2 Subjects for Farmer's Training Programs by Product and County (2/2)

Crops	Subjects
8. Agro - forestry	Nursery establishment
	Nursery management
	Seedling production
9. Dairy	Breed selection
	Housing
	Pasture establishment and management
	Parasite and disease control
	Nutrition
	Record keeping
10. Piggery	Breed selection
	Housing
	Nutrition
	Parasite and disease control
	Record Keeping
11. Poultry	Housing
	Nutrition
	Parasite and disease management
	Record keeping
12. Processing and preservation of fish	
	Smoking
	Sun drying
	Salting
	Comparison of techniques
	Structures for preservation

(2) By county

Name of County	Potential Products
1. Mukono	coffee, horticulture, maize, banana, cassava, dairy, piggery, poultry
2. Nakibuma	coffee, horticulture, maize, banana, cassava, poultry, diary, piggery
3. Ntenjeru	dairy, coffee, banana, pineapples, cassava
4. Bbaale	coffee, ground nuts, sweet potato, cassava, agro-forestry
5. Buvuma	banana, sweet potato, beans, processing and preservation of fish
6. Buyikwe	coffee, horticulture, banana, cassava, dairy, piggery, poultry
	horticulture (tomato, vegetable, pineapple, passion fruit)

Table 2.2.3 Agricultural Production Plan in Mukono DFI

(1) Final Target (5th Year after Farm Development)

Item	Area/Capacity Quantity	Unit	Production Quantity	Unit	Unit Price (Ush/)	Gross Income (Ush'000)	Production Cost Unit Cost (Ush)	Unit	Total (Ush'000)	Net Income (Ush'000)	Net Benefit/ Cost
1. Nursery Production						101,000			45,390	55,610	1.23
Mango, Citrus, Avocado	600	m2	20,000	Seedlings	2,000	40,000	32,500	m2	19,500	20,500	1.05
Passion fruit	300	m2	10,000	Seedlings	1,000	10,000	11,300	m2	3,390	6,610	1.95
Coffee	1,100	m2	100,000	Seedlings	500	50,000	20,000	m2	22,000	28,000	1.27
Cocoa	500		20,000	Seedlings	50	1,000	1,000	m2	500	500	1.00
2. Field Crops						48,571			14,712	33,859	2.30
Maize	11.4	ha	43.3	ton	300,000	12,996	643,000	ha	7,330	5,666	0.77
Soybeans	0.5	ha	0.9	ton	350,000	315	404,000	ha	202	113	0.56
Tomato	1.0	ha	10.0	ton	1,000,000	10,000	1,905,000	ha	1,905	8,095	4.25
Cabbage	1.0	ha	15.0	ton	700,000	10,500	1,457,000	ha	1,457	9,043	6.21
Onion	1.0	ha	7.0	ton	1,000,000	7,000	1,398,000	ha	1,398	5,602	4.01
Local vegetables	1.0	ha	10.0	ton	500,000	5,000	1,587,000	ha	1,587	3,413	2.15
Coffee	0.8	ha	1.2	ton	800,000	960	426,000	ha	341	619	1.82
Pashion fruits	0.3	ha	4.5	ton	400,000	1,800	1,640,000	ha	492	1,308	2.66
3.Livestock						54,835			30,758	24,107	0.78
Poultry											
Hatchery			20,000	Chicks	800	16,000			4,902	11,098	2.26
Layers			126,000	Eggs	100	12,600			10,868	2,982	0.27
			500	Off layers	2,500	1,250					
Broiler			2,250	Broiler	3,500	7,875			6,319	1,556	0.25
Diary			21,380	Lit.	500	10,690			5,450	6,140	1.13
			6	Calves	150,000	900					
Piggery			144	Weaner pig	25,000	3,600			2,244	1,656	0.74
			3	Cull sow/boar	100,000	300					
Rabbit			162	Rabbit	10,000	1,620			975	675	0.69
			3	Cull does/bucks	10,000	30					
Total						204,406			90,860	113,576	1.25

(2) First Year Target after Farm Development

Item	Area/Capacity Quantity	Unit	Production Quantity		Unit	Unit Price (Ush/)	Gross Income (Ush'000)	Production Cost Unit Cost (Ush)	Unit		Total (Ush'000)	Unit	Net Income (Ush'000)	Net Benefit/ Cost
1. Nursery Production							66,000				40,851		25,149	0.62
Mango, Citrus, Avocado	600	m2	12,000	(70%)	Seedlings	2,000	24,000	29,250	m2	(90%)	17,550		6,450	0.37
Passion fruit	300	m2	6,000	(70%)	Seedlings	1,000	6,000	10,170	m2	(90%)	3,051		2,949	0.97
Coffee	1,160	m2	70,000	(70%)	Seedlings	500	35,000	18,600	m2	(90%)	19,800		15,200	0.77
Cocoa	500		20,000	(100%)	Seedlings	50	1,000	900	m2	(90%)	450		550	1.22
2. Field Crops							30,080				13,241		16,839	1.27
Maize	11.4	ha	30.3	(70%)	ton	300,000	9,090	578,700	ha	(90%)	6,597		2,493	0.38
Soybeans	0.5	ha	0.6	(70%)	ton	350,000	210	363,600	ha	(90%)	182		28	0.15
Tomato	1.0	ha	6.0	(60%)	ton	1,000,000	6,000	1,714,500	ha	(90%)	1,715		4,285	2.50
Cabbage	1.0	ha	9.0	(60%)	ton	700,000	6,300	1,311,300	ha	(90%)	1,311		4,989	3.81
Onion	1.0	ha	4.2	(60%)	ton	1,000,000	4,200	1,258,200	ha	(90%)	1,258		2,942	2.34
Local vegetables	1.0	ha	6.0	(60%)	ton	500,000	3,000	1,428,300	ha	(90%)	1,428		1,572	1.10
Coffee	0.8	ha	0.7	(60%)	ton	800,000	560	383,400	ha	(90%)	307		253	0.82
Pashion fruits	0.3	ha	1.8	(60%)	ton	400,000	720	1,476,000	ha	(90%)	443		277	0.63
3.Livestock							32,965				24,131		8,854	0.37
Poultry														
Hatchery			12,000	(60%)	Chicks	800	9,600				3,431	(70%)	6,169	1.80
Layers			75,600	(60%)	Eggs	100	7,560				7,608	(70%)	702	0.09
			300	(60%)	Off layers	2,500	750							
Broiler			1,350	(60%)	Broiler	3,500	4,725				4,423	(70%)	302	0.07
Diary			12,828	(70%)	Lit.	500	6,410				5,450		1,560	0.29
			4	(70%)	Calves	150,000	600							
Piggery			86	(70%)	Weaner pig	25,000	2,150				2,244		106	0.05
			2	(70%)	Cull sow/boar	100,000	200							
Rabbit			97	(70%)	Rabbit	10,000	970				975		15	0.02
			2	(70%)	Cull does/bucks	10,000	20							
Total							129,045				78,223		50,842	0.65

Table 2.2.4 Present and Planned Water Supply Volume

Present Supply Volume for Potable and Miscellaneous Use Water

	Unit	Litter/Unit	Total (litter)
Staff Quarters	10Houses x 10Persons =100	40	4,000
Principal's House			600
Labor Line	15Houses x 10Persons =150	40	6,000
Training Facilities	60	100	6,000
Kitchen			2,000
Villagers	50	20	1,000
Cows	3	100	300
Calves	2	40	80
Piggery	10	80	800
Nursery			2,000
Total			22,780

Planned Supply Volume for Potable and Miscellaneous Use Water

	Unit	Litter/Unit	Total (litter)
Staff Quarters	10Houses x 10Persons =100	40	4,000
Principal's House			600
Labor Line	15Houses x 10Persons =150	40	6,000
Training Facilities	60	100	6,000
Farmers' Training	10	60	600
Kitchen			2,500
Villagers	50	20	1,000
Cows	8	100	800
Calves	2	40	800
Piggy	20	80	1,600
Nursery			4,000
Total			27,180

Planned Supply Volume for Potable Water

	Unit	Litter/Unit	Total (litter)
Staff Quarters	10Houses x 10Persons =100	10	1,000
Principal's House			150
Labor Line	15Houses x 10Persons =150	10	1,500
Training Facilities	60	10	600
Farmers' Training	10	10	100
Kitchen			2,000
Villagers	50	20	1,000
Total			6,850

Table 2.2.5 Equipment and Machinery Plan in Mukono DFI (1/3)

Items		Main specifications	Number	Purpose to be used
Main Hall	Bench	for 5 persons, 2,100 x 350 x 450mm	16	This is indispensable equipment for lecturing 80 trainees in the main hall
	Desk for trainee	for 5 persons, 2,100 x 500 x 760mm with shelf for briefcase	16	
	Table for teacher	1,600 x 800 x 1,100mm	4	
	Blackboard	Slated type, 3 - 4 x 1.8m	2	
	Desk for chairman, etc	for 3 persons, 2,100 x 500 x 760mm with 3 wood standard chairs	4 set	
Classroom	Chair with desk	Chair: 540 x 540 x 430mm Desk: 300 x 350mm	80	This is indispensable equipment for 2 class-rooms each 40 trainees
	Blackboard	Slated type, 3 - 4 x 1.8m	4	
Training Equipment	Typewriter	Standard manual type	1	This is necessary equipment for preparing textbook of trainees and for conducting self-accounting system of training center
	Computer & Printer with softwares	220V 50Hz, Desk Top, Monitor: 15" Laser jet printer, with voltage regulator	1	
	Video Deck	AC110-240V 50/60Hz NTSC/PAL/SECAM Auto select, VHS	1	This is necessary equipment of audiovisual education for trainees.
	Video monitor	AC110-240V 50/60Hz, Screen: 28" PAL/SECAM/NTSC	1	
	Public address system	AC220-240V 50/60Hz, Amplifiers:250W Speaker with stand: 150WX2 Microphone with stand, Accessory: 1 set	1	

Table 2.2.5 Equipment and Machinery Plan in Mukono DFI (2/3)

Items		Main specifications	Number	Purpose to be used
Laboratory	Soil nutrient tester	Hand carrying type, Reagents: 5 set	1	This is indispensable equipment for testing soil nutrient and salinity
	Soil acid tester	Hand carrying type, Electromotive type pH3.5 - 8.0	1	
	Saline tester	Hand carrying type, Reagents: 5 set	1	
	Microscope	General purpose, Handy type Magnification range: 20 - 1,500 times	1	This is necessary equipment for inspecting various kind of illness and effects of plants
	Water distiller	5 ltrs / h, 3 kW, stainless steel	1	This is necessary equipment for preparing soft water. In case of testing soil nutrient and salinity, soft water is indispensable solvent.
Others	Tractor	Wheel type, 2WD, 65HP Category No.2	1	This is basic machinery for plowing, harrowing and transportation, and popular and standard size in Uganda.
	Plough implement	Disc type, 26" x 3, Category No.2	1	
	Harrow implement	Disc harrow, Offset type, 20" x 18 category No.2	1	
	Trailer	Stationary type Loading capacity: approx.3,500 kg	1	
	Ox-plough	Single furrow moldboard plough Furrow width: 20cm	2	This is necessary equipment of ox in Uganda.

Table 2.2.5 Equipment and Machinery Plan in Mukono DFI (3/3)

Items		Main specifications	Number	Purpose to be used
Others	Ox-cart	Ox-drawn, 2 wheel general purpose cart Loading capacity: 1 cu meter	2	
	Motorcycle	125cc, Off-the-road type	2	This is necessary equipment for patrolling on the job site.
	Pickup	4 x 4, Single cab, Manual type	1	This is necessary equipment for transportation between training center and/or Ministry of Agriculture and job site.
	Thermometer, Rain gauge (1)Wet & dry thermometer	Minus 30 to Plus 50 centigrade	2	This is necessary equipment for obtaining basic meteorological data in the agricultural field.
	(2)Max.-min. thermometer	Minus 20 to Plus 50 centigrade	2	
	(3)Rain gauge	Diameter: 200mm, Height: 600mm	1	
	(4)Wooden shelter	Inside dimension: 510 x 510 x 530mm	1	
	Soil mixture	1.0 HP, Mixed batch output: 150 ltr	1	This is necessary equipment for mixing soil and manure in order to prepare seedbed.
	Hatcher unit	Capacity of setting and hatching: approx. 500 eggs, 220V 50Hz Temperature: automatic, 800W	2	This is indispensable equipment for breeding chicken.
		Diesel engine generator with self-starting for two hatchers	1	This is standby equipment for electric power failure.

Table 2.3.1 Building Facility Plan in Mukono DFI (1/2)

Building/Room	Area(m2)	Function	Capacity	Equipment	Note
1. MAIN HALL					
Assembly Hall	84.0	Meeting, Lecture, Training	80	Ceiling Fan	
Stage	36.0				
Staff Room	12.0				
Store-1	24.0	for Hall			
Store-2	12.0	for Stage			
Toilet	24.0			Plumbing	
Corridor	48.0				
(Total)	(240.0)				
2. CLASSROOMS					
Classroom-1	48.0		40	Ceiling Fan	
Classroom-2	48.0		40	Ceiling Fan	
Staff Room	12.0				
Store	12.0				
Laboratory-1	28.0	Seed inspection		Plumbing	Testing bench, Sink
Laboratory-2	28.0	Soil test		Plumbing	Testing bench, Sink
Store-1	8.0	for Laboratory-1			Shelf
Store-2	8.0	for Laboratory-2			Shelf
Corridor	64.0				
(Total)	(256.0)				
3. DORMITORY-1					
Bedroom	16.0 x 10	2persons/room	20		Wardrobe
Meeting Space	16.0	Meeting			
Toilet	21.0			Plumbing	
Shower Room	7.5			Plumbing	
Corridor	48.5				
Washing	12.0			Plumbing	Sink
Store	12.0				
Guest room-1	19.5	for lecturer	1	Plumbing	Wardrobe, Toilet, Shower
Guest room-2	19.5	for lecturer	1	Plumbing	Wardrobe, Toilet, Shower
Porch	26.0				
(Total)	(342.0)				
4. DORMITORY-2					
Bedroom	16.0 x 10	2persons/room	20		Wardrobe
Meeting Space	16.0	Meeting			
Toilet	21.0			Plumbing	
Shower Room	7.5			Plumbing	
Corridor	48.5				
Washing	12.0			Plumbing	Sink
Store	12.0				
Guest room-1	19.5	for lecturer	1	Plumbing	Wardrobe, Toilet, Shower
Guest room-2	19.5	for lecturer	1	Plumbing	Wardrobe, Toilet, Shower
Porch	26.0				
(Total)	(342.0)				

Table 2.3.1 Building Facility Plan in Mukono DFI (2/2)

Building/Room	Area(m2)	Function	Capacity	Equipment	Note
5. DINING/KITCHEN					
Dining Room	72.0		60	Plumbing	
Kitchen	24.0	Cooking			
Servery	27.0	Serving, Dish washing		Plumbing	Counter, Sink
Shop	4.0				Counter, Shelf
Toilet	8.0			Plumbing	
Store-1	6.0				Shelf
Store-2	6.0				Shelf
Preparatory Yard	24.0			Plumbing	
(Total)	(171.0)				
5. ADMINISTRATION BUILD. (Rehabilitation of Existing Building)					
Office	44.8				
Information Room	54.4	Exhibition, Library, Printing			Modification of exist. Class
Principal's Room	17.0				
Staff Room	12.2	Secretary			
Corridor	36.0				
(Total)	(164.3)				
6. DORMITORY (Rehabilitation of Existing Building)					
Bedroom	12.6 x 10		20		
Toilet/Shower	20.8			Plumbing	
Corridor	31.7				
Porch	12.5				
(Total)	(191.4)				

Table 2.3.2 Farm Facility Plan in Mukono DFI

Facility	Area(m2)	Function	Capacity	Equipment	Note
1. NET SHADE	310 x 4	fruit, vegetable, coffee			
(Total)	(1,240.0)				
2. DAIRY UNIT					
Cubicle	44.2		6 cows	Plumbing, Pit	
Milking Place	2.5				
Calf Pen	1.8				
Store-1	5.0	Milk storage			
Office	11.0				
Toilet	4.8			Plumbing	
Store-2	6.2				
Ox Shed	13.8		2 oxen		
(Total)	(96.6)				
3. PIGGERY UNIT					
Sow Pen	5.0 x 2		8 sows		Dunging area 5.0m2 x 2
Boar Pen	5.0		1 boar		Dunging area 5.0m2
Baconer and Porker Pen	6.0 x 4				Dunging area 6.0m2 x 4
Farrowing Pen	6.8 x 2				Dunging area 6.8m2 x 2
Store	14. 1 x 2	Feed storage			
Passage	23.9	Feeding		Plumbing	
(Total)	(104.7)				
4. POULTRY UNIT-1 (Layer)					
Layer Unit	100.0	Deep litter	500 Layers		
Pullet Unit	12.5	Deep litter			
Egg Store	12.5				
(Total)	(125.0)				
5. POULTRY UNIT-2 (Broiler/Breeder)					
Broiler Unit	50.0	Deep litter	500 Broilers		
Breeder Unit	50.0	Deep litter	200 Breeders		
Store	25.0	Feed storage			
Incubator Room	12.5	with inspection room			
Generator Room	6.0	Generator for incubator			
(Total)	(143.5)				
6. RABBIT UNIT					
Rabbit Unit	30.0		210 rabbits		
(Total)	(30.0)				
7. STORE					
Store-1	63.0	Feed storage			
Store-2	35.0	Fertilizer, Chemicals			
Work Area	56.0				
Office	20.0				
(Total)	(175.0)				
8. SUN-DRYING FLOOR	130.0				
(Total)	(130.0)				

