JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF FINANCE AND ECONOMIC PLANNING

THE REPUBLIC OF UGANDA

THE MASTER PLAN STUDY ON THE INTEGRATED AGRICULTURAL AND RURAL DEVELOPMENT PROJECT IN CENTRAL UGANDA

ANNEX

SEPTEMBER 1994

JAPAN AGRICULTURAL LAND DEVELOPMENT AGENCY (JALDA)

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List of Appendixces

List of Tables

List of Figures

Appendix 1

Fundamental Data and Others

Appendix 1.1 National Rehabilitation and Development Plan (NRDP 1991/92 - 1994/95)

Table A1.1.1 Relevant Projects in the Study area included in NRDP

(1/6)

Code #1	Name of Project	Location	Action #2/Donors	Objectives
AG01 AG01(A)	Coffee Farming Systems Support Programme	Central Uganda	On-going EEC	Quality & quantity of coffee including food crops.
AG08(1) AG08(A)	Rehabilitation of the Seed industry	Masaka etc.	On-going EEC	Tractors and lorries for crops and pasture seeds
AG08(2) AG08(B)	Rehabilitation of the the Seed Industry	Masaka etc.	On-going Germany	Seed processing plant, office and staff house (legume seeds)
AG09(1) AG10(A)	Agricultural Research	MAAIF HQ. Station	On-going USAID, etc.	MAAIF HQ. MU and national research stations (bean programme)
AG09(2) AG09(B)	Agricultural Research	Kawanda Station	On-going USAID, etc.	Techniques, training & extension on food loss reduction
AG09(3) AG09(C)	Agricultural Research	Research Station	On-going USAID, etc.	Capability of research staff on root crops and cereals
AG09(4) AG09(D)	Agricultural Research	MAAIF etc.	On-going USAID, etc.	Training at all levels (manpower)
AG09(5) AG21(A)	Agricultural Research	Research Station	On-going USAID, etc.	Nutrient deficiencies, pests and diseases (banana cropping)
AG22 AG22(A)	National Census of Agriculture & Livestock	Nation-wide	Ended UNDP, FAO	Data base and information of agricultural sector
AG25 AG25(A)	Cacao Development Programme	Various	On-going UNDP, IDA	Rehabilitation and development of the cacao industry
AG27 AG03(A)	Cotton Production Programme	Luwero, etc.	On-going EEC, IFAD	High cotton production by input, extension and training
AT36 AG36(A)	Development of Horticulture Industry	Kawanda Station	On-going UNDP	Income, nutrition, food security processing & export
AG37(1) AG09(A)	Plant Protection & Quarantine Services	Entebbe, etc.	On-going UNDP	Research and techniques in crop protection
AG37(2) AG09(E)	Vertebrate & Migratory Pests Control	Entebbe, etc.	Ended UNDP	Establishment of unit and training of field staff
AG39 AG39(A)	FS of Integrated Food Production & Rural Development in Central Uganda	Mukono, Luwero, Mpigi, etc.	On-going Japan	Food crops and animal proteins through the supply of farm inputs, livestock drugs and spray chemicals for tsetse control (productivity and income)

Note: #1 Upper - original code, lower - new code at 26th May 1993
#2 Action - as of Sept. 1993.
AG: Agriculture, EP: Environment Protection, IT: Industry, SI: Social Infrastructure, MS: Multi Sector, HI: Health Infrastructure, TR: Transport and Communication, ED: Education, WI: Water Infrastructure