Table 2.3.3 List of Basic Design Drawings

No.	Drawing No.	Drawing Titles
Mukono DFI		
Main Plan (MP)		
1	MUMP-01	Location Map
2	MUMP-02	General Layout Plan
Training Buildings (TB)		
3	MUTB-01	General Plan of Buildings
4	MUTB-02	Main Hall
5	MUTB-03	Classroom
6	MUTB-04	Dormitory
7	MUTB-05	Kitchen and Dining
Agricultural Facilities (AF)		
8	MUAF-01	General Plan of Agricultural Facilities
9	MUAF-02	Net Shade House
10	MUAF-03	Cowshed
11	MUAF-04	Piggery
12	MUAF-05	Chicken House (Broiler Use)
13	MUAF-06	Chicken House (Laying Hen Use)
14	MUAF-07	Rabbit Hutch
15	MUAF-08	Store
Farm Road (FR)		
16	MUFR-01	General Plan of Farm Road
17	MUFR-02	Tyoical Cross Section of Farm Road
18	MUFR-03	Typical Road Culvert
Water Supply (WS)		
19	MUWS-01	General Plan of Water Supply Facilities
20	MUWS-02	Water Collecting Trench and Pond
21	MUWS-03	Pump Station
22	MUWS-04	Deep Well and Pump Station
23	MUWS-05	Reservoir A
24	MUWS-06	Pump Station (Reservoir A)
25	MUWS-07	Reservoir B
26	MUWS-09	Elevated Water Tank (Drinking Water Use)
27	MUWS-10	Elevated Water Tank (Domestic Water Use)
Irrigation Facilities (IF)		
28	MUIF-01	General Plan of Irrigation Facilities and Flash/Check/Air-Release Valves and Irrigation Faucet
Land Reclamation (LR)		
29	MULR-01	General Plan of Land Reclamation

Table 2.3.4 Procurement Source of Equipment (1/2)

Equipment	Main specifications	Country	Reason
Main Hall Bench Desk for trainees Table for teacher Blackboard Desk for chairman, etc	 for 5 persons, 2,100 x 350 x 450mm for 5 persons 2,100 x 460 x 450mm 1,600 x 800 x 1,100mm 3 - 4 x 1.8m 2,100 x 460X x 760mm with 3 wood standard chaires	Uganda	Procurable in local market
Classroom Chair with desk Blackboard	 Chair : 540 x 540 x 430mm Desk : 300X350mm 3 - 4 x 1.8m	Uganda	Procurable in local market
Training Equipment Typewriter Computor & Printer Vide deck / Monitor Public address system	 Manual type 220V 50Hz, Desk top, 15 " Laser jet printer, with voltage regulator VHS／28" Amplifiers :250W Speaker: 150WX2	Uganda	Procurable Japanese or third countries' equipment in local market
Laboratory Soil nutrient tester Soil acid tester Saline tester Microscope Water distillater	 Hand carrying type Electromotive type Hand carrying type General purpose, Handy type 5 ltr / h, 3kW, stainless steel	Japan	It is difficult to procure high quality equipment in local market Chemical reagents are available in local market
Meteorology Dry & wet thermo. Max.-Min. thermo. Rain gauge Wooden shelter	 -30 - +50 centigrade -20 - +50 centigrade Dia: 200mm, Height: 600mm Inside: 510X510X530mm	Japan	It is difficult to procure high quality equipment in local market

Table 2.3.4 Procurement Source of Equipment (2/2)

Equipment	Main specifications	Countris	Reasons
Agricultural machine Wheel tractor Disc plow Disc harrow Trailer	 65HP, 2WD, Category: No.2 26" x 3 20" x 18, Offset type Stationary, Loading capacity 3.5 ton	Uganda	Procurable third countries' equipment in local market
Ox-equipment Ox-plough Ox-cart	 Single furrow mouldboard plough 2 wheel general purpose cart Loading capacity: 1 cub meter	Uganda	Procurable in local market
Transportation Pick-up Motorcycle	 4 x 4, Single cab, Manual type 125cc, Off-the-road type	Kenya or Uganda	Procurable Japanese equipment in Kenya or Uganda
Etc Soil mixer	 1.0PH Mixed batch output: 150 ltr	Uganda	Procurable third countries' equipment in local market
Hatcher unit	Capacity of setting & hatching : approx. 500 eggs, 220V	Japan	It is difficult to procure in local market
Generator	Diesel engine generator for two hatchers with automatic control panel	Japan	It is difficult to procure in local market

Table 3.2.1 Breakdown of Future Income and Expenditure in Mukono DFI (1/2)

Item	Unit	Quantity	Rate	Amount	(%)
(1) Final Target (5th Year after Farm Development)					
A. Revenue					
A1 From MAAIF					
Staff Salary	month	12	1,600,000	19,200,000	4.8
Labour Wages	month	12	1,300,000	15,600,000	3.9
Electricity	month	12	500,000	6,000,000	1.6
Telephone	month	12	450,000	5,400,000	1.4
Sub-total				*46,200,000*	11.7
A2 From District Office					
Labour wages	month	0	0	0	0.0
Sub-total				*0*	0.0
A3 Training Charge					
Agric-Residents	Trainee days	1,840	15,000	27,600,000	7.0
Agric- non-resid.	Trainee days	770	9,000	6,930,000	1.7
Non- agric- Resident	Trainee days	5,040	21,000 /1	105,840,000	26.7
Non-agric. non-resid.	Trainee days	360	14,400 /1	5,184,000	1.3
Sub- total				*145,554,000*	36.7
A4 Commercial Production					
Nursery				101,000,000	25.5
Field				48,571,000	12.3
Livestock				54,835,000	13.8
Sub-total				*204,406,000*	51.6
Gross Revenue				**396,160,000**	100.0
B. Expenditure					
B1 Staff Salary					
Staff Salary	month	12	1,600,000	19,200,000	5.3
Staff allowances	month	12	800,000	9,600,000	2.6
Regular Labour Wages	month	12	1,300,000	15,600,000	4.3
Sub-total				*44,400,000*	12.0
B2 Operation and Maintenance					
Stationery	month	12	250,000	3,000,000	0.8
Building maint/repair	month	12	250,000	3,000,000	0.8
Toilet sanitation	month	12	100,000	1,200,000	0.3
Water pump maint.	month	12	200,000	2,400,000	0.7
Lawn maintenance	month	12	200,000	2,400,000	0.7
Electricity	month	12	500,000	6,000,000	1.6
Printing Cost	month	12	700,000	8,400,000	2.3
Tractor	month	12	1,240,000	14,880,000	4.1
Motor Cycle	month	12	137,000	1,644,000	0.4
Pick-up Truck	month	12	230,000	2,760,000	0.8
Telephone	month	12	450,000	5,400,000	1.5
Sub-total				*51,084,000*	14.0
B3 Training Cost					
Dormitory					
Agricultural	Night	1,840	3,500	6,440,000	1.8
Non- agricultural	Night	5,040	3,500	17,640,000	4.8
Dining					
Breakfast	person	6,880	2,500	17,200,000	4.7
Lunch	person	8,010	3,000	24,030,000	6.6
Supper	person	6,880	3,000	20,640,000	5.6
Break & Evening tea	person	8,010	1,500	12,015,000	3.3
Farmers' Training	person	6,160	10,000	61,600,000	16.9
Payment to Outside Trainer (Crop : 30days. Livestock : 30 days. Others : 10 days)	day	70	50,000	3,500,000	
Sub-total				*163,065,000*	44.6
B4 Commercial Production					
Nursery				45,390,000	12.4
Field				14,712,000	4.0
Livestock				30,758,000	8.4
Sub-total				*90,860,000*	24.9
B5 Demonstration					
Field Maintenance for Demonstration				3,500,000	1.0
Livestock Maintenance for Demonstration				2,600,000	0.7
Casual Workers for Demonstration Works				10,000,000	2.7
Sub-total				*16,100,000*	4.4
Total Expenditure				**365,509,000**	100.0
Net Revenue				**30,651,000**	

/1 : Increase in 20% of the present charge

Table 3.2.1 Breakdown of Future Income and Expenditure in Mukono DFI (2/2)

Item	Unit	Quantity	Rate		Amount	(%)
(2) Firts Year Target after Farm Development						
A. Revenue						
A1 **From MAAIF**						
Staff Salary	month	12	1.600.000		19.200.000	6.0
Labour Wages	month	12	1.300.000		15.600.000	4.9
Electricity	month	12	500.000		6.000.000	1.9
Telephone	month	12	450.000		5.400.000	1.7
Sub-total					*46.200.000*	14.4
A2 **From District Office**						
Labour wages	month	0	0		0	0.0
Sub-total					*0*	0.0
A3 **Training Charge**						
Agric-Residents	Trainee days	1,840	15.000		27.600.000	8.6
Agric- non-resid.	Trainee days	770	9,000		6.930.000	2.2
Non- agric- Resident	Trainee days	5,040	21.000	/1	105.840.000	33.0
Non-agric. non-resid.	Trainee days	360	14.400	/1	5.184.000	1.6
Sub- total					*145.554.000*	45.4
A4 **Commercial Production**						
Nursery					66.000.000	20.6
Field Crop					30.080.000	9.4
Livestock					32.965.000	10.3
Sub-total					*129.045.000*	32.6
Gross Revenue					**320,799,000**	100.0
B. Expenditure						
B1 **Staff Salary**						
Staff Salary	month	12	1.600.000		19.200.000	6.1
Staff allowances	month	12	800.000		9.600.000	3.1
Regular Labour Wages	month	12	1.300.000		15.600.000	5.0
Sub-total					*44.400.000*	14.2
B2 **Operation and Maintenance**						
Stationery	month	12	150.000	(60%)	1.800.000	0.6
Building maint/repair	month	12	150.000	(60%)	1.800.000	0.6
Toilet sanitation	month	12	100.000	(100%)	1.200.000	0.4
Water pump maint.	month	12	200.000	(100%)	2.400.000	0.8
Lawn manintenance	month	12	200.000	(100%)	2.400.000	0.8
Electricity	month	12	500.000	(100%)	6.000.000	1.9
Printing Cost	month	12	420.000	(60%)	5.040.000	1.6
Tractor	month	12	1.240.000	(100%)	14.880.000	4.8
Motor Cycle	month	12	137.000	(100%)	1.644.000	0.5
Pick-up Truck	month	12	230.000	(100%)	2.760.000	0.9
Telephone	month	12	450.000	(100%)	5.400.000	1.7
Sub-total					*45.324.000*	14.5
B3 **Training Cost**						
Dormitory						
Agricultural	Night	1,840	3.500		6.440.000	2.1
Non- agricultural	Night	5,040	3.500		17.640.000	5.6
Dining						
Breakfast	person	6,880	2.500		17.200.000	5.5
Lunch	person	8,010	3.000		24.030.000	7.7
Supper	person	6,880	3.000		20.640.000	6.6
Break & Evening tea	person	8,010	1.500		12.015.000	3.8
Farmers' Training	person	3,080	10.000		30.800.000	9.8
Sub-total					*128.765.000*	41.2
B4 **Procurement of Foundation Stock**					*8.000.000*	2.6
B5 **Commercial Production**						
Nursery					40.851.000	13.1
Field Crop					13.241.000	4.2
Livestock					24.131.000	7.7
Sub-total					*78.223.000*	25.0
B6 **Demonstration**						
Field Maintenance for Demonstration				(50%)	1.750.000	0.6
Livestock Maintenance for Demonstration				(50%)	1.300.000	0.4
Casual Workers for Demonstration Works				(50%)	5.000.000	1.6
Sub-total					*8.050.000*	2.6
Total Expenditure					**312,762,000**	100.0
Net Revenue					8,037,000	

/1 : Increase in 20% of the present charge

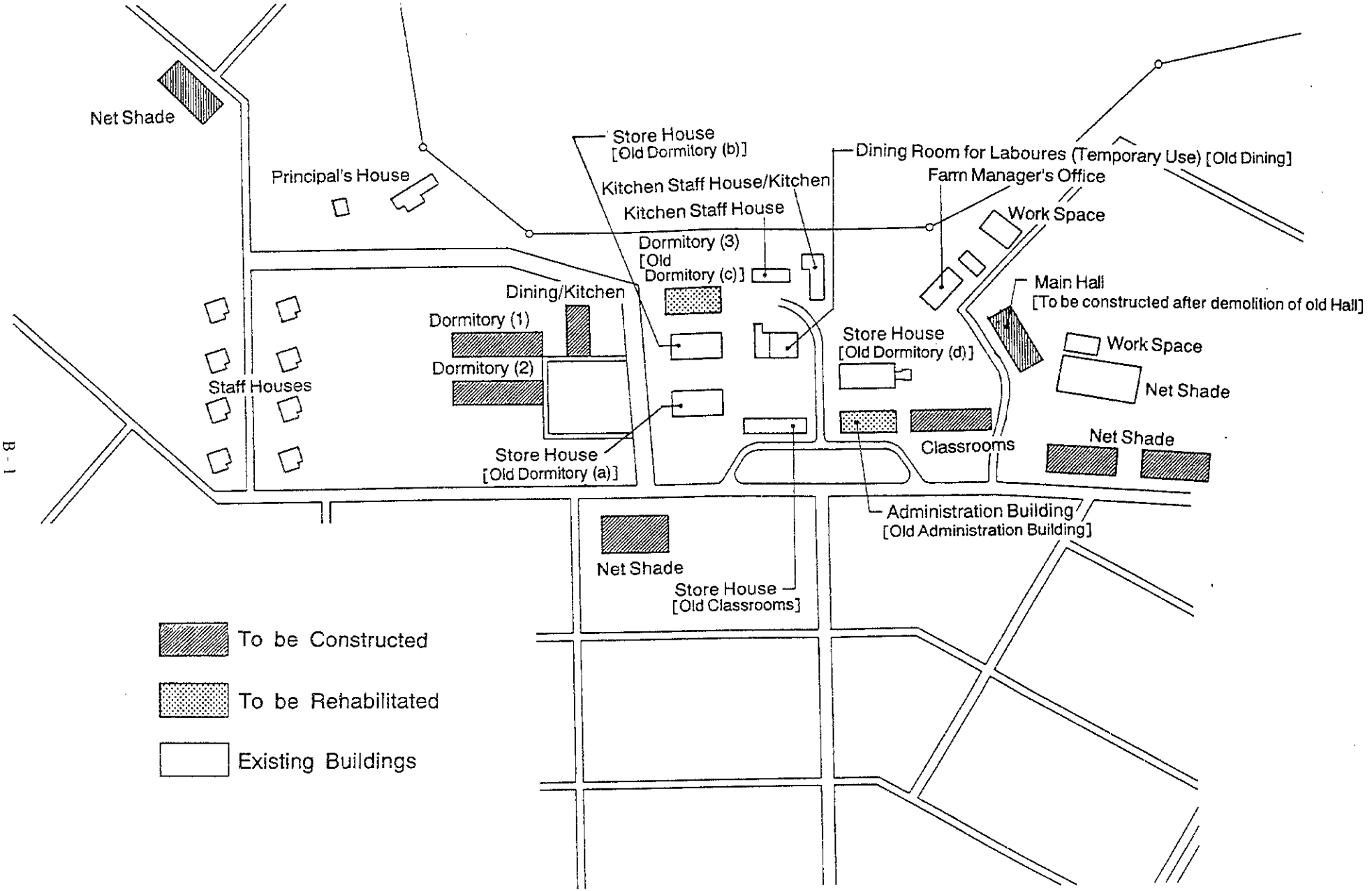
Table 3.2.2 Operation and Maintenance Cost in Mukono DFI

(Unit:Ush'000)

Item	During Technical Advice		Final Target	
	Total Cost	Cost for First Crop	Total Cost	Cost for First Crop
1. Staff Salary/Labor Wage	34,800	17,400	34,800	17,400
2. Extension Staff Training	34,530	17,265	34,530	17,265
3. Operation & Maintenance				
Buildings	1,800	900	3,000	1,500
Pump	2,400	1,200	2,400	1,200
Tractor/Vehicle	19,284	9,642	19,284	9,642
Electricity	6,000	3,000	6,000	3,000
Telephone	5,400	2,700	5,400	2,700
Stationery/Printing	6,840	3,420	11,400	5,700
Others	3,600	1,800	3,600	1,800
4. Training Cost /1				
Farmers' training	30,800	15,400	61,600	30,800
Outside Trainers	-	-	3,500	1,750
5. Commercial Production	78,223	46,934	90,860	54,516
6. Foundation Stock	8,000	8,000	-	
7. Demonstration Activities	8,050	4,025	16,100	8,050
Total	239,727	137,686	292,474	155,323
Cost for DFI Activities (No.3-7)	170,397	97,021	223,144	120,658

/1: Except cost for extension staff and non-agricultural training

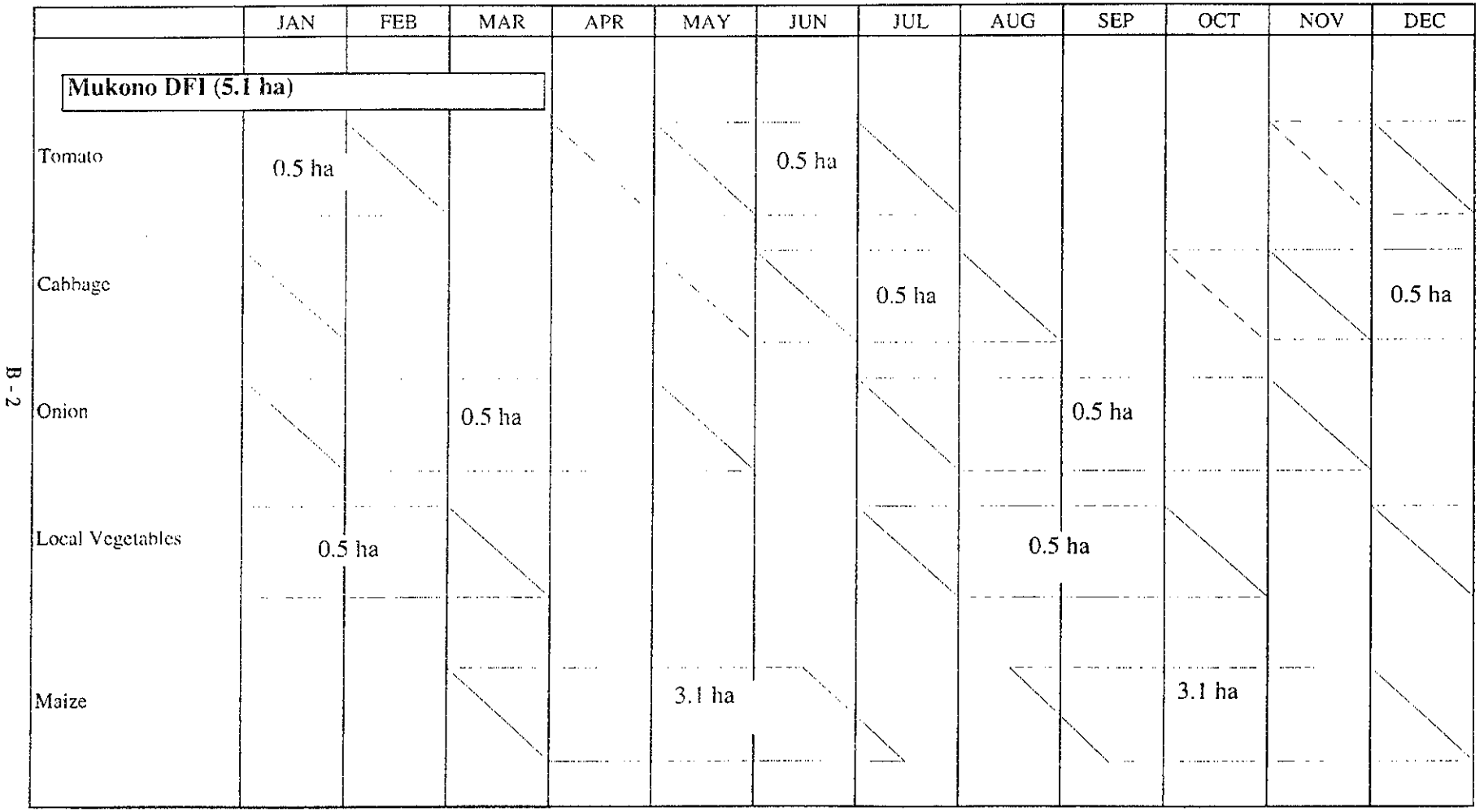
Figures



B - 1

Fig.2.3.1 Building Layout Plan

Fig.2.3.2 Cropping Pattern for Irrigated Crops (Tentative)



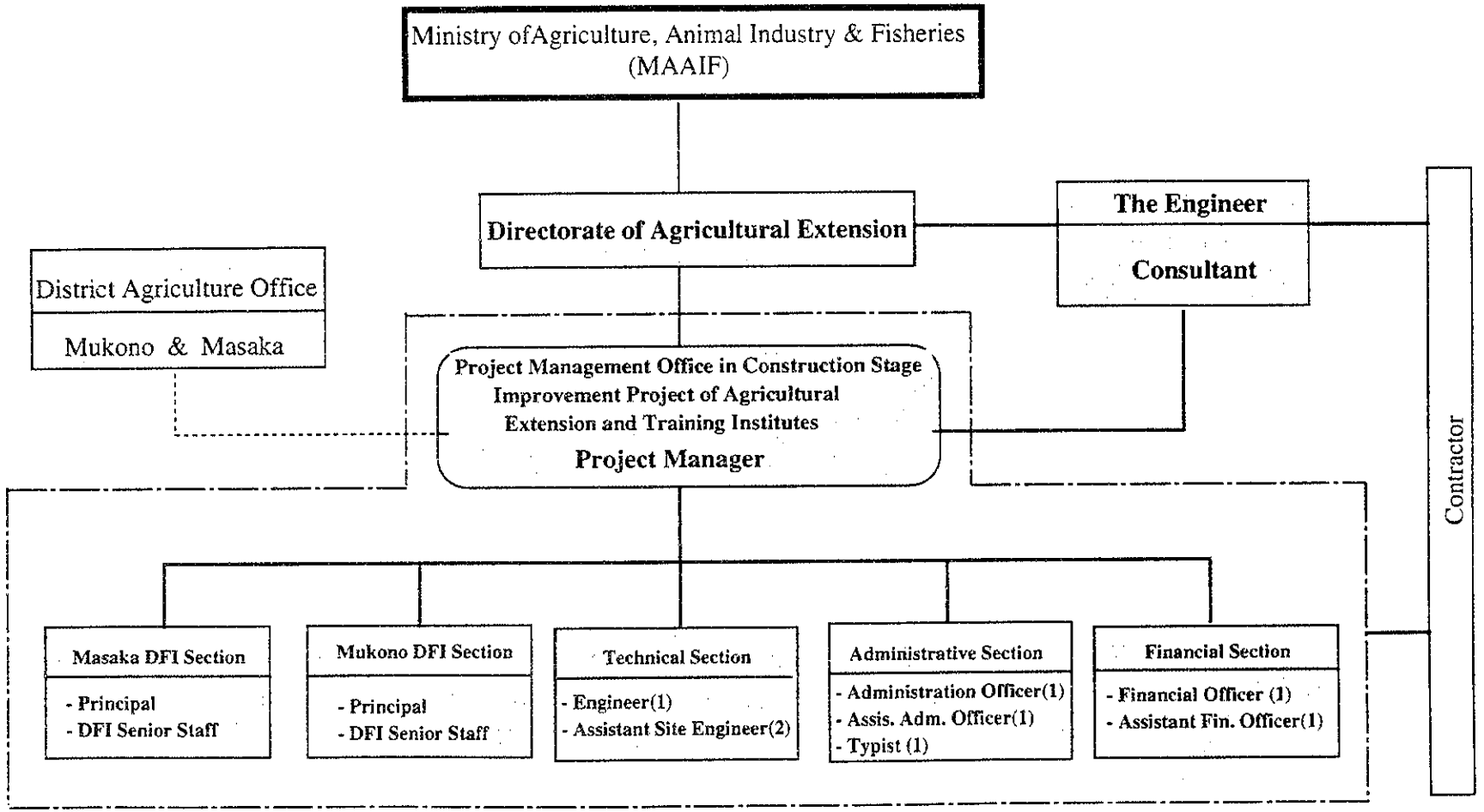


Fig. 3.1.1 Project Implementation Organization

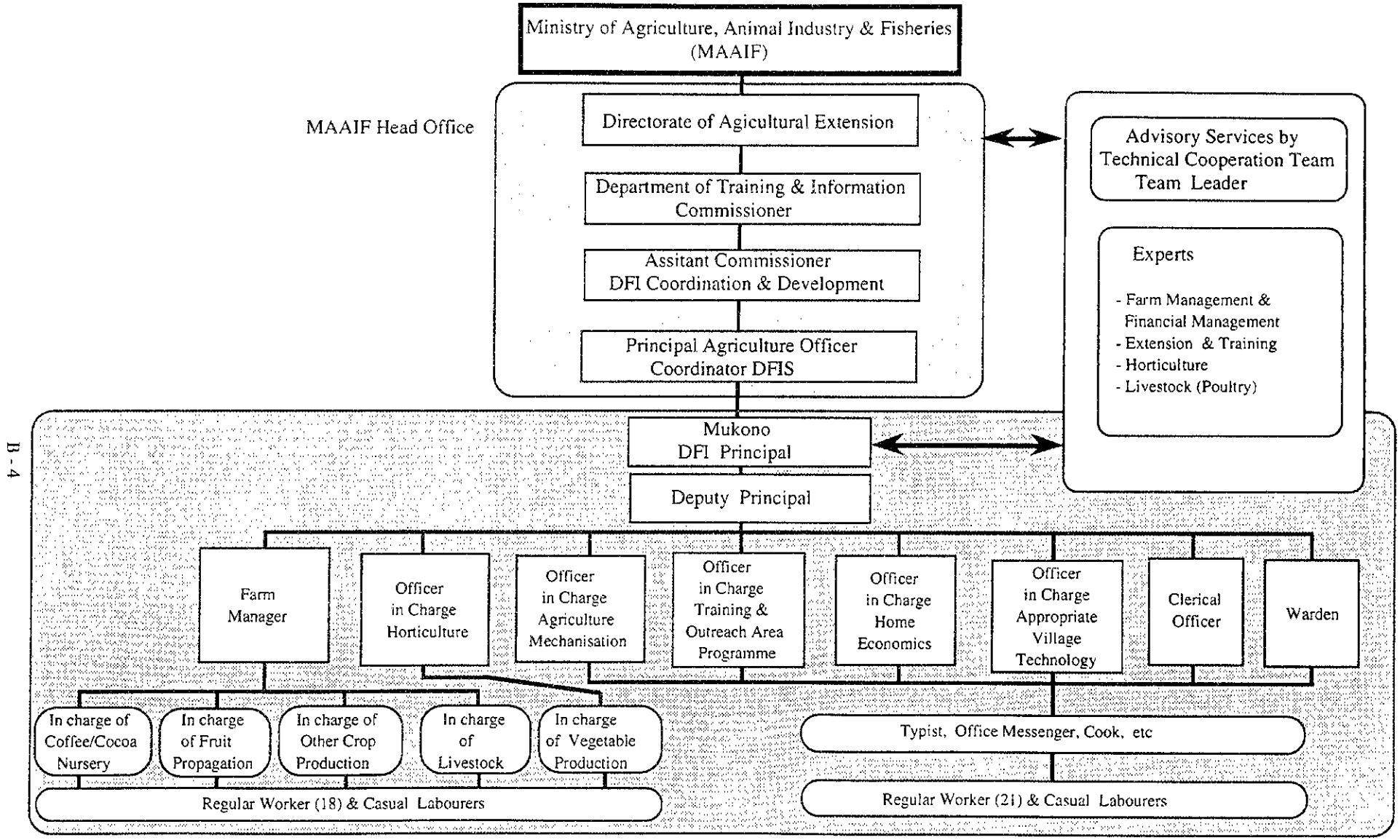
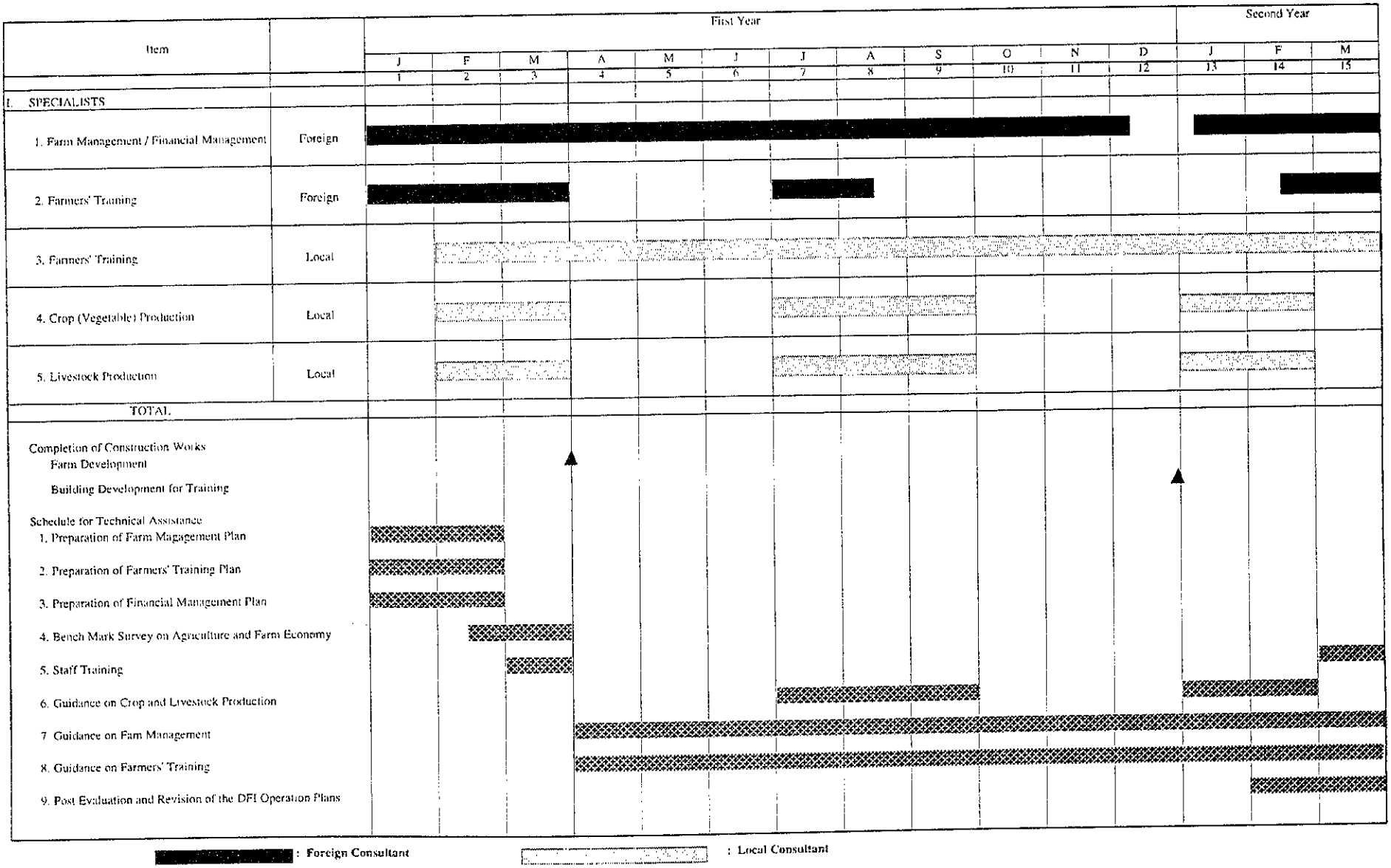


Fig.3.1.2 Future Organization Plan for Mukono DFI

Fig. 3.1.3 Assignment Schedule of Technical Advice for Mukono DFI



APPENDICES

1 Memder List of Survey Team

1 Member List of Survey Team

Inception Report Explanation and Field Survey Team

Assignment	Name	Position
1. Team Leader	: Kunihiro TOKIDA	Development Specialist, Institute for International Cooperation, Japan International Cooperation Agency
2. Technical Advisor	: Satoru SOMA	Technical Advisor, National Agricultural Improvement and Extension Association
3. Project Coordinator	: Shokichi SAKATA	First Project Study Division, Grant Aid Project Study Department Japan International Cooperation Agency
4. Chief consultant/ Operation and Maintenance	: Takashi SEKI	Nippon Koei Co., Ltd.
5. Agricultural Extension and Training Plan	: Yuichi FUKASAKA	Nippon Koei Co., Ltd.
6. Facility Plan and Design	: Toshiya WATANABE	Nippon Koei Co., Ltd.
7. Equipment Plan	: Hiroyuki SASAKI	Nippon Koei Co., Ltd.
8. Construction Plan and Cost Estimation	: Eiji ICHION	Nippon Koei Co., Ltd.

The Mission for the Explanation of Draft Basic Design Study Report

Assignment	Name	Position
1. Team Leader	: Kuniriro TOKIDA	Development Specialist, Institute for International Cooperation, Japan International Cooperation Agency
2. Technical Advisor Agricultural Development	: Satoru SOMA	Technical Advisor, National Agricultural Improvement and Extension Association
3. Chief consultant/ Operation and Maintenance	: Takashi SEKI	Nippon Koei Co., Ltd.
4. Agricultural Extension and Training Plan	: Yuichi FUKASAKA	Nippon Koei Co., Ltd.
5. Facility Plan and Design	: Toshiya WATANABE	Nippon Koei Co., Ltd.