Source: Ministry of Finance and Economic Planning

Code #1	Name of Project	Location	Action #2/Donors	Objectives
AG80 AG30(A)	Rehabilitation of District Farm Institutes	All Districts	Not yet UG	District Farm Institutes for both adult and young progressive farmers
AG84(N) AG02(A)	Smallholder Tea Growers Project	Nation-wide	On-going EEC, EDF	Tea farmers return, green leaf yields, quality of leaf for processing
AG89(N) IT13(A)	East Africa Regional Pesticide Network	Nation-side	Ended IDRC	Patterns of pesticide mixing, storage, application and safe handling
AG90 AG26(A)	Agricultural Sector Adjustment Credit (ASAC)	Research Stations	On-going IDA	Financial stabilization, agricultural growth & diversification
AG92(N) AG34(A)	Development of Small Scale Irrigation and Swamp Reclamation	Lake Victoria Crescent	On-going FAO	Land & water resources, pilot schemes and capacity of the irrigation section
AG94(N) AG27(A)	Agricultural Extension Project	16 Districts	On-going IDA	Efficiency of extension, skills of agents and farmers, adoption of farmers
AG95(N) AG28(A)	Agricultural Research and training	Various	On-going IDA	Establishment of NARO, National research priorities and monitor system
AG90(3) AG26(B)	ASAC, Investment Component	Nation-wide	On-going IDA	Regulatory environment for development strategy by the government
AG12(1) AG12(A)	Livestock Disease Control Programme	Nation-wide	On-going EEC, IDA	Veterinary inputs and control of diseases
AG12(2) AG12(B)	Immunization East Coast Fever	Nation-wide	On-going DANIDA	Eradication of rinderpest and contagious bovine pleuropneumonia
AG13 AG13(A)	Dairy Development Project	Nation-wide	On-going UNDP, ADB	Dairy farm, milk collection & marketing extension services and livestock breed
AG16 AG16(A)	Rehabilitation of the Beef Industry	Nation-wide	On-going ADB	Rehabilitation of commercial ranches and upgrade of local breed
AG31(1) AG31(A)	Tsetse and Trypanosomiasis Control S.E.U.	Various	On-going UNDP	Animal human trypanosomiasis, tsetse-freed land and potential grazing land
AG31(2) AG31(B)	French Support Trapping Project	Various	On-going France	Trapping Project
AG31(3) AG31(C)	Block Treatment	Various	On-going UK	Block Treatment Project
AG31(4) AG31(D)	Kenya/Uganda Tsetse & Trypanosomiasis Control	Various	On-going OAU	Kenya/Uganda tsetse & trypanosomiasis control project
AG31(5) AG31(E)	Tsetse Control in Buvuma Island	Mukono	On-going FAO	Tsetse control project in Buvuma Island

Code #1	Name of Project	Location	Action #2/Donors	Objectives
AG32 AG32(A)	Rehabilitation of the Animal Health Research Centre	Entebbe	On-going Germany	Establishment of animal health & production monitoring system in Uganda
AG69(N) AG19(A)	Livestock Services Project	Nation-wide	On-going IDA	Endemic disease control and provision of extension services
AG70(N) AG40(A)	FS of Water Supply for Livestock	Nation-wide	Not yet	Various way and cost effective methods of supplying water to farmers
AG74(N) AG41(A)	Strategy Study to Develop Small Ruminants	Various	Not yet	Research, production, marketing and export of small ruminants
AG20(N) AG20(A)	Facilities for Primary Cooperative Storage	Nation-wide	Ended USAID	Storage of agricultural products, export market and food quality
AG21 AG20(B)	Central Storage Project	Nation-wide	Not yet Germany	Rehabilitation of the existing storage facilities
AG65 AG06(A)	Cooperative Agriculture Agro-Business Support Project (CAAS)	Nation-wide	Not yet USAID	Agricultural productivity by inputs, supply & marketing of inputs and agro-business development
EP06(N) EP10(A)	Improving Production & Utilization of Forest Products	Luwero	Not yet Norway	Utilization of the existing forest resource, re-planting
EP13(N) EP09(A)	Tree seed Project	Nation-wide	On-going UNSO	Provision of genetically suitable seed and plant material
EP60 EP08(A)	Forestry Rehabilitation Project	Nation-wide	On-going IDA, etc	Management of forest resources and of conservation of forests for eco-system
EP04 EP02(C)	National Wetland Conservation and Management Programme-Phase II	Nation-wide	On-going Norway	Long term utilization and food production from available land resources
EP09(N) EP04(A)	Uganda Chemical Safety Project	Nation-wide	On-going NORAD	Safe use of chemicals, national inventory of chemicals and management
EP11(N) EP05(A)	Biological Diversity Study	Nation-wide	On-going SIDA	Assessment of the total benefits, costs and needs for national conservation
EP12(N) EP06(A)	National Environment Action Plan	Nation-wide	On-going USAID, etc	Management of natural resource base in selected areas
IT07 IT05(A)	Industrial Sector Development Loans	Nation-wide	Ended EEC, etc	Garments, leather, tanning & edible oil for export potential