2 *Survey Itinerary*

2 Survey Itinerary

Inception Report Explanation and Field Survey Team

No.	Date	Name of Persons/Movements	Station	Activities
1.	Jul. 14 Mon.	Tokida, Soma, Sakata, Seki, Fukasaka, & Watanabe: Narita-Frankfurt	Amsterdam	
2.	'Jul. 15 Tue	Frankfurt-Nairobi	Nairobi	
3.	Jul 16 Wed	Nairobi-Entebbe-Kampala	Kampala	Visit JICA Nairobi Office, Japanese Embassy of Kenya
4.	Jul. 17 Thu		Kampala	Japanese Embassy of Uganda, meet the Secretary of Ministry of Agriculture
5.	Jul. 18 Fri.		Kampala	Discussion with Ministry of Agriculture
6.	Jul. 19 Sat		Kampala	Survey at Mukono DFI
7.	Jul. 20 Sun	Kampara-Masaka	Masaka	Survey at Masaka DFI
8.	Jul. 21 Mon	Masaka-Kampara	Kampala	Survey at Masaka DFI
9.	Jul. 22 Tue	Sasaki&Ichion: Narita-London	Kampala	Discussion with Ministry of Agriculture
10.	Jul. 23 Wed	Sasaki&Ichion: London(on board)	Kampala	Discussion with Ministry of Agriculture
11.	Jul. 24 Thu	Sasaki&Ichion: on board-Entebbe-Kampala	Kampala	Signing on the Minutes, visit Japanese Embassy of Uganda
12.	Jul. 25 Fri	Tokida, Soma & Sakata: Entebbe-Nairobi	Nairobi/ Kampala	Visit JICA Nairobi Office, Japanese Embassy of Kenya
13.	Jul. 26 Sat	Tokida, Soma & Sakata: Nairobi-Amsterdam	Amsterdam/ Kampala	Field survey
14.	Jul. 27 Sun	Tokida, Soma & Sakata: Amsterdam(on board	Kampala	Field survey
15.	Jul. 28 Mon	Tokida, Soma & Sakata: to Narita	Kampala	Field survey
16.	Jul. 29 Tue		Kampala	Field survey
17.	Jul. 30 Wed		Kampala	Field survey
18.	Jul. 31 Thu		Kampala	Field survey
19.	Aug. 1 Fri		Kampala	Field survey
20.	Aug. 2 Sat		Kampala	Field survey
21.	Aug. 3 Sun		Kampala	Colllection of Materials
22.	Aug. 4 Mon		Kampala	Field survey
23.	Aug. 5 Tue		Kampala	Field survey
24.	Aug. 6 Wed.		Kampala	Field survey
25.	Aug. 7 Thu		Kampala	Field survey
26.	Aug. 8 Fri		Kampala	Field survey
27.	Aug. 9 Sat		Kampala	Field survey
28.	Aug. 10 Sun		Kampala	Colllection of Materials, report writing
29.	Aug. 11 Mon.		Kampala	Report writing, Discuss with Expert Morioka, Watanabe, the 3rd Secretary of the Embassy
30.	'Aug. 12 Tue.		Kampala	Discuss with MoA, report writing
31.	'Aug. 13 Wed.		Kampala	Discuss with MoA, Visit Jap. Embassy
32.	Aug. 14 Thu	Seki, Fukasaka, Watanabe, Sasaki, Ichion: Entebbe-Nairobi-London	on board	Visit JICA Office and Jap. Embassy of Kenya
33.	Aug. 15 Fri	Seki, Fukasaka, Watanabe, Sasaki, Ichion: Arrival in London	London	
34.	Aug. 16 Sat	Seki, Fukasaka, Watanabe, Sasaki, Ichion: London-Tokyo	on board	
1.	Aug. 17 Sun	Seki, Fukasaka, Watanabe, Sasaki, Ichion: Arrival in Tokyo	on board	

The Mission for the Explanation of Draft Basic Design Study Report

No.	Date	Name of Person/Movement	Station	Activities
1.	Oct. 15 Wed.	Tokida, Soma, Seki, Fukasaka, watanabe: Narita-London	London	
2.	Oct. 16 Thr.	London-Nairobi (flight delayed)	Nairobi	
3.	Oct. 17 Fri	Nairobi-Entebbe-Kampala (excl. Tokida)	Nairobi/ Kampala	Visit JICA Nairobi Office, Jap. Embassy of Kenya, Discuss with MoA
4.	Oct. 18 Sat.	Nairobi-Entebbe-Kampala (Tokida)	Kampala	Discuss with MoA
5.	Oct. 19 Sun		Kampala	Preparation of materials, team meeting
6.	Oct. 20 Mon		Kampala	Visit Jap. Embassy of Uganda, pre-meeting for Draft B/Design Study Report
7.	Oct. 21 Tue		Kampala	Survey at Mukono DFI, Explain Draft B/D report to MoA, feed-back survey
8.	Oct. 22 Wed		Kampala	Discuss on Minutes,Ministry of Foreign Affairs
9.	Oct. 23 Thu	Kampala-Entebbe-Mukono-Kampala	Kampala	Signing on the minutes, survey, seminar at Mukono DFI
10.	Oct. 24 Wed.	Kampara-Entebbe, Nairobi-Paris	Paris	Visit Jap. Embassy of Uganda, survey
11.	Oct. 25 Thu.	Paris to Narita	On board	Reporting the result of the Survey
12.	Oct. 26	Arrival in Narita		

3 List of Party Concerned in Uganda

3 List of Party Concerned in Uganda

1. Directorate of Agricultural Extension, Ministry of Agriculture, Animal and Fisheries,

Mr. Opika Opoka H.S.	Permanent Secretary
Mr. John B. Mubiru	Director of Agricultural Extension
Mr. Stephen Yiga	Deputy Commissioner of training, Department of Training and Information
Dr. S.H.B. Lwamafa	Acting Commissioner, Department of Training and Information
Mr. J. Dick Kirumira	Senior Agricultural Officer
Mr. Savab N. Kiyingi	Commissioner for Crop Production
Mr. Nalwoga Jvsome	Monitoring and Evaluation
Mr. B.E. Ssemavula	National Coordinator, SG2000

2. Mukono D.F.I., Ministry of Agriculture, Animal and Fisheries

Mr. Francis Ssozi Buyondo	Principal
Mr. C. Muyira	Farm Manager
Mr. J. Kabonge,	

3. Masaka D.F.I, Ministry of Agriculture, Animal and Fisheries

Mr. Emmanuel J.K Muwanga	Principal
Herbat Mbirontono	Assistant Farm Manager
Joy Nyamijumbi	Home Economics
Tom Katumba	Agricultural Nursery
Paul Sennoga	Clerical Officer

4. Masaka District Officers

Mr. K. Kabagambe	Chief Administrative Officer
Mr. Kanoonya Paul	District Agricultural Extension Coordinator

5. Bukalasa Agricultural College

Mr. Ssenicabirwa Edward	Principal

6. Embassy of Japan in Kenya

Mr. Shinsuke Horiuchi	Ambassador
Mr. Kokichi Kogure	Second Secretary

7. Embassy of Japan in Uganda

Mr. Yonezo Otake	Counselor

8. JICA Nairobi Office

Mr. Matumoto

Mr. Atui Hanatani

9. JICA Nakawa Vocational Training Institute (VTI) Project

Mr. Toshiteru Takami	Team Leader
Mr. Tooru Kawashima	
Mr. Takashi Inoue	Coordinator

4 Minutes of Discussion

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY
FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES IN THE REPUBLIC OF UGANDA

In response to the request from the Government of the Republic of Uganda (hereinafter referred to as "GOU"), the Government of Japan decided to conduct a Basic Design Study for Improvement of Agricultural Extension and Training Institutes (hereinafter referred to as "the Project") in the Republic of Uganda and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Republic of Uganda a study team (hereinafter referred to as "the Team"), which was headed by Dr. Kunihiro Tokida, Development Specialist, JICA, and was scheduled to stay in the country from 16 July to 14 August, 1997.

The Team held discussions with the officials concerned of the Republic of Uganda and conducted a field survey at the study areas.

In the course of the discussions and field survey, the authorities concerned of the Republic of Uganda and the Team confirmed the main items described in the attached sheets. The Team will carry out further study and prepare a Basic Design Study report.

Entebbe, 24 July, 1997

Dr. Kunihiro Tokida
Leader
Basic Design Study Team

Mr. Opika-Opoka H.S.
Permanent Secretary
Ministry of Agriculture,
Animal Industry and Fisheries

ATTACHMENT

1. Objective

The objective of the Project is to improve Masaka and Mukono District Farm Institutes (DFI), to diversify crops and to increase agricultural production through training.

2. Project Site

The project sites are shown in Annex I.

3. Executing Organization

(1) Responsible organization
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)

(2) Implementing organization
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)

4. Items requested by the Republic of Uganda

After a series of discussions with the Team, the items finally requested by the GOU are shown in Annex II.

However, the final components of the Project will be specifically decided after the completion of further study.

5. Japan's Grant Aid System

(1) The GOU has understood Japan's Grant Aid system in Annex III as explained by the Team.

(2) The GOU will take necessary measures described in Annex IV for the smooth implementation of the Project, in the event the Grant Aid Assistance by the Japanese Government is extended to the Project.

6. Schedule of the Study

(1) The consultants of the Team will carry out further study in the Republic of Uganda until 14 August, 1997.

(2) JICA will prepare the draft report and dispatch a mission in order to explain its contents at the end of November, 1997.

(3) In the event the contents of the draft report is accepted in principle by the GOU, JICA will complete a final report and send it to the Republic of Uganda by March, 1998.

7. Major Points of Discussions

(1) The priority of the items requested by the GOU was confirmed and shown in Annex II.

(2) The followings were confirmed :

1) Under the budgetary constraints of the GOU, the both sides agree crucial necessity of introducing self-accounting system for sustainable operation and maintenance (O&M) of the DFIs.

2) The GOU ensures the transparency and accountability of the DIFs in order to facilitate increase in commercial production.

3) The GOU provides the DFIs necessary O&M fund which is not covered by the Japan's Grant Aid Scheme.

4) The GOU agreed to give priority to agricultural training for maximum use of the facilities and equipment in the DFIs.

5) The GOU had differed the request of establishing paddy fields at the DFIs.

6) The GOU requested that JICA provides technical assistance to the DFI management and farmers' training at the Mukono DFI in the course of the project implementation.

7) For the Mukono DFI on pilot basis, the following was agreed upon :

a) Mukono DFI on pilot basis intensifies agricultural training for farmers in addition to the FEW (Field Extension Worker) training. The GOU prepares and presents programs and implementation schedule for farmers' training at Mukono DFI concerning covering :

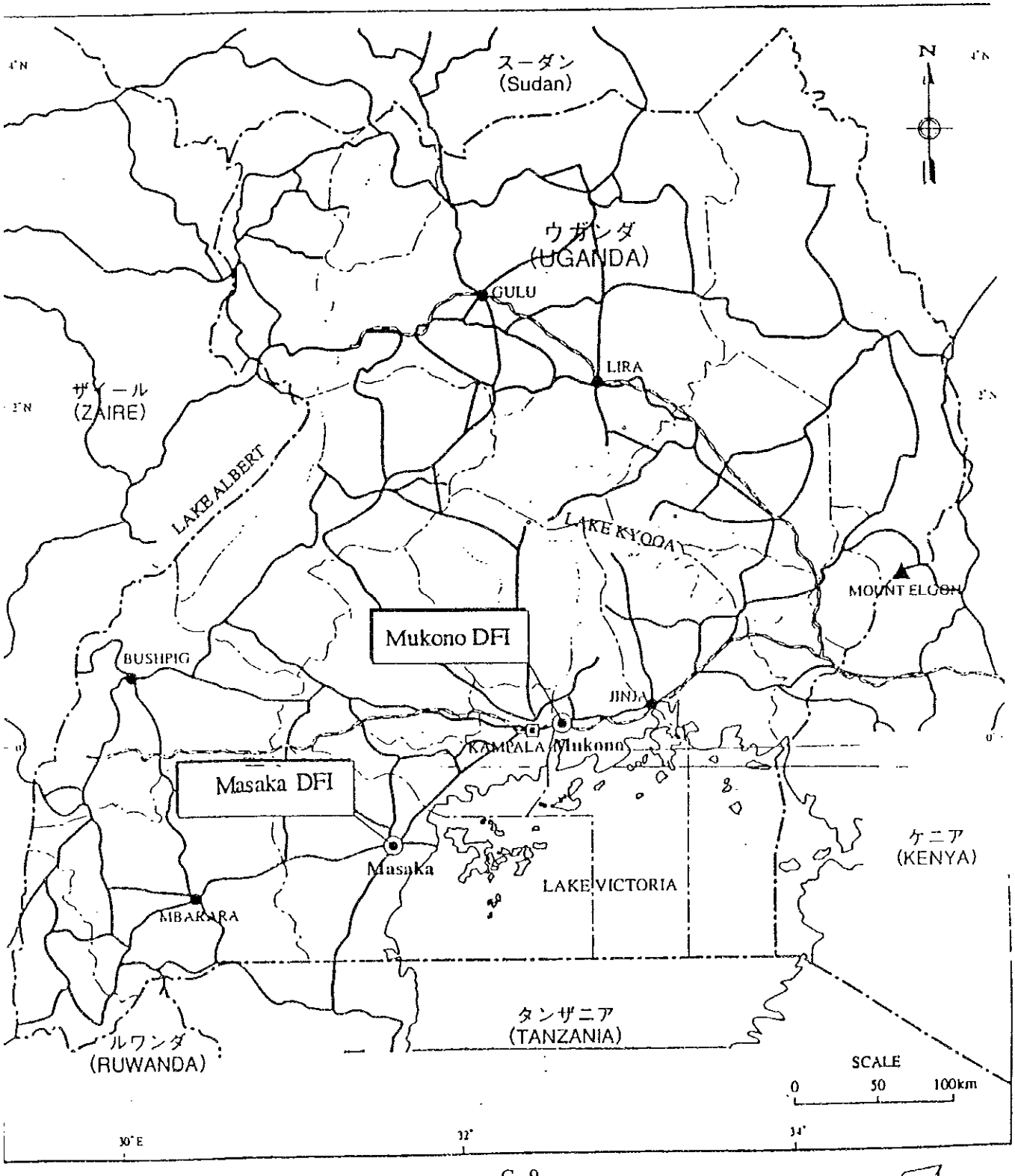
- Long and medium-term training for rural youth,
- Short-term training for rural farmers including women, and
- One-day training.

b) The GOU prepares and presents appropriate accounting procedures in order to put self-accounting of Mukono DFI into practice. The commercial production activities will be introduced at Mukono DFI under the self-accounting system for generating O&M cost and support fund in order to sustain the facilities and equipment and to promote farmers' training.

c) The GOU ensures effective participation of the extension staff at District and Sub-county levels in the farmers' training program of the DFI.

Annex I

Map of Project Site



ANNEX II

List of Facility in Mukono DFI

Items			Capacity	Number	Priority
Building	New	Main hall	80	1	A
		Classroom (including laboratory)	40	2	A
		Dormitory (including guest room, meeting space)	20	2	A
		Kitchen and dining(including shop)	60	1	A
	Rehabilitation (using existing buildings)	Library and information conference room and publication room in administration building	-	1	A
		Dormitory	20	1	B
Farm Facility	Net shade		-		A
	Livestock unit	Cattle	-	1	A
		pig	-	1	A
		Poultry	-	1	B
		Rabbit	-	1	B
	Store		-	1	A
	Sun drying floor		-	1	A
	Ware house		-	1	A
Water Supply	Borehole		-	2	B
	Improvement of Existing system		-	1	B
Farm Development	Reclamation		-	-	B
	Terracing		-	-	B
	Farm road		-	-	A
	Water harvesting reservoir		-	-	B

Clacification of Priority

A: First Priority

B: Second Priority

C: Third Priority

List of Equipment in Mukono DFI

Items		Capacity	Number	Priority
Main Hall	Bench	80	-	A
	Table for teacher	-	4	A
	Blackboard	-	2	A
	desk	-	1	C
Classroom	Chair	-	80	A
	Desk	-	80	A
	Blackboard	-	4	A
Training Equipment	Typewriter	-	1	A
	Computer and printer	-	1	B
	Video Deck	-	1	B
	Video monitor	-	1	B
	Slide projector	-	1	C
	Screen	-	1	C
	Radio cassette	-	1	C
	Video camera	-	1	C
	OHP	-	1	C
	Public addresssystem	-	1	A
Laboratory	Soil tester	-	1	A
	Microscope	-	1	C
	Water Distillatier	-	1	A
Others	Tractor	-	1	B
	Plough implement	-	1	B
	Harrow implement	-	1	B
	Trailer	-	1	B
	Ox-plough	-	2	B
	Ox-cart	-	2	B
	Ox-seeder	-	2	B
	Motorcycle	-	2	C
	Pickup	-	1	B
	Lorry	-	1	C
	Bus	-	1	C
	Thermometer, Rain gauge	-	1	A
	Soil mixture	-	1	B
	Hatchery	-	1	B

List of Facility in Masaka DFI

Items			Capacity	Number	Priority
Building	New	Multi purpose hall	-	1	B
		Classroom (including laboratory)	40	2	C
		Dormitory (including guest room, meeting space)	16	2	C
		Kitchen and dining	80	1	C
	Rehabilitation (using existing buildings)	Library and information conference room and publication room in administration building	-	1	C
		Dormitory	16	2	C
Farm Facility	Net shade		-	-	C
	Livestock unit	Cattle	-	-	C
		Poultry	-	-	C
		Pig	-	-	C
		Goat	-	-	C
	Store		-	1	C
	Fence		-	1	C
	Ware house		-	1	C
Power supply	Transformer		-	1	C
Water Supply	Extension to low part of the farm		-	1	C
	Renovation of security light		-	1	C
	Borehole		-	1	B
	Improvement of Existing system		-	1	B
Farm Development	Irrigation		-	-	C
	Farm road		-	-	C

List of Equipment in Masaka DFI

Items		Capacity	Number	Priority
Multi purpose hall	Bench	-	-	B
	Table for teacher	-	4	B
	Blackboard	-	2	B
	desk	-	1	C
Classroom	Chair	-	-	C
	Desk	-	-	C
	Blackboard	-	-	C
Training Equipment	Typewriter	-	1	C
	Computer and printer	-	1	C
	Video Deck	-	1	C
	Video monitor	-	1	C
	Screen	-	1	B
	Video camera	-	1	C
	Public addresssystem	-	1	B
Laboratory	Soil tester	-	1	C
	Microscope	-	1	C
	Water Distillater	-	1	C
Others	Tractor	-	1	C
	Plough implement	-	1	C
	Harrow implement	-	1	C
	Cultivator	-	1	C
	Mower	-	1	C
	Sprayer	-	1	C
	Planter (maize, Bean)	-	1	C
	Trailer	-	1	C
	Radio communication system	-	1	A
	Motorcycle	-	2	C
	Pickup	-	1	C
	Bus	-	1	C
	Thermometer	-	1	B
	Generator	-	1	C

Notes; Final components of the Project shall be decided after further studies.