Code #1	Name of Project	Location	Action #2/Donors	Objectives
IT22(N) IT12(A)	Occupation Health and Safety in Cotton Industry	Nation-wide	On-going Canada	Occupational accidents and illness at ginneries and textile factories
IT28(N) IT14(A)	Trade Skills Development Programme	Mpigi	On-going UNDP	Development of basic skills for socio-economic infrastructure by training
PA01 AG42(A)	Strengthening of Agricultural Planning Services	Mpigi, etc.	On-going UNDP	Training in data collection, analysis, monitoring and evaluation for planning service
SI86 MS04(A)	Programme to alleviate poverty & Social Costs of Adjustment (PAPSCA)	Nation-wide	On-going IDA, etc.	Analysis of poverty and impact of structural adjustment programme on the vulnerable sections of society
SI06(B) HI01(C)	Rehabilitation of District & Rural Hospitals	Various	On-going IDA, etc.	Reduction of morbidity & mortality by health service
SI28(A) HI03(C)	Strengthening of Primary Health Care Service	Various	Ended USAID	Expanded family health initiatives
SI28(B) HI03(E)	Strengthening of Primary Health Care Service	Nation-wide	On-going UNICEF	Community Based Health Care Association (CBHCA)
SI28(C-D) HI03(A)(B)	Strengthening of Primary Health Care Service	Various	On-going UNICEF	Sanitation
SI28(F) HI03(D)	Strengthening of Primary Health Care Service	Mukono	On-going Denmark	Child health and development centre
SI29(A) HI11(A)	Uganda Health training and Disease	Various	On-going IDRC	Training facilities, primary health care, child health and training for nurse
SI30(C) HI06(A)	Control and Prevention of Disease	Nation-wide	On-going UNICEF	Uganda national expanded programme on immunization (UNEPI)
SI30(D) HI06(B)	Control and Prevention of Disease	Nation-wide	On-going UNICEF	Control DiarrhoeaDisease (CDD)
SI31(A) HI02(A)	Uganda Essential Drugs & Equipment Programme	Nation-wide	On-going Denmark	Implementation of the national drug policy, district health management
SI46(C) SI05(A)	National Population Programme	Various	On-going UNFPA	Mother-child health and family planning service delivery systems
SI49(A-E) HI05(A-E)	Uganda National Aids Control programme	Nation-wide	On-going WHO, etc.	Reduction of HIV virus and impact of epidemic on communities, families etc.

Code #1	Name of Project	Location	Action #2/Donors	Objectives
S175(A) HI04(B)	Management Support	Nation-wide	On-going UNICEF	Health information system
S175(B) HI04(D)	Management Support	Nation-wide	On-going UNICEF	Strengthening of District Health management
S175(C) HI09(D)	Management Support	Mpigi	Ended IDA	Project implementation unit-F.H.P.
S175(E) HI04(C)	Management Support	Nation-wide	On-going UNICEF	Strengthening of national health planning and management
S175(N) S175(N)	Health Services Rehabilitation Project: HSRP	Various	On-going ADB, etc.	Rehabilitation of the overall health care delivery system at 3 levels
S176(A) SI13(A)	Strengthening of Health Education System	Nation-wide	On-going UNICEF	Health education network
S176 SI09(C)	Strengthening of Health Education System	Nation-wide	On-going IDA	Information, education and communication (IEC)
S176(N) EO09(A)	School Health Education	Nation-wide	On-going UNICEF	Reduction of infant & child morbidity and mortality
SI11 WI01(A)	Completion of Luwero Water Supply Schemes	Luwero, etc.	On-going France	Production of 40 cu.m of water per month of the town of Luwero
SI12 WI02(A)	Uganda Water Supply Project	Masaka, etc.	On-going IDA, etc.	Water supply systems, waste water treatment facilities and service capacities
SI12(N) WI07(A)	Establishment of national criteria/guidelines for water quality monitoring and control	Nation-wide	On-going IDA, etc.	Effective water quality surveillance programme: surveillance of drinking water and national water quality guide lines
SI14(A) WI05(A)	Rural Water Supply and Sanitation Programme	Various	On-going UNICEF	Borehole pump replacements and maintenance
SI14(B) WI05(C)	Rural Water Supply and Sanitation Programme	Various	On-going UNICEF	Spring protection, wells & gravity schemes
SI14(C) WI05(D)	Rural Water Supply and Sanitation Programme	Various	On-going Italy (NGO)	Rural water and sanitation borehole drilling
SI32(A) WI04(B)	Small Towns Water and Sanitation Project	Various	On-going Germany	Improvement water supply & sanitation
SI32(B) WI04(C)	Small Towns Water and Sanitation Project	Various	On-going IDA, etc.	Expansion of the project to small towns

Code #1	Name of Project	Location	Action #2/Donors	Objectives
SI83(N) WI06(A)	Rural Water and Sanitation, East Uganda	Mukono, etc.	On-going Denmark	Development & improvement of water supply and sanitation systems
SI84(N) WI09(A)	National Water Resources Master Plan	Nation-wide	On-going Denmark	Analysis of the present water resource situation and development plans
SI01 ED05(A)	Rehabilitation of Technical Institutes and Technical Schools	Nation-wide	Not yet Canada, etc.	Up-grading of technical education and better balance between supply and demand for lower-level technical manpower
SI02 ED11(A)	Rehabilitation of Primary Schools	Nation-wide	On-going Japan	Rehabilitation & construction of schools for Universal Primary Education
SI02(B) ED11(B)	Rehabilitation of Primary Schools	Various	On-going GOU	Rehabilitation of primary schools in 19 districts
SI03 ED12(A)	Rehabilitation of Secondary Schools	Nation-wide	On-going EEC	Raising of the standard of secondary school education
SI02(N) MS06(A)	Micro-Projects	Nation-wide	On-going EEC	Community initiatives for social and economic development
SI20(A) SI25(A)	Rehabilitation of Community Centres and Rural Training Centres	Various	On-going Norway	Functional rehabilitation of the centres and re-equipment of the centres. Establishment of technical & physical
SI20(N) SI14(A)	Rehabilitation and Development of Nsamizi Institute for Social Development	Mpigi	Not yet GOU	Requirements for the Institute and maintenance of the existing facilities in an operational state
SI48(N) SI17(B)	Women Entrepreneurship Development Programme	Nation-wide	On-going UNDP	Development of women's skills in management and credit technique
SI60(N) SI15(A)	Adult Literacy Programme	Nation-wide	On-going UNICEF	Eradication of illiteracy by the year 2000
SI94(N) SI29(A)	Strengthening Community Management in Development and Operation of Facilities & Service	Luwero, Mpigi, etc.	On-going Denmark	Strengthening of local community management and operation of facilities, services and housing improvements in selected rural and urban settlements
SI97 SI18(A)	Village Skills Centres for Young People	Nation-wide	Not yet UNDP	Development of vocational/technical skills centres for young people
TR16(B)-(H) TR16(B)-(H)	Rehabilitation and Maintenance of Rural Feeder Roads	Various	On-going UNDP, 8 Donors	Rehabilitation and maintenance of rural feeder roads and support facilities
TR63(N) TR22(A)	Inland Water Transport Study	All Lakes, Rivers	Not yet	Cheap and vital inland water transport services and integrated transport
TR18 TR18(A)	Rehabilitation of Post and Telecommunications Services	Nation-wide	On-going IDA, etc.	Rehabilitation of the local telecommunications network and automatic exchange switch gear, etc.

Appendix 1.2 Farmers' Intention Study

Table A1.2.1 Forms of Farmers' Intention Study (FIS)

(1) Format 1 (for Sub-county headmen)

(as of February 1993)