K-T.

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY FOR IMPROVEMENT OF AGRICULTURAL EXTENSION AND TRAINING INSTITUTES IN THE REPUBLIC OF UGANDA

(CONSULTATION ON DRAFT REPORT)

In July 1997, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on Improvement of Agricultural Extension and Training Institutes (hereinafter referred to as "the Project") to the Republic of Uganda (hereinafter referred to as "GOU"), and through discussions, field survey and technical examination of the results in Japan, has prepared the draft report of the study.

In order to explain and to consult with the Uganda side on the components of the draft report, JICA sent to Uganda a study team (hereinafter referred to as "the Team") headed by Dr. Kunihiro Tokida, Development Specialist, JICA, which is scheduled to stay in the country from October 17 to 24, 1997.

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

Entebbe, 23 October, 1997

Dr. Kunihiro Tokida
Leader
Basic Design Study Team
Japan International
Cooperation Agency

Mr. Charles Kabunga
Acting Permanent Secretary
Ministry of Agriculture,
Animal Industry and Fisheries

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
INDUSTRY AND FISHERIES
P. O. Box 102, ENTEBBE

ATTACHMENT

1. Components of the Draft Report

The GOU has agreed and accepted in principle the contents of the Draft Report proposed by the Team.

2. Japan's Grant Aid System

(1) The Uganda side has understood Japan's Grant Aid system in ANNEX I as explained by the Team.

(2) The Uganda side will take necessary measures described in ANNEX II for the smooth implementation of the Project, in the event the Grant Aid Assistance by the Japanese Government is extended to the Project.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items, and send it to the GOU by February, 1998.

4. Other Relevant Issues

(1) As the result of the basic design study, the Masaka District Farm Institute (DFI) was dropped from the scope of the Project, and the Project concentrates only on the improvement of the Mukono DFI. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), however, pointed out the importance of Masaka District in agricultural production.

(2) The MAAIF, the executing agency of the Project, has whole responsibility for the project implementation and operation and maintenance (O&M) of the completed facilities and supplied equipment and goods under the Japan's Grant Aid Program.

(3) It was confirmed by the both sides that the following measures shall be taken on the responsibility of the GOU :

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
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(a) The GOU permits the Mukono DFI to use internally generated revenue in order to cover O&M cost and cost for the training programmes.

(b) The GOU procures necessary initial revolving fund (seed money) of about 126 million Ushs including contingency at 30% in order to run the initial operation of the Mukono DFI.

(4) The MAAIF provides necessary budget for staff salary, electricity and telephone, etc. and staff members including counterpart personnel to the experts of the Technical Advice for proper and effective implementation of the Project at the Mukono DFI.

(5) The MAAIF prepares annual report on the Mukono DFI which includes training activities, farm management record, utilisation of facilities and equipment, and monitoring of trained farmers and so on. The MAAIF submits the report to the Japan side annually at least for 5 years from the beginning of technical advice.

(6) The MAAIF explained the necessity of the custom clearance procedure for Japanese nationals in accordance with the Financial Bill Schedule No.5 " First Arrival Privilege at Change of Residence."

(7) The MAAIF requested that the project components of Mukono DFI should be implemented as proposed in the Draft Basic Design Study Report.

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
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ANNEX-I JAPAN'S GRANT AID PROGRAM

1. Grant Aid Procedures

(1) The Japan's Grant Aid program is executed by the following procedures.

Application	(Request made by a recipient country)
Study	(Preliminary 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 the both Governments)
Implementation	(Implementation of the Project)

(2) Firstly, an application or a request for a project made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to see whether or not it is suitable for Japan's Grant Aid. If the request is deemed suitable, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency).

Secondly, JICA conducts the study (Basic Design Study), using a Japanese consulting firm. If the background and objective of the requested project are not clear, a Preliminary Study is conducted prior to a Basic Design Study.

Thirdly, the Government of Japan appraises to see whether or not the Project is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted for approval by the Cabinet.

Fourthly, the Project approved by the Cabinet becomes official when pledged by the Exchange of Notes signed by the both Governments.

Finally, for the implementation of the project, JICA assists the recipient country in preparing contracts and so on.

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL

2. Basic Design Study

(1) Contents of the Study

The purpose of the Study (Preliminary Study / Basic Design Study) conducted on a project requested by JICA is to provide a basic document necessary for appraisal of the project by the Japanese Government. The contents of the Study are as follows:

a) To confirm background, objectives, benefits of the project and also institutional capacity of agencies concerned of the recipient country necessary for project implementation.

b) To evaluate appropriateness of the Project for the Grant Aid Scheme from a technical, social and economical point of view.

c) To confirm items agreed on by the both parties concerning a basic concept of the project.

d) To prepare a basic design of the project.

e) To estimate cost involved in the project.

Final project components are subject to approval by the Government of Japan and therefore may differ from an original request.

Implementing the project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

(2) Selection of (a) Consulting Firm (s)

For smooth implementation of the study, JICA uses (a) consultant firm(s) registered. JICA selects (a) firm (s) through proposals submitted by firms which are interested. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

For Permanent Secretary
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INDUSTRY AND FISHERIES
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The consulting firm(s) used for the study is (are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency and also to avoid possible undue delay in implementation caused if a new selection process is repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not in a form of donation or such.

(2) Exchange of Notes (E/N)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by both Governments, in which the objectives of the Project, period of execution, conditions and amount of the Grant, etc. are confirmed.

(3) "The period of the Grant Aid" means one Japanese fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and final payment to them must be completed.

(4) Under the Grant Aid, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant may be used for the purchase of the products or services of a third country origin.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

For Permanent Secretary
MINISTRY OF AGRICULTURAL
INDUSTRY AND FISHERIES
P. O. Box C-19 ENTEBBE

(5) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese tax payers.

(6) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as following:

(i) To secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,

(ii) To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,

(iii) To secure buildings prior to the installation work in case the project is providing equipment,

(iv) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,

(v) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,

(vi) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
INDUSTRY AND FISHERIES
P. O. Box C-20 ENTEBBE

(vii) Proper Use

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

(viii) Re-export

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

(ix) Banking Arrangements (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 the Government of the recipient country or its designated authority under the Verified Contracts.

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

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
INDUSTRY AND FISHERIES
P. O Box 102, ENTEBBE

ANNEX-II

Necessary measures to be taken by the Republic of Uganda on condition that Japan's Grant Aid is executed;

1. To secure land necessary for sites of the project, prior to the construction of the facilities.

2. To ensure all expenses and prompt execution for unloading, customs clearance at the port/airport of disembarkation and internal transportation of the products purchased under the Grant Aid.

3. To exempt Japanese nationals from custom duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the products and services under the verified contract.

4. To accord Japanese nationals, whose services may be required in connection with the supply of products and services under the verified contracts, such facilities as may be necessary for their entry into the Republic of Uganda and stay therein for the execution of the project.

5. The Republic of Uganda is required to maintain and use the facilities constructed under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

6. The products purchased under the Grant Aid should not be re-exported from the Republic of Uganda.

7. To bear advising commission of Authorization to Pay (A/P) and payment commission to a Japanese foreign bank for the banking services based on the banking arrangement.

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
INDUSTRY AND FISHERIES
P O BOX 102, ENTEBBE

LIST OF ATTENDANTS

Name	Position/Office
Ministry of Agriculture, Animal Industry and Fisheries	
1. Mr. Charles Kabunga	Acting Permanent Secretary
2. Mr. J.B. Mubiru	Director, Agricultural Extension
3. Dr. S.H.B. Lwamafa	Acting Commissioner, Training and Information
4. Mr. S.N. Yiga	Acting Deputy Commissioner, Training and Information
5. Mr. J.L.K. Isabirye	Assistant Commissioner, Training Programs
6. Mr. D. Nsubuga-Kikoyo	Head, Agribusiness Unit
7. Mr. Dick Kirumira	Senior Agricultural Officer
8. Mr. Francis Ssozi Buyondo	Principal, Mukono DFI
Ministry of Finance	
1. Mr. Kalanguka Kayondho	Acting Commissioner, Expenditure
2. Mr. Emanuel Katwe	Senior Economist, External Aid Coordination Department
3. Mr. Yuichi Sasaoka	Japanese Aid Advisor, External Aid Coordination Department
Ministry of Planning and Economic Development	
1. Mr. Muhamed Kiggundu	Desk Officer for MAAIF
Embassy of Japan (Uganda)	
1. Mr. Motoharu Watanabe	Third Secretary, Embassy of Japan (Uganda)
Basic Design Study Team	
1. Dr. Kunihiro Tokida	Leader
2. Mr. Satoru Soma	Technical Adviser
3. Mr. Takashi Seki	Chief Consultant
4. Mr. Yuichi Fukasaka	Agricultural Extension and Training Plan
5. Mr. Toshiya Watanabe	Facility Plan and Design

K. Tokida

For Permanent Secretary
MINISTRY OF AGRICULTURE, ANIMAL
INDUSTRY AND FISHERIES
P O Box C-23 ENTEBBE

5 *Estimated Cost to be borne by Recipient Country*

5. Estimated Cost to be borne by Recipient Country

(Preliminary Cost Estimate Basis)

Work Items	Foreign Currency Unit	Foreign Currency Amount	Uganda Sh Equivalent
1. Pre-construction Stage			
1.1 Provision of the necessary land for the construction of the new pump station and its relevant facilities	US$	2,640	2,780,177
1.2 Payment of commission to Japanese foreign exchange bank for its banking services (0.1- 0.3% of Each Contract Amount)	Japanese ¥	1,690,000	14,955,752
1.3 Budgetary arrangement for tax exemption to the Japanese nationals regarding project implementation *(This disbursement will be done in the below item 2.3.)*	(US$	269,552	283,864,496)
Subtotal in Pre-construction Stage		*about*	*17,700,000*
2. Construction Stage			
2.1 Construction of Fence of New Paddock	US$	46,260	48,716,283
2.2 Installation of three (3) phase electric distribution line up to the site of existing transformer as a new motive power source		about	39,000,000
2.3 Prompt disbursement for tax exemption to the Japanese nationals regarding project implementation *(This budget will be prepared in the above item 1.3.)*	US$	269,552	283,864,496
Subtotal in Construction Stage		*about*	*372,000,000*
3. Technical Advice Stage and after the stage			
3.1 Prompt disbursement for purchasing the initial farm input and of initial investment (seed money) for DFI operation (Initial investment: Ush 97,000,000 + contingency: Ush 29,000,000 = Ush126,000,000)			126,000,000
3.2 Budgetary arrangement and its prompt disbursement for proper and effective operation and maintenance of the constructed facilities, developed farms and procured equipment under the Project (Normal Operation & Maintenance Cost except large maintenance works)		annually	46,200,000
Subtotal in Technical Advice Stage and after the stage		*about*	*172,200,000*
Estimated Amount			561,900,000

Note; The item 2.1 and 2.2 shall be designed and re-estimated by the Ugandan side.

In addition to the above amount, the below-listed works & payment shall be made by the Ugandan side.

1.Pre-construction Stage:
- Application of construction of the buildings and payment of its application fee

2.Construction Stage:
- All the other expenses, other than those to be borne by the Japanese Grant Aid with the scope of the Project
- Coordination and solution of any issues related to the Project which may be raised from third parties or inhabitants

6 Other Relevant Data

6.1 Confirmed Project Implementation Organization

6.2 Confirmed Future Organization Plan for Mukono DFI

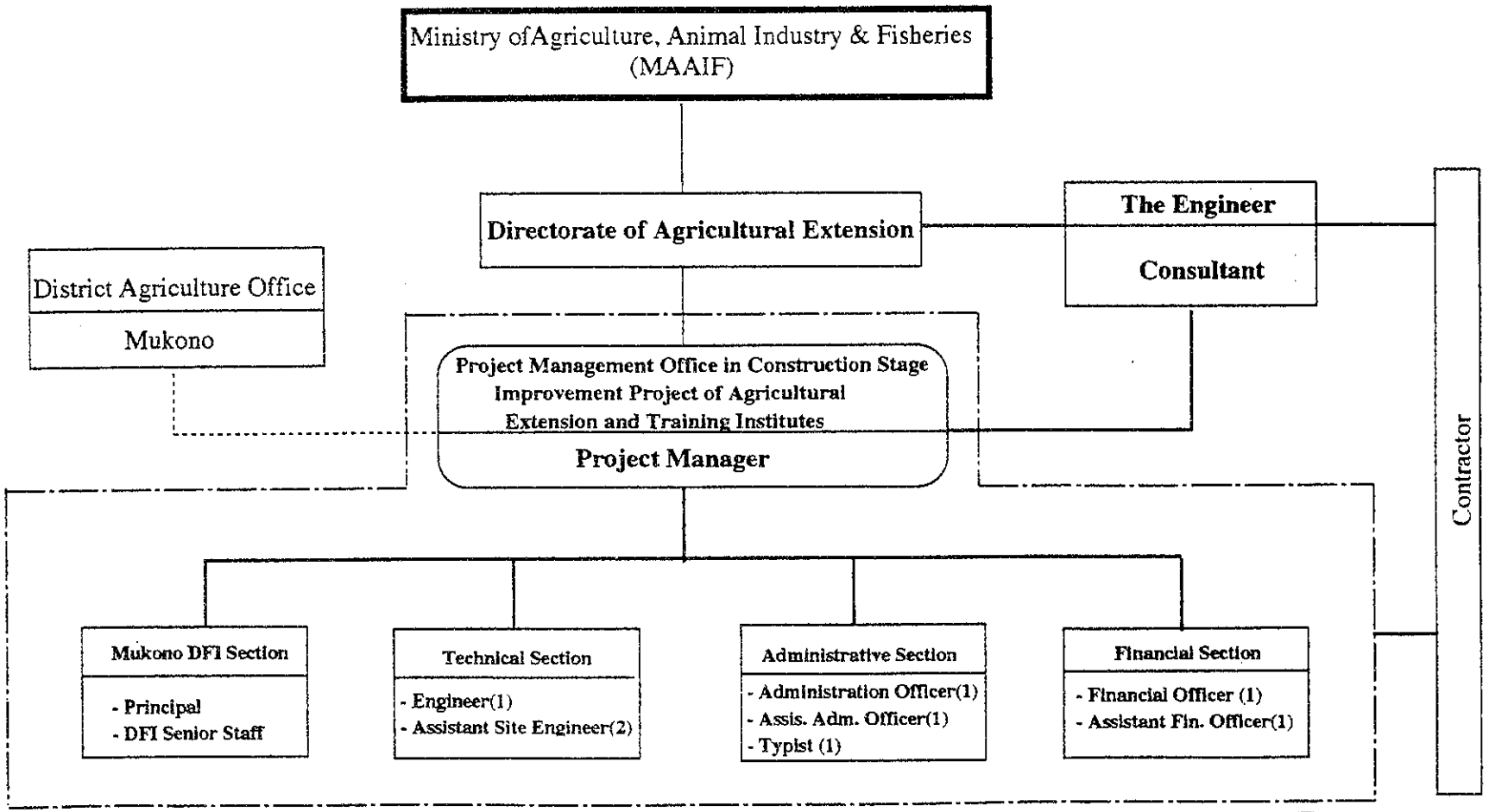
6.3 Our Application to Lease Part of Church Land for Water Provision

6.4 Application to Lease Part of Church Land for Water Provision to the District Farm Institute

6.5 Preliminary Plan for Improvement of Masaka DFI

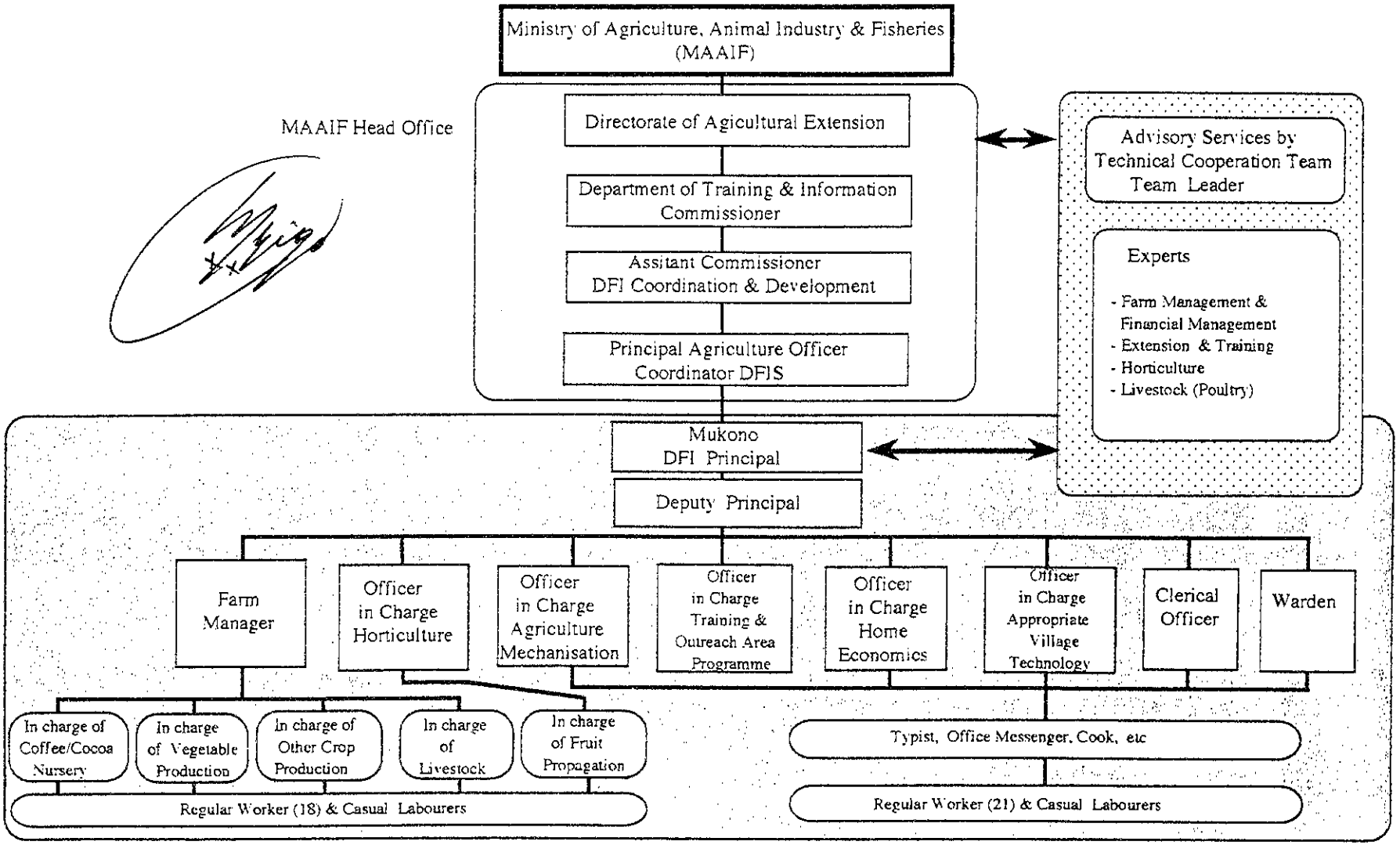
6.6 Data Sheet for Corn Penetration Test

6.7 Result of Water Quality Analysis



Project Implementation Organization

6.1 Confirmed Project Implementation Organization



Future Organization Plan for Mukono DFI

6.2 Confirmed Future Organization Plan for Mukono DFI

n any correspondence on AGR. 262
his subject please quote No.....