1	Card No.		36	Prop. of telephone ownership	(per 100 houses)		Fill in down the name of main diseases		
2	Name of district		37	Number of postal service workers			71	(1)	
3	Name of county		38	Number of households with electricity			72	(2)	
4	Name of Sub-County		39	Connection rate	(%)		73	(3)	
5	Name of Sub-County headman		40	Factory using high-voltage electricity			74	(4)	
6	Election system of headman		41	Farmers' cooperatives			75	(5)	
7	Period of headman	(years)	42	Members of cooperatives				Can these be treated adequately at present?	
8	Elected members	(person)	43	Farmers' associations			76	sickness (1)	1 yes 2 no
9	*Number of staff*	(person)	44	Members of associations			77	sickness (2)	1 yes 2 no
10	Of those, technical staff		45	Membership rate	(per 100 houses)		78	sickness (3)	1 yes 2 no
11	Area of Sub-County	(ha)	46	Number of farm produce processing factories			79	sickness (4)	1 yes 2 no
12	Population of Sub-County	(person)	47	Workers of factories			80	sickness (5)	1 yes 2 no
13	Population aged 0 - 15	(person)	48	Total production of factories	(USHS)				
14	*Population aged 16 - 59*	(person)	49	Number of livestock processing factories					
15	Population aged 60 +	(person)	50	Workers of factories					
16	Male population	(person)	51	Total production of factories	(USHS)				
17	Worker population	(person)	52	Number of farm tools and machinery stores *1					
18	People engaged in agriculture		53	Number of farm chemicals stores *2					
19	People engaged in manufacturing		54	*Number of fertilizer stores* *3					
20	People engaged in retail trade		55	* Actual number in *1, *2, *3					
21	- do - in public office/services		56	Households connected to potable water supply					
22	- do - in other occupation		57	Connection rate of water supply	(%)				
23	Total households (= hous.)		58	Proportion (=Prop.) of hous. using wells	(%)				
24	Farming households		59	Prop. of houses using rainwater	(%)				
25	Manufacturing households		60	Number of houses using gas for cooking					
26	Retail/merchant households		61	Prop. of houses using gas	(%)				
27	Public office/service households		62	Prop. of hous. using charcoal for cooking	(%)				
28	Other households		63	Prop. of hous. using other fuels for cooking	(%)				
29	Number of railway stations		64	Number of elementary schools					
30	Number of bus stops		65	Attendance rate of elementary schools	(%)				
31	Number of taxis		66	Number of junior schools					
32	Number of trucks		67	Attendance rate of junior schools					
33	Number of transport companies		68	Number of hospitals					
34	Length of trafficable roadways	(km)	69	Number of clinics					
35	Proportion of car ownership	(per 100 houses)	70	Number of nurses					

81 Means of transport to city
1. Public transport (bus, railway)
2. No. transport but taxis etc. available
3. No. particular means of transport road nearby

82 Condition of road network - availability of trunk roads
1. National highway or other principal road passes through or borders Sub-County
2. National highway or other principal roads nearby
3. No. national highway or principal road nearby

83 Condition of road network - availability of feeder roads
1. Trafficable roads pass through or border Sub-County
2. Trafficable roads nearby
3. No. trafficable roads nearby

84 Sub-County environment - potable water
1. Running water in all homes
2. Public water supply nearby
3. Public well nearby
4. Public water supply some distance away
5. Public well some distance away
6. Rainwater only

85 Household waste water
1. Public waste water treatment system
2. Disposed into rivers and swampland without treatment
3. Absorbed into ground

86 Waste from livestock
1. Used as crop fertilizer
2. Disposed into river and swampland
3. Absorbed into ground

87 Obtaining daily goods
1. Stores conveniently located nearby
2. Stores too far way
3. Can use daily goods cooperatives
4. Production at home for consumption

88 Obtaining farm production materials - tools and machinery — 81
1. Stores conveniently located nearby — 82
2. Stores too far way — 83
3. Can use farmers' cooperative — 84
4. Do not need tools or machinery — 85

89 Obtaining farm production materials - fertilizer, chemicals — 86
1. Stores conveniently located nearby — 87
2. Stores too far way — 88
3. Can use farmers' cooperative — 89
4. Do not use them — 90

90 Upgrading agricultural technology — 91
1. Advisers nearby — 92
2. Advisers too far away — a-1
3. Others ( ) — a-2

91 Suitable area for land reclamation — a-3
1. Very little suitable land — b-1
2. Some suitable land — b-2
3. A great deal of suitable land — c-3

92 How important are the following projects for the development of your Sub-County? Indicate what you feel are the most important by writing the numbers below in the brackets, by your priority:
a. Improving the rural living standard (1)(2)(3)
b. Improving farm production (1)(2)(3)
1. Road
2. Well and water works
3. Waste water facilities
4. Hospital and clinic
5. Public transport network of railway, bus, etc.
6. Increasing production through development of farmland
7. Introduction of irrigation facilities
8. Introduction of agricultural machinery
9. Improving distribution system
10. Extension service
11. ( )
12. ( )