THE REPUBLIC OF UGANDA

MINISTRY OF AGRICULTURE,
ANIMAL INDUSTRY AND FISHERIES,

P.O. BOX 102, ENTEBBE, UGANDA
TELEGRAMS: "NATURE ENTEBBE"
TELEPHONE: 20980/3, 20987/8, 20322/3, 20327/8
FAX: 256-042-21047, 256-042-21010
TELEX: 61287

13th August, 1997

The Executive Secretary,
Church Commissioner,
P. O. Box 14123,
KAMPALA

6.3 **Our Application to Lease Part of Church Land for Water Provision**

Re: **OUR APPLICATION TO LEASE PART OF CHURCH LAND FOR WATER PROVISION TO THE DISTRICT FARM INSTITUTE**

I am in receipt of your letter ref. LP1/1 of the 11th instant in response to our request to lease 1500m^2 of Church Land.

I take this opportunity to thank you for positively considering to offer to the Ministry the lease applied for and I wish to inform you that the Ministry accepts to pay the lease fees of the equivalent of US $ 2400 and the yearly ground rent of the equivalent of US $ 240 as stipulated in your offer.

We are looking forward to signing the documents when they are ready.

C. Kabunga
UNDER SECRETARY FINANCE & ADMINISTRATION
for: **PERMANENT SECRETARY**

THE CHURCH OF THE PROVINCE OF UGANDA
CHURCH COMMISSIONERS

WILLIS ROAD, NAMIREMBE.

KAMPALA

TELEPHONES:

	OFFICE	RESIDENCE
ARCHBISHOP	270218	
PROVINCIAL SECRETARY	270219	271081
PROVINCIAL TREASURER	270218/9	272504
EXECUTIVE SECRETARY, CHURCH COMMISSIONERS	270218/9	

P.O. BOX 14123
KAMPALA
UGANDA

OUR REF:
YOUR REF: LP1/1

DATE: 11/08/1997

The Permanent Secretary,
Ministry of Agriculture, Animal Industry and Fisheries,
P.O. Box 102,
ENTEBBE.

6.4 **Application to Lease Part of Church Land for Water Provision to the District Farm Institute**

Dear Sir,

Re: **APPLICATION TO LEASE PART OF CHURCH LAND FOR WATER PROVISION TO THE DISTRICT FARM INSTITUTE.**

Further to our letter of even Ref. LP1/1 dated 11/08/1997 in connection to the above underlined subject, we write to inform you that we have already had a meeting with the Church of Uganda Quantity Surveyor.

He has assessed the Premium for the piece of land (1500 M^2) to be Leased to Mukono D.F.I. Management on behalf of the Permanent Secretary, Ministry of Agriculture, Animal Industry and Fisheries to be US $ 2400 (United States Dollars Two thousand four hundred only), and the yearly annual ground rent to be US $ 240 (United States Dollars Two hundred and forty only). The ground rent will be revisable after five years. This payment will be met by the office of the Permanent Secretary Ministry of Agriculture, Animal Industry and Fisheries.

We are in the process of preparing a Lease Agreement which will be sent to you for signature and seal.

Yours faithfully,

G.N. Mutegule,
for: EXECUTIVE SECRETARY CHURCH COMMISSIONERS.

c.c. The Principal/Mukono DFI.
c.c. The Principal, BTTC.
c.c. The District Extension Co-ordinator Mukono.
c.c. The District Gender Officer.

6.5 Preliminary Plan for Improvement of Masaka DFI

1. Introduction

A prime constraint to strengthening the extension and training services of the Masaka DFI is the lack of potable water, thus the improvement of water supply facilities as the basic infrastructure is the top priority issue for activating the Masaka DFI. Besides, the improvement of deteriorated farm facilities is needed for providing the extension staff and farmers with adequate training services. Judging from the present performance of its activities, however, the Masaka DFI has room still to expand and continue such the services as demonstration and agricultural production by utilizing the existing DFI's facilities being in fairly workable conditions. It is considered reasonable, therefore, that the improvement project for the Masaka DFI would be implemented when the performance of extension and training activities attain to a certain level with a self-reliance effort by activating its services through strengthening the administrative organization and staffing, increasing agricultural production and securing the required fund. Studied the results of field investigation by the JICA Study Team, the target activities performed by the Masaka DFI with self-reliance effort and a preliminary plan for its improvement project are described below for reference.

2. Basic Concept for Agricultural Extension and Training

Same as a case of the Mukono DFI, the extension and training services of the Masaka DFI are divided into the following four categories:

1) Farmers' Training
2) Training for Extension Staff
3) Non-Agricultural Training
4) Other Extension Activities (supply of seeds, etc.)

The contents of the above respective services categories are mentioned below, and those schedules are shown in Table A6.5.1.

(1) Farmers' Training

(a) Long and medium-term training for rural youth

The long and medium-term training for rural youth is conducted only after

completion of the improvement project of the Masaka DFI. After improvement works of Masaka DFI facilities are made, the final target for the annual long and medium-term training program will have two courses of crop and livestock (ten persons for crop, five persons for livestock, fifteen persons in total).

(b) Short-term training for rural farmers including women

The annual target with its own effort without facility improvement will be one night stay training for rural youth and farmers covering each two courses of crop and livestock, thus four courses in total (five persons per course, 20 persons in total). When the adequate facilities becomes available by the improvement project, the short-term training program for rural farmers will be implemented by each two courses of crop and livestock, four courses in total (five persons per course, 20 persons in total).

(c) One-day visiting training

One-day visiting training program includes; (i) introductory course for the above long and medium-term training and short-term training programs, (ii) observation of specific farming technologies, and (iii) procurement of improved seed and seedlings producing at the DFI. One-day visiting training program will be conducted monthly and organized by the field extension officers at county and village levels through information dissemination. One batch of trainees will be around 30 farmers.

(2) Training for Extension Staff

The annual target with its own effort without facility improvement will be residential training for three days instead of six days for the training of extension staff. The Masaka DFI has no facility holding 70 persons at once, hence the training for FEOs will be residential training for three days covering 30 persons and one-day workshop meeting.

(3) Non-Agricultural Training

Non-agricultural training has been implemented using the DFI facilities by the request of other organizations. Based on the past performance of the non-agricultural training programs, residential training and one-day training programs covering the respective 20 and 30 persons will be allocated without overlapping with agricultural training programs.

3. Basic Concept for Agricultural Production

The possible agricultural production of the Masaka DFI with its self-reliance effort before the facilities are improved are those of nurseries of fruits, nurseries of vegetables, coffee (resumption of production), maize, soy bean and pigs. The resumption of pig raising is important in particular in the light of livestock industry prevailing in the regional economy of the Masaka District. Upon the future improvement project, it is envisaged to expand the crop and livestock items together with increased production scale.

The production targets with its own effort without facility improvement and those final targets are summarized as follows :

Outline of Agricultural Production Plan in Masaka DFI

Item	Self-Achievement			Final Target		
	Planted Area/ Initial Stock	Production		Planted Area/ Initial Stock	Production	
Crop Sector						
1. Nursery	(m2)	(piece)		(m2)	(piece)	
Fruit Tree	300	3,000		300	10,000	
Coffee	600	2,750		600	55,000	
Vegetable	-	108,000		300	1,080,000	
2. Crop	(ha)	(ton)		(ha)	(ton)	
Maize	1.7	7		8.4	32	
Soybean	1.6	3		8.2	15	
Vegetables	-	-		2.6	28	
Livestock Sector						
Dairy	-	-		3 cows	10,700	lit.
					3	calves
Piggery	3 sows /1 boar	45	piglets	5 sows /1 boar	90	piglets

In Masaka DFI, the production target with its own effort using existing field and facilities will be made through increase in production of seedling of fruits, coffee and vegetable, double cropping of maize (0.85 ha) and soybean (0.80 ha), and piggery with three sows and one boar. The financial and institutional support of the MAAIF will be indispensable for the above activities.

4. Basic Concept for Land Use

Masaka DFI has a large area of 127.8 ha of which land utilization limited at 8.4 ha. Development of all of arable land at once is not necessary taking the present number of staff, training and extension activities into consideration. Farm land development in Masaka DFI will cover the existing farm land (8.4 ha) and rehabilitation area (18.8 ha). According to the above mentioned agricultural production plan, the required farm lands are 27.2 ha in total : consisting of 2.6 ha for vegetables, 8.3 ha for annual crops (4.2 ha for maize and 4.1 ha for soy bean), 2.4 ha for nurseries of traditional tree crops (cash crops), 0.9 ha for pasture, 6.9 ha for the existing paddock and 6.1 ha for the existing experiment farm. The land use plan is summarized as follows :

Land Use	Area (ha)
(1) Office, Classroom, Residential	8.4
(2) Farm Land	27.2
Annual crop	9.6
Experiment	6.1
Fodder, paddock	9.1
Cash crop (coffee, cacao)	2.4
Fruit	-
Model farm	-
(3) Farm Facility	2.4
Livestock	0.9
Nursery	1.5
(4) Others	89.8
Total	127.8

Apart from providing the trainees with the demonstration and training in DFI, the Masaka DFI will carry out the agricultural production. However, the lack of farm roads in the DFI constrains the adequate demonstration and training as well as the agricultural production, and in fact the transportation of agricultural inputs and outputs are made manually. Therefore, the improvement of farm roads is indispensable same as those planned in the Mukono DFI.

According to the above agricultural production plan, the vegetables are to be cultivated in the 2.6 ha farm throughout the year. To encounter the shortage of irrigation water in the dry season, the provision of irrigation facilities is prerequisite. Since this annual crop units to be irrigated is extended on the fairly steep sloped land, the terracing works will also be needed. In addition, land reclamation works, including bush and roots removing, gravel removing, etc., will be necessary for renovating the existing farm lands.

5. Basic Concept for Improvement of DFI's Facilities

In accordance with the above mentioned agricultural extension and training program and agricultural production plan, a plan on the improvement of the Masaka DFI's facilities is formulated. The improvement of facilities is divided into the six categories: (i) building facilities; (ii) farm facilities; (iii) electric supply facilities; (iv) water supply facilities (v) farm development; and (vi) provision of training equipment and agricultural machinery. The respective items of improvement works for the Mukono DFI are screened, taking into account the anticipated DFI's managerial capacity after the improvement project be made. The details of these improvement works for the Masaka DFI are mentioned below.

(1) Building Facilities

According to the results of field investigation and the required extension and training program, the construction of a multi-purpose hall and renovation of the aged three existing buildings, one classroom with administration room and two dormitories would be required. The capacities of the respective buildings would be 40 persons for classroom (two rooms) and 16 persons for one existing dormitories. The mullet-purpose hall will used for meetings of extension staff and trainees of more than 40 persons, and a room for library and document custody would be annexed to this hall. Judging from the past records of agricultural training, the capacity of hall would be designed at 60 persons at the maximum.

(2) Farm Facilities

Based on the results of field investigation and the agricultural production plans mentioned above, four facilities are required to be constructed, including each unit of netshade house, cow shed, piggery and storage house.

(3) Electric Supply Facilities

The Project would require three phase power for the water pumps of the irrigation and potable water supply purposes. An additional line will be provided to upgrade to three phase power receiving together with the replacement of transformer due to increased power requirements. Renovation of security lights is needed, however, such minor repair could be made by the Masaka DFI itself as a part of ordinary maintenance works.

(4) Potable Water Supply Facilities

The potable water can be taken from the neighboring swamp by a pump, and delivered to the facilities including agricultural fields for irrigation purpose through an overhead water tank installed in the DFI. The existing wells in and around the DFI are not always utilized for drinking purpose because of heavy ferrous smell. The existing swamp can be utilized for water sources for drinking and livestock purposes as its quality is relatively favorable. In addition, the water pumps and delivery pipe lines would be replaced with new ones because these are very aged and mal-functioning.

(5) Farm Development

According to the required extension and training program and agricultural production plans, the farm development works would be necessary, including terracing works of 2.6 ha in net and the land reclamation of 12.6 ha in net. The farm roads are required to be rehabilitated as well with a total length of 8.5 km. The irrigation networks would also be facilitated in the 2.6 ha farm reformed by the terracing works.

(6) Supply of Training Equipment and Agricultural Machinery

Based on the results of field investigation, the items of equipment and machinery to be provided would be: benches, etc. for newly constructed multi-purpose hall; typewriter, OHP screen and microphone set for training activities; and tractor with attachments, communication equipment, pickup, thermometer, etc. for the agricultural production.

6. Basic Concept for Operation and Maintenance Plan of DFI

The present administration of the Masaka will be responsible for operation of extension and training services, and maintenance of building facilities and equipment to be improved. The Directorate of Extension of MAAIF and the District Agricultural Office as well will continue technical and financial assistance to the DFI. To realize efficient operation of farmers training services and increased agricultural production, the present administrative organization of the Masaka DFI is required to be partly reformed and strengthened by increasing necessary staff.

The expenditures required for the DFI's management are the costs for salary and allowance of office staff and workers, maintenance of premises facilities and equipment,

extension and training services, agricultural production, operation of demonstration farms, etc. Two fund resources will be secured for improved management of DFI; one is the budget allocated by MAAIF and partly District Office, and the other the DFI's own revenue benefited from the non-agricultural training using DFI's premises and DFI's own agricultural production.

7. Basic Plan for Improvement Project

The basic development plan for the Masaka DFI, which is formulated based on the concepts for the respective plans mentioned above, would be to improve and construct the building facilities, farm facilities and farming fields together with provision of training equipment and agricultural machinery, as outlined below.

Features of the Project

Description	Requirement	Quantity
1. Building facilities		
1.1 New construction		
Multi-purpose hall	60 persons	1 unit
1.2 Renovation		
Class room/Admin. house	40 persons	1 units
Dormitory	32 persons	2 unit
2. Farm facilities		
Net shade unit	620 m2	2 units
Cattle sheds	152.4 m2	2 unit
Storage house	161 m2	1 unit
3. Water and electric supply facilities		
Drinking water	3,670 lit/day	1 unit
Water for livestock, etc.	12,510 lit/day	1 unit
Electricity	3 phases/single phase/transformer	1 unit
4. Farm development		
Land preparation	12.6 ha	1 unit
Terracing works	2.6 ha	1 unit
Farm roads		
Main road	5 m wide	2,500 m
Feeder road	3 m wide	6,000 m
Regulating pond	-	1 unit
Irrigation facilities	2.6 ha	1 unit
5. Supply of equipment and goods		
Goods for multi-purpose hall	4 items (bench, table, etc.)	30 pcs.
Training equipment	3 items (typewriter, etc.)	3 pcs.
Agricultural machinery, etc.	8 items (tractor, etc.)	10 pcs.