93 Sales, processing and distribution - main annual crops

No	Crops		Proportion shipped out /Destination		Proportion sent for processing/Destination	
	Name of annual crop	prop.	prop.	Destination	prop.	Destination
1		%	%		%	
2						
3						
4						
5						
6	Other					
	Cultivated area	100	ha			

94 Sales, processing and distribution - (tree crops, fruit tree)

No	Crops		Proportion shipped out /Destination		Proportion sent for processing/Destination	
	Name of fruit/trees	prop.	prop.	Destination	prop.	Destination
1		%	%		%	
2						
3						
4						
5						
6	Other					
	Cultivated area	100	ha			

95 Sales, processing and distribution - livestock and its produce

No	Kind		Product		Proportion shipped out /Destination	
	Domestic animal	prop.	Name produced	Volume produced	prop.	Destination
1		%	%	t	%	
2						
3						
4						
5						
6						

96 Main issues concerning progress and development in your Sub-County

1)

2)

3)

97 Projects currently underway in your Sub-County

1)

2)

3)

98 Requests you would like to make to central government administration, district and/or county

1)

2)

3)

99 Requests you would like to make to this study team

1)

2)

3)

(2) Format 2 (For Advanced Farmers)

1	Card No.		
2	Name of District		
3	Name of County		
4	Name of Sub-County		
5	Farmer's name		
6	Size of farm (1 large,2 medium,3 small)		
7	Total members in family		
8	Males 15 years and over		
9	Of those, number working on farm		
10	Females 15 years and over		
11	Of those, number working on farm		
12	Hired labers(full-time workers)		
13	Wages (USHS /year)		
14	Temporary workers (number hired per year)		
15	Wage (USHS /day)		
16	Area of cultivated area (ha)		
17	Area of uncultivated land (ha)		
18	Of this, area of land borrowed (ha)		
19	Area of grass land (ha)		
20	Name of (1)		
21	raising (2)		
22	Livestock (3)		
23	(4)		
24	Total cost of wages (USHS/year)		
25	Seed costs (USHS/year)		
26	Fertilizer costs (USHS/year)		
27	Chemical costs (USHS/year)		
28	Other cost (USHS/year)		
29	Tools and machinery cost (USHS/year)		
30	Do you use a tractor? (Yes,No,)		
31	Do you own a tractor? (Yes,No,)		
32	Loans/financing (Yes,No,)		
33	Amount of Loans (USHS)		

34	Total agricultural income (USHS)					
35	Total agricultural expenditure (USHS)					
36	Balance (USHS)					
37	Income from other sources than agriculture (USHS)					
38	Type of business (Non - agriculture)					
*	Species of crops or livestocks you would like to introduce or increase:	39				
		40				
		41				
*	Details of loans/financing					
		Amount(USHS)		interest rate		repayment period
	Long-term	42		45		48
	Medium-term	43		46		49
	Short-term	44		47		50
51	Do you want expand your farm? 1. No 2. Yes					
52	1. To borrow land within village 2. To use nearby unused land if possible 3. To move to other area					
*	(Answered the 3rd of 52) How large would you like your farm to be?	53	a. present size			(ha)
		54	b. planned future size			(ha)
		55	c. enlarged size	(b-a)		(ha)
*	Fill in any tools or machinery you would like to own.	56				
		57				
		58				
*	How much income would you like to receive from farming?	59	Sales revenue		(USHS per year)	
		60	Net income		(USHS per year)	

Net income;(Sales revenue after taking out cost of materials, wages, etc.)

1) What kind of agricultural Machinery do you have/use?

Tractor	two wheeled tractor	Attachment
Sprayer	Hand seeder	seeder
Harvester	Track	plough bottom
Ox-drawn Equipments		disc harrow
Ploug, cart, ( )		trailers

2) How do you plow? (Plowing, Halowing)
Means of plow
1 Agricultural Machineries
2 Draft animal
3 Man power

3) What kind of farm tool do you have?

Hoe (Jembe)	Forked hoe
Shovel/Speda	Slasher/Sickle
Picaxe/Mattock	Rake
Watering can	Wheelbarrow
Hand type Duster	Knapsack sprayer

4) How do you do weeding?
1 Man power
2 Using herbicide
3 ( )
How many time do you do weeding per one cropping? ( )

5) Do you irrigate for crop cultivation?
1 Crops name

6) How do you irrigate for crop cultivation?
1 Man power (Using bucket and ladle)
2 Using Power irrigation facilities
3 Public canal or Private canal (inc. Well)

7) For what purpose do you raise them?

8) How do you procure and prepare the feed?

9) What kind of cash crops do you recommend?
Why is that?

	Kind of Crops/ Livestocks	Cultivated Area (Rental Area) Produc-tion area (ha),Head	Produc. Volume (ton)	(ha) Price of Sold (USHS/kg)	(ha) Gross Income (000USHS)	For perennials(ha) For Annuals (ha) Produc. Cost (000USHS)	Net Income (000USHS)	Hired Operation Worker(hr)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11	Unplanted (ha)							
12	Total Planted							
13	Total Income of Livestock							
14	Grand Total of Income							
15								
16	Livestoke							
17	Cow (Milk)							
18	(Beef)							
19	Poultry (Egg)							
20	(Meat)							
21	Pig							
22	Goat							
23	Sheep							
24								

Kind of Crops/ Livestocks	Operation (Unit;Houres) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (hr)
Total of Farm.													
To. of Livestocks													
To. of Worker													
Family Worker													
Hire Worker													

Livestock

Cow (Milk)													
(Beef)													
Poultry (Egg)													
(Meat)													
Pig													
Goat													
Sheep													

Name of Crops	Name of Variety	Area of Cropping (ha)	Production (ton)	Gross Income (USHS)

Item/Work	Input materials /Machines used	Used Volume	(unite)	Total cost (000USHS)	Oparation (houres)	Oparation (houres) Jan.	Feb.	Mar.	Apr.	May	Jun.	Jly.	Aug.	Sep.	Oct.	Nov.	Dec.	Main month of work
Seeding			kg															
Nursing Maintenance																		
Transplanting/ Setteling																		
Plowing and Ground making																		
Weeding																		
Fertilization																		
Prevention/ Extermination																		
Other taking care																		
Harvesting																		
Packing/Shipping																		
Total																		

* Farmers do not usually value inputs and labour provided by the family.
Others do neglect the use of various inputs.

Name of Crop		Date		
District	County	Sub-county		
Varieties	Planting Area (ha)	Planting density (m) x (m)	Years Since Planted	Yield (kg,ton/ ha,tree)

Diseases/ Pests	Aplication Rate of Fertirizer (kg,liter/ha)	Aplication Rate of Germicides (kg,liter/ha)	Aplication Rate of Pesticides (kg,liter/ha)	Aplication Rate of Farm Yard Manure & Other Organic Matter (kg,liter/ha)	Others

Table A1.2.2 Rural Constraints stated by Representatives of Districts and Counties
(1) Luwero District and Counties

Actual Problem	Luwero District	Buruli County	Katikamu County	Nakaseke County	Wabusana County
General					
No.1	Water Supply	Water Supply	Water Supply	Poverty	Water Supply
No.2	Feeder Roads	Poverty	Health	Health	School(PS,SS)
No.3	School(PS,SS)	School(PS,SS)	School(PS,SS)	School(PS,SS)	Health
Rural					
No.1	Water Supply	Water Supply	Feeder Roads	Housing	Feeder Roads
No.2	Health	Health	Water Supply	Water Supply	Industry (Food Crops)
No.3	Marketing	School(PS,SS)	Electricity	Electricity	Health
Agricultural					
No.1	Input	Irrigation (Crops)	Input	Input	Input
No.2	Extension	Input	Marketing	Marketing	Tractor Service Centre
No.3	Storage	Extension	Extension	Vehicles	Extension
Livestock's					
No.1	Input	Water Supply	Input	Disease	Disease
No.2	Extension	Disease	Disease	Drugs	Drugs
No.3	Marketing	Poor Breeds	Water Supply	Poor Breeds	Extension
Other					
No.1	Poverty	Reforestation