Table. A.6.5.1 Future Training Program in Masaka DFI (1/2)

(1) Self-effort Targets

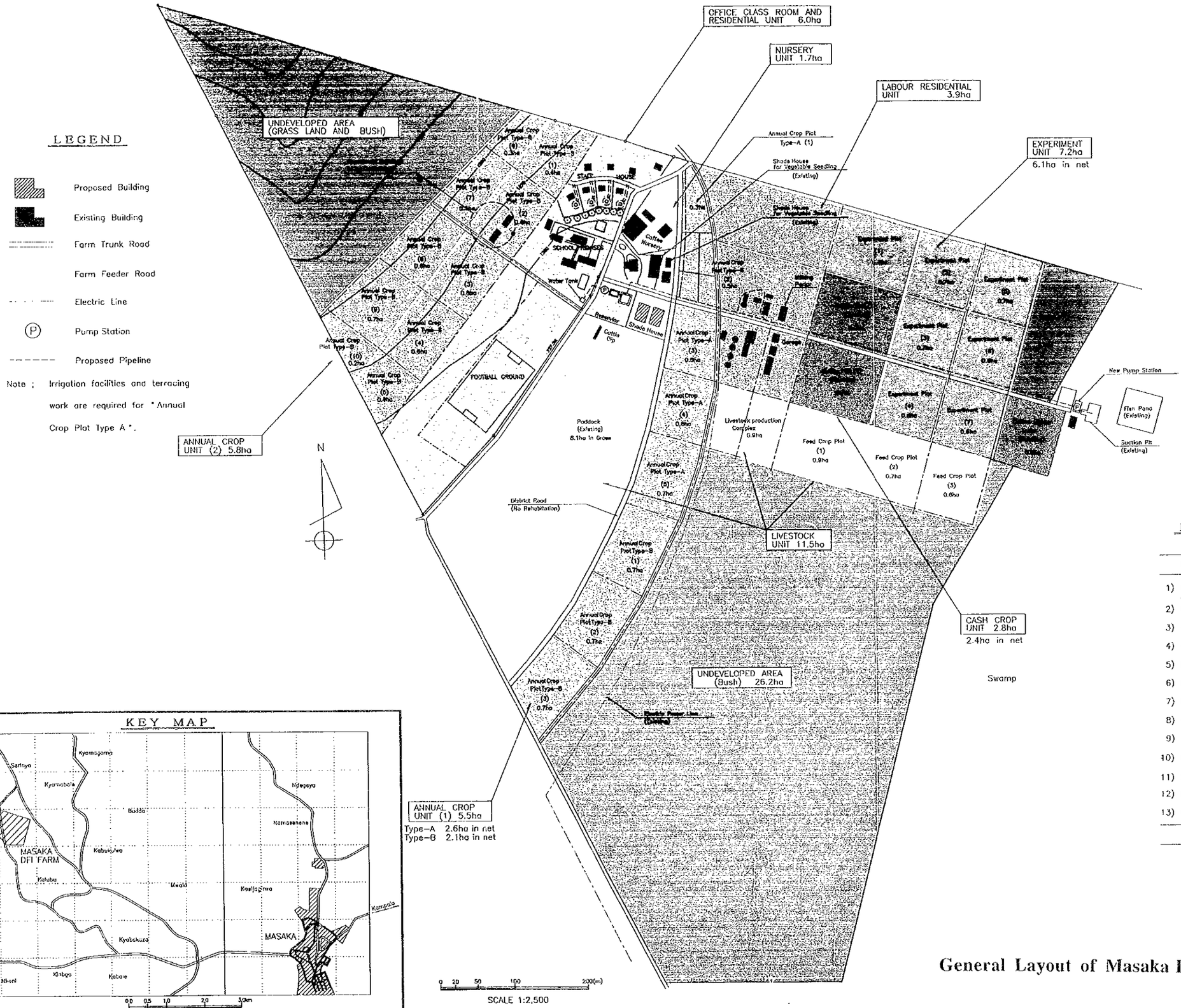
COURSES	No.	January				February				March				April				May				June				July				August				September				October				November				December				Trainee Days
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
I. Agricultural Training																																																	
I-1 Farmers' Training Program																																																
(1) Youth Program																																																
Crop Production																																																
A Group	5	1				1				1																1				1				1															30
Livestock Production																																																
B Group	5													1				1																	1								1							20
(2) Adult Farmers' Training																																																
Crop Production																																																
C Group	5				1																											1															10
Livestock Production																																																
D Group	5														1																					1												10
No. of Trainees stayed/day (I-1)		5	0	0	5	5	0	0	0	5	0	0	0	5	0	5	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	5	0	5	5	5	0	0	0	0	0	5	0	0	0	0	0	0	0	70
I-2 Regular Training Program																																																
(1) Agricultural Extension Program																																																
Subject Matter Specialist, County Coordinator	300			3			3					3															3												3										300
Field Extension Officer	30		3								3								3							3					3			3									3				630
(2) Livestock Management	10																						3																	3					3				90
(3) NARO and Others	20														3										3																				3				180
No. of Trainees stayed/day (I-2)		0	30	20	0	0	20	0	0	0	30	20	0	0	20	0	0	0	30	0	0	0	0	10	20	0	30	20	0	0	30	0	0	0	0	0	0	20	0	10	0	0	30	0	10	20	0	0	0	1,200
No. of Trainees stayed/day (I)		**5**	**30**	**20**	**5**	**5**	**20**	**0**	**0**	**5**	**30**	**20**	**0**	**5**	**20**	**5**	**0**	**5**	**30**	**0**	**0**	**0**	**0**	**10**	**20**	**5**	**30**	**20**	**0**	**5**	**30**	**5**	**0**	**5**	**5**	**5**	**0**	**20**	**0**	**10**	**0**	**5**	**30**	**0**	**10**	**20**	**0**	**0**	**0**	
I-3 Non-Residential Program																																																
(1) One-day Farmer's Training	30		1				1					1			1				1					1			1					1				1					1				1				360
(2) DAO Meeting	30	1				1				1				1				1				1				1				1				1				1				1				1				360
II. Non-Agricultural Training																																																
(1) Residential Training	20				6				6								6				6								6				6				6				6				6				1,200
(Residents nearby DFI)					0				0								0				0								0				0				0				0				0				0
(Actual Residents in DFI)																																																1,200
(2) One-day Training	30	1				1				1				1				1				1						1		1				1					1				1				1	360
Total No. of Trainees stayed/day		**5**	**30**	**20**	**25**	**5**	**20**	**20**	**0**	**5**	**30**	**20**	**0**	**5**	**20**	**5**	**20**	**5**	**30**	**0**	**20**	**0**	**0**	**10**	**20**	**5**	**30**	**20**	**20**	**5**	**30**	**5**	**20**	**5**	**5**	**5**	**20**	**20**	**20**	**10**	**0**	**5**	**30**	**20**	**10**	**20**	**20**	**0**	**0**	
Total Classroom Users		**30**	**30**	**20**	**25**	**30**	**30**	**20**	**0**	**30**	**30**	**20**	**0**	**30**	**30**	**5**	**20**	**30**	**30**	**0**	**20**	**30**	**0**	**30**	**20**	**5**	**30**	**30**	**20**	**30**	**30**	**5**	**20**	**30**	**30**	**5**	**20**	**20**	**20**	**30**	**0**	**30**	**30**	**20**	**10**	**30**	**20**	**0**	**30**	
Users in Dormitory (Max=32 person)		**5**	**30**	**20**	**25**	**5**	**20**	**20**	**0**	**5**	**30**	**20**	**0**	**5**	**20**	**5**	**20**	**5**	**30**	**0**	**20**	**0**	**0**	**10**	**20**	**5**	**30**	**20**	**20**	**5**	**30**	**5**	**20**	**5**	**5**	**5**	**20**	**20**	**20**	**10**	**0**	**5**	**30**	**20**	**10**	**20**	**20**	**0**	**0**	**42%**
Users in Class Room (Max=80 person)		**30**	**30**	**20**	**25**	**30**	**30**	**20**	**0**	**30**	**30**	**20**	**0**	**30**	**30**	**5**	**20**	**30**	**30**	**0**	**20**	**30**	**0**	**30**	**20**	**5**	**30**	**30**	**20**	**30**	**30**	**5**	**20**	**30**	**30**	**5**	**20**	**20**	**20**	**30**	**0**	**30**	**30**	**20**	**10**	**30**	**20**	**0**	**30**	**26%**
																																															Percentage of Annual Utilization

Table. A6.5.1 Future Training Program in Masaka DFI (2/2)

(2) Final Targets (5years after Farm Development)

COURSES	No.	January				February				March				April				May				June				July				August				September				October				November				December				Trainee Days	
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
I. Agricultural Training																																																			
I-1 Farmers' Training Program																																																		
(1) Youth Program																																																		
Crop Production																																																		
A Group	10			13				13				13												13				13				13																				780
Livestock Production																																																		
B Group	5															13				13																13								13								260
(2) Adult Farmers' Training																																																		
Crop Production																																																		
C Group	5			6																								6																						60
D Group	5				6																								6																				60
Livestock Production																																																		
E Group	5							6																												6													60
F Group	5								6																												6													60
No. of Trainees stayed/day (I-1)		10	10	5	5	10	10	5	5	10	10	0	0	5	5	0	0	5	5	0	0	10	10	0	0	10	10	0	0	10	10	5	5	5	5	5	5	0	0	0	0	5	5	0	0	0	0	0	0	1,280	
I-2 Regular Training Program																																																		
(1) Agricultural Extension Program																																																		
Subject Matter Specialist, County Coord	nator			6								6																6										6											480
Field Extension Officer	70											0	2															0	2									0	2										280
(2) Livestock Management	20																							6																6										240
(4) NARO and Others	30																			6																										6					360
No. of Trainees stayed/day (I-2)		0	0	20	0	0	0	0	0	0	0	20	70	0	0	0	0	0	0	30	0	0	0	20	0	0	0	20	70	0	0	0	0	0	0	0	0	20	0	20	0	0	0	0	0	30	0	0	0	1,360	1,360
No. of Trainees stayed/day (I)		10	10	25	5	10	10	5	5	10	10	20	70	5	5	0	0	5	5	30	0	10	10	20	0	10	10	20	70	10	10	5	5	5	5	5	5	20	0	20	0	5	5	0	0	30	0	0	0		
I-3 Non-Residential Program																																																	
(1) One-day Farmer's Training	30		1				1				1				1				1				1				1				1				1				1				1					360	
(2) Monthly DAO Meeting	70		1						1				1				1				1				1				1				1				1				1				1			700	1,060
II. Non-Agricultural Training																																																	
(1) Residential Training	30					6			6			6					6				6							6							6				6			6					6			2,160	
(Residents nearby DFI)					0			0			0					0				0			0				0							0				0			0					0			48	
(Actual Residents in DFI)																																																2,112	
(2) One-day Training	30	1					1				1				1				1				1						1				1				1				1					1			360	
Total No. of Trainees stayed/day		10	10	25	32	10	10	32	5	10	40	20	70	5	5	30	0	5	5	30	30	10	10	20	30	32	10	20	70	10	10	32	5	5	5	32	5	20	30	20	0	5	5	30	0	30	30	0	0		
Total Classroom users		40	110	25	32	40	40	32	75	40	40	50	70	35	35	30	70	35	35	30	100	40	40	20	100	32	40	50	70	40	40	32	75	35	35	32	75	50	30	50	70	35	35	30	70	60	30	100	0		
Users in Dormitory (Max=32 person)		10	10	25	32	10	10	32	5	10	32	20	32	5	5	30	0	5	5	30	30	10	10	20	30	32	10	20	32	10	10	32	5	5	5	32	5	20	30	20	0	5	5	30	0	30	30	0	0	51%	
寮32人収容の場合																																																	
Users in Class Room (Max=80 person)		40	80	25	32	40	40	32	75	40	40	50	70	35	35	30	70	35	35	30	80	40	40	20	80	32	40	50	70	40	40	32	75	35	35	32	75	50	30	50	70	35	35	30	70	60	30	80	0	57%	
教室80人収容の場合																																																	

Percentage of Annual Utilization

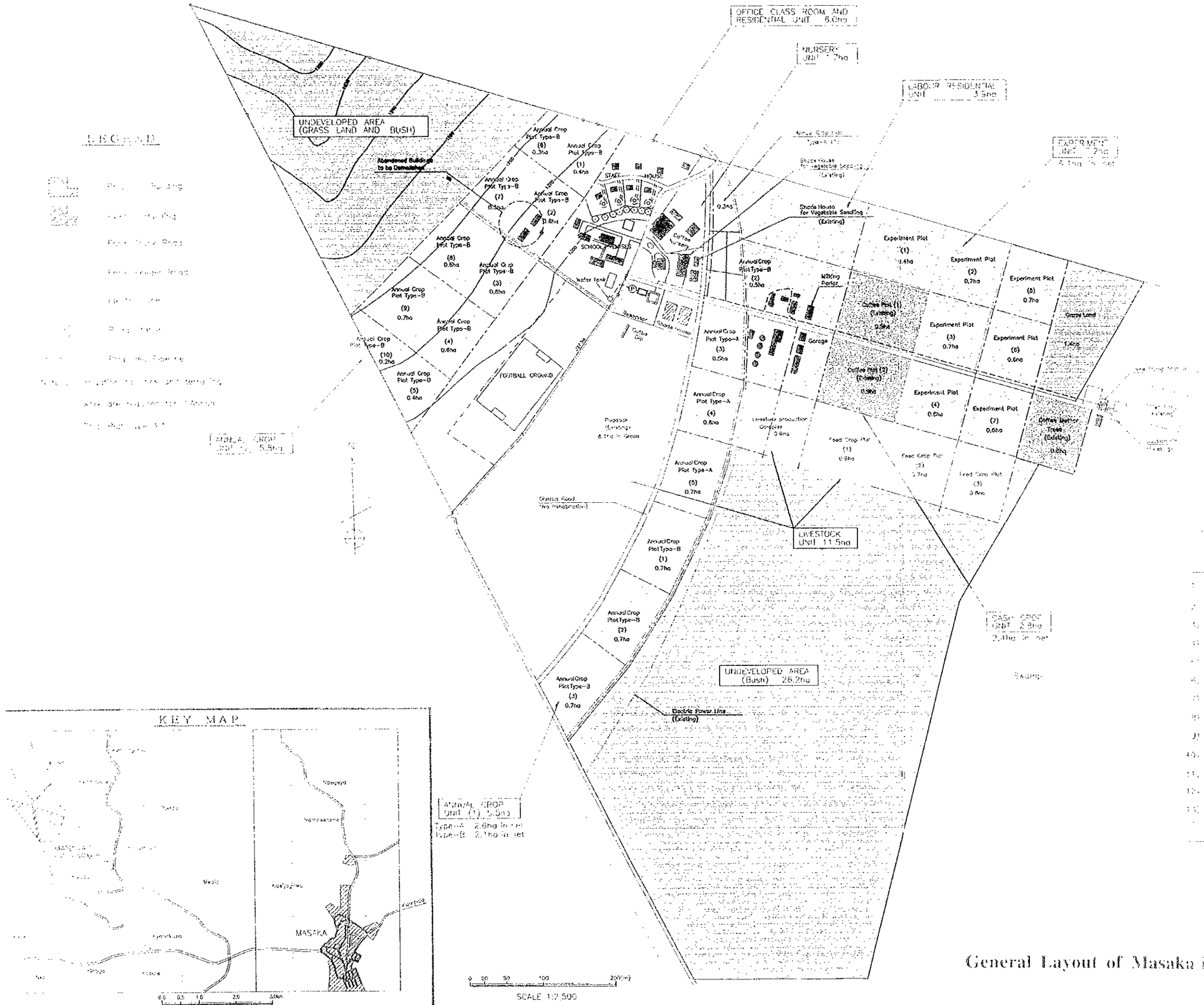


LAND USE PLAN

(unit ; ha in net)

Name of Unit	Area
1) Office, class room and residential	5.1 ha
2) Labour residential	3.3 ha
3) Annual crop (1)	4.7 ha
4) Annual crop (2)	4.9 ha
5) Nursery	1.5 ha
6) Experiment	6.1 ha
7) Livestock	9.8 ha
8) Cash crop	2.4 ha
9) Undeveloped area	29.6 ha
10) Grass land	1.2 ha
11) Swamp	23.5 ha
12) Bush	16.6 ha
13) Others	19.1 ha
Total	127.8 ha

General Layout of Masaka District Farm Institute


OFFICE CLASS ROOM AND RESIDENTIAL UNIT 6.0ha
NURSERY UNIT 1.7ha
LABOUR RESIDENTIAL UNIT 3.5ha
EXPERIMENT UNIT 7ha
UNDEVELOPED AREA (GRASS LAND AND BUSH)
Abandoned Buildings to be Demolished
STAFF HOUSE
Shade House for Vegetable Seedling (Existing)
Experiment Plot (1) 1.4ha
Experiment Plot (2) 0.7ha
Experiment Plot (3) 0.7ha
Experiment Plot (4) 0.8ha
Experiment Plot (5) 0.7ha
Experiment Plot (6) 0.6ha
Experiment Plot (7) 0.6ha
Grassy Land 1.4ha
Coffee Plot (1) (Existing) 0.5ha
Coffee Plot (2) (Existing) 0.3ha
Coffee Border Trees (Existing) 0.8ha
Annual Crop Plot Type-B (1) 0.4ha
Annual Crop Plot Type-B (2) 0.8ha
Annual Crop Plot Type-B (3) 0.8ha
Annual Crop Plot Type-B (4) 0.6ha
Annual Crop Plot Type-B (5) 0.4ha
Annual Crop Plot Type-B (6) 0.3ha
Annual Crop Plot Type-B (7) 0.5ha
Annual Crop Plot Type-B (8) 0.5ha
Annual Crop Plot Type-B (9) 0.7ha
Annual Crop Plot Type-B (10) 0.2ha
Annual Crop Plot Type-A (1) 0.7ha
Annual Crop Plot Type-A (2) 0.5ha
Annual Crop Plot Type-A (3) 0.5ha
Annual Crop Plot Type-A (4) 0.6ha
Annual Crop Plot Type-A (5) 0.7ha
Water Tank
Borehole
Garage
Nursery Parlor
FOOTBALL GROUND
Pasture (Existing) 6.1ha in Green
Livestock Production Complex 0.9ha
Feed Crop Plot (1) 0.8ha
Feed Crop Plot (2) 0.7ha
Feed Crop Plot (3) 0.8ha
District Road (No Improvement)
LIVESTOCK UNIT 11.5ha
UNDEVELOPED AREA (Bush) 26.2ha
Electric Power Line (Existing)
ANNUAL CROP UNIT (1) 5.8ha
Type-A 2.6ha in net
Type-B 2.1ha in net
PASTURE UNIT 2.8ha
2.4ha in net
Existing
0 20 50 100 200(m)
SCALE 1:2,500
KEY MAP
MASAKA
0 0.5 1.0 2.0 3.0km
SCALE 1:50,000
LAND USE PLAN
General Layout of Masaka District Farm Institute

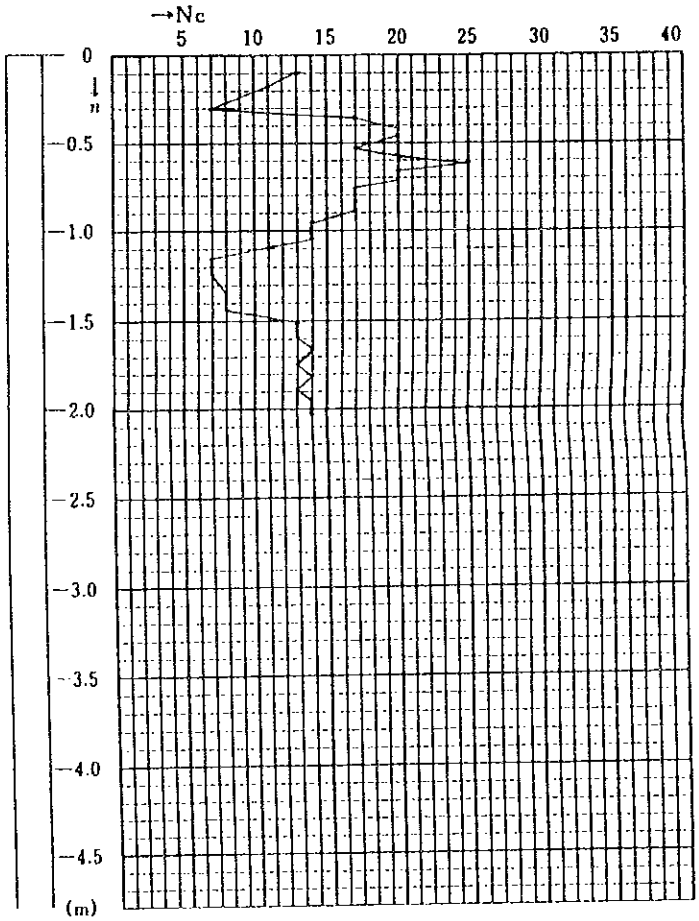
6.6 Data Sheet for Corn Penetration Test

簡易貫入試験記録用紙

機械番号 _____

測点 No.	1	試験地	MUKONO	地質	ラテライト	試験年月日	97年 7月 29日

打撃回数 N (回)	貫入深さ h (cm)	貫入量 $d=h_n-h_{n-1}$	$Nc=\frac{N}{d}\times 10$
0	2		
10	10	8	13
10	19	9	11
8	30	11	7
10	36	6	17
10	41	5	20
10	46	5	20
10	52	6	17
10	57	5	20
10	61	4	25
10	66	5	20
10	71	5	20
10	77	6	17
10	83	6	17
10	89	6	17
10	96	7	14
10	104	7	14
7	114	10	7
6	123	9	7
8	133	10	8
8	143	10	8
10	151	8	13
10	159	8	13
10	166	7	14
10	174	8	13
10	181	7	14
10	189	8	13
10	196	7	14
10	203	7	14



Nc 換 算 表

N ＼ d	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0
1	20	10	7	5	4	3	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	40	20	13	10	8	7	6	5	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1
3	■	30	20	15	12	10	9	8	7	6	5	5	5	4	4	4	4	3	3	3	3	3	3	2	2	2	2	2	2	2
4	■	40	27	20	16	13	11	10	9	8	7	7	6	6	5	5	5	4	4	4	4	4	3	3	3	3	2	3	3	3
5	■	50	33	25	20	17	14	13	11	10	9	8	8	7	7	6	6	6	5	5	5	5	4	4	4	4	4	3	3	3
6	■	■	40	30	24	20	17	15	13	12	11	10	9	9	8	8	7	7	6	6	6	5	5	5	5	5	4	4	4	4
8	■	■	■	40	32	27	23	20	18	16	15	13	12	11	11	10	9	9	8	8	8	7	7	7	6	6	6	6	6	5
10	■	■	■	50	40	33	29	25	22	20	18	17	15	14	13	13	12	11	11	10	10	9	9	8	8	8	7	7	7	7
15	■	■	■	■	■	50	43	38	33	30	27	25	23	21	20	19	18	17	16	15	14	14	13	12	12	12	11	11	10	10
20	■	■	■	■	■	■	■	50	44	40	36	33	31	28	27	25	24	22	21	20	19	18	17	17	16	15	15	14	14	13

Nc換算表の使い方 ： N回打撃した時の貫入量がdcmの時のNcを求める。

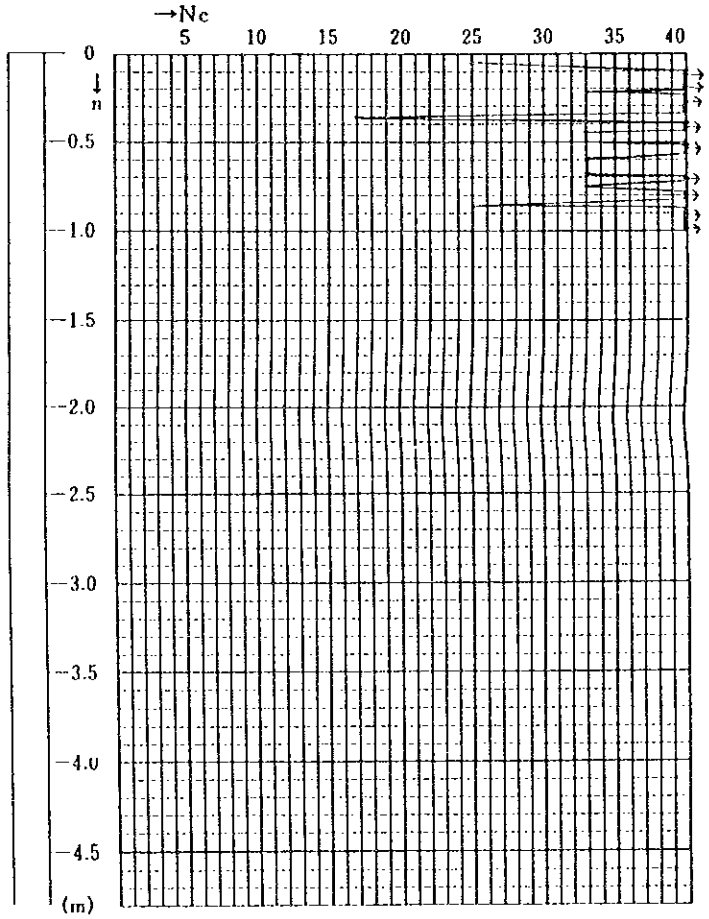
(例) 5回で8cm貫入の時のNcは6である。

簡易貫入試験記録用紙

機械番号 _____

測点 No.	1	試験地	MASAKA	地質	ラテライト	試験年月日	97年 7月31日

打撃回数 N (回)	貫入深さ h (cm)	貫入量 $d=h_n-h_{n-1}$	$Nc=\frac{N}{d}\times 10$
0	1		
10	5	4	25
10	8	3	33
10	10	2	50
10	12	2	50
10	14	2	50
10	16	2	50
10	18	2	50
10	21	3	33
10	22	1	100
10	24	2	50
10	26	2	50
10	28	2	50
10	30	2	50
10	36	6	17
10	39	3	33
10	41	2	50
10	44	3	33
10	47	3	33
10	50	3	33
10	52	2	50
10	54	2	50
10	56	2	50
10	59	3	33
10	62	3	33
10	65	3	33
10	68	3	33
10	70	2	50
10	73	3	33
10	75	2	50
10	78	3	33
10	80	2	50
10	82	2	50
10	86	4	25
10	88	2	50
10	91	3	33
10	93	2	50
10	94	1	100
10	95	1	100
10	96	1	100
10	97	1	100



Nc 換 算 表

n \ Nc	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0
1	20	10	7	5	4	3	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	40	20	13	10	8	7	6	5	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1
3	■	30	20	15	12	10	9	8	7	6	5	5	5	4	4	4	4	3	3	3	3	3	3	2	2	2	2	2	2	2
4	■	40	27	20	16	13	11	10	9	8	7	7	6	6	5	5	5	4	4	4	4	4	3	3	3	3	3	2	3	3
5	■	50	33	25	20	17	14	13	11	10	9	8	8	7	7	6	6	6	5	5	5	5	4	4	4	4	4	3	3	3
6	■	■	40	30	24	20	17	15	13	12	11	10	9	9	8	8	7	7	6	6	6	5	5	5	5	5	4	4	4	4
8	■	■	40	32	27	23	20	18	16	15	13	12	11	11	10	9	9	8	8	8	7	7	7	6	6	6	6	6	6	5
10	■	■	■	50	40	33	29	25	22	20	18	17	15	14	13	13	12	11	11	10	10	9	9	8	8	8	7	7	7	7
15	■	■	■	■	■	50	43	38	33	30	27	25	23	21	20	19	18	17	16	15	14	14	13	12	12	12	11	11	10	10
20	■	■	■	■	■	■	■	50	44	40	36	33	31	28	27	25	24	22	21	20	19	18	17	17	16	15	15	14	14	13

Nc換算表の使い方 ： N回打撃した時の貫入量がdcmの時のNcを求める。

(例) 5回で8cm貫入の時のNcは6である。

6.7 Result of Water Quality Analysis

NATIONAL WATER AND SEWERAGE CORPORATION
CENTRAL LABORATORY

DISCUSSION AND RECOMMENDATION FOR WATER TREATMENT OF MUKONO DFI AND KAMENYAMIGO DFI WATER.

Raw Water (Swamp/River) Quality:

The physico-chemical analysis done on the water shows that the raw water sources are good for the production of potable water. Potable water could be produced without intensive use of treatment chemicals but minimal doses because the parameter deviation from the standard is not so great.
The bacteriological examination results showed heavy faecal contamination of the Mukono source which is typical of most swampy water sources in Uganda; while the Kamenyamigo source had no faecal or total coliform growth at all! This is also characteristic of most of the swamp water around Masaka, e.g. Raw Water source, River Nabajjuzi, for Masaka Town has usually mild or no faecal contamination.

Treatment:

Taking into account the current quality and changes in water quality that normally occur with change in weather (rainy or dry season), it is advisable that the following water treatment stages or some of them be adopted to ensure continuous supply of good quality water fit for both human and farm use;

Stage 1: The raw water should be pumped into a settlement tank or the intake point dammed and widened to allow for sedimentation of any settlable solids and aeration of the water. This helps in reducing suspended solids and oxidizing dissolved Iron, respectively and hence improving the Turbidity, Colour and Iron content of the water.

Stage 2: Dosing of the water with Alum (Aluminium sulphate) solution or other coagulants to help in the removal of non-settlable suspended matter in water.
Here alum mixing tank, doser and reasonable sized clarifier are required. This has the effect of reducing further the Turbidity, Colour and other dissolved solids in water.
It should be noted that the appropriate alum dose ought to be determined, depending on the raw water quality, for each season.

Stage 3: Filtration of the water after or without clarification can be achieved using rapid gravity sand filters.This has an advantage of being cheap and efficient compared to other types of filters but need regular cleaning (back-wash) during rainy season when the water is dirty if no alum dosing and clarification is done.
Filtration helps in the removal of suspended solids, any floc carried over form the clarifier and trap some of the micro-organisms hence reduction in Turbidity, Colour and Colifom count, respectively.

Stage 4: Disinfection of water by use of Chlorine. This can be done using either powder/granular Calcium Hypo chlorite or compressed liquid Chlorine gas in cylinders. For easy management powder/granular type could be used and all that is needed is a plastic mixing tank, Plastic dosing tank and a doser. There should be a fairly sized concrete contact tank after the doser to allow for enough reaction time between Chlorine and water before water is pumped for distribution (supply).
Disinfection helps remove(kill) all the disease causing bacteria in water and also bleach any remaining colour.

Note: In the absence of disinfection, boiling water is the best remedy for the removal of disease causing bacteria and it can then be used for human consumption.

Bore-Hole water:
The water had high Colour, Turbidity, Suspended Solids and Total Iron.
Colour of the water is mainly caused by dissolved Iron which can be removed if the water is aerated. Aeration of the water can be achieved by allowing it to stand in an open container and a brownish-red precipitate of oxidized Iron settles at the bottom and some remains suspended. Filtration using a clean cloth helps remove the precipitate and the suspension.
Iron has not been known to cause any serious medical implications to consumers except causing staining and colouring of utensils and clothes, respectively, when in high quantities.

The rest of the parameters tested and not discussed were within or slightly above the standards for drinking water and can be controlled or reduced by the above outlined water treatment methods.

Compiled by: .....
OKWEREDE LANCE
Chemist/Analyst.

CERTIFICATE OF ANALYSIS

NATIONAL WATER AND SEWERAGE CORPORATION
CENTRAL LABORATORY
P.O. Box 7053
Tel. 257548
KAMPALA.

Date: 01/8/97

Tel.

TO : JAPAN INTERNATIONAL COOPERATION AGENCY
STUDY TEAM

Sample Source/Characteristics : Kamenyamigo DFI/Surface & Bore-hole Water
Date &Time of Sampling : 30/7/97 at 11.30 a.m. Sampled by: Okwerede.L
Date &Time Analysis started : 30/7/97 at 5.15 p.m. Oba.S.

Table of Analysis Results

PARAMETER	Units	Raw Water (LusamatuSwamp)	Stand-Tap at DFI	Bore-Hole at Misanvu	Uganda NationalDrinking water Std (Limit)
pH	-	6.75	6.85	6.62	6.0-8.5
Conductivity	uS/cm	44	50	72	1000
Colour	Pt	77	29	547	10
Turbidity	NTU	10	3.5	100	5
Total Dissolved Solids	mg/L	35	37.5	54	500
Total Suspended Solids	mg/L	5	7.0	148	10
Alkalinity(Total) as CaCO3	mg/L	13	10	32	250
Aluminium	mg/L				
Calcium as CaCO3	mg/L	12	8.0	11	75
Chloride	mg/L	6.7	6.7	3.3	250
Fluoride	mg/L				3.0
Hardness(Total) as CaCO3	mg/L	21	30	34	500
Iron(Total)	mg/L	0.50	0.03	57.0	0.3
Manganese	mg/L				0.1
Nitrite-Nitrogen	mg/L	1.40	3.7	35.0	
Nitrate-Nitrogen	mg/L	0.10	0.002	0.15	10
Phosphate(Reactive)	mg/L	0.05	0.08	1.15	0.2
Coliform-Total (count/100ml)	No.	Nil	140	Nil	Nil
Coliform-Faecal "	No.	Nil	70	Nil	Nil

Remarks: From the results of analysis most of the parameters tested do not satisfy the Uganda National Standards(Guide-line limits) for drinking water. The water, therefore, should be treated and disinfected to make it fit for human consumption.

Analysed by: .....

Signed by: .....
for **CENTRAL LABORATORY**

CERTIFICATE OF ANALYSIS

NATIONAL WATER AND SEWERAGE CORPORATION
CENTRAL LABORATORY
P.O. Box 7053
Tel. 257548
KAMPALA.

Date: 01/8/97

TO : JAPAN INTERNATION COOPERATION AGENCY
STUDY TEAM

Sample Source/Characteristics : Mukono DFI/Surface & Spring Water
Date &Time of Sampling : 29/7/97 at 10 a.m. Sampled by: Okwerede.L
Date &Time Analysis started : 29/7/97 at 2 p.m. Mutaasa.A.

Table of Analysis Results

PARAMETER	Units	Raw Water (Rwajjali Swamp)	KitchenWorkers' Quarters Tap	Bishop Tucker Farm (Spring Well)	Uganda National Drinking water Std (Limit)
Temperature	0C				
pH	-	6.91	7.15	6.45	6.0-8.5
Conductivity	uS/cm	100	90	50	1000
Colour	Pt	151	133	88	10
Turbidity	NTU	16	24	15	5
Dissolved Oxygen	mg/L				
Total Dissolved Solids	mg/L	75	67.5	37.5	500
Total Suspended Solids	mg/L	14	14	12	10
Alkalinity(Total) as CaCO3	mg/L	53	42	18	250
Aluminium	mg/L				
Calcium as CaCO3	mg/L	21	19	8	75
Chloride	mg/L	2.1	2.3	2.6	250
Chlorine: Free residual	mg/L				
Chlorine: Total residual	mg/L				
Fluoride	mg/L	0.45	0.52	0.70	3.0
Hardness(Total) as CaCO3	mg/L	43	42	18	500
Iron(Total)	mg/L	2.6	0.25	0.25	0.3
Manganese	mg/L	0.275	0.11	0.22	0.1
Ammonia-Nitrogen	mg/L				
Nitrite-Nitrogen	mg/L				
Nitrate-Nitrogen	mg/L				
Phosphate(Reactive)	mg/L	0.63	0.60	0.30	0.2
Silica	mg/L				
Sulphate	mg/L				
Coliform-Total (count/100ml)	No.	1100	180	190	Nil
Coliform-Faecal "	No.	500	20	90	Nil

Remarks: The results of analysis show that the water needs treatment and disinfection to make it fit for human consumption.

Analysed by: .....

Signed by: .....
for **CENTRAL LABORATORY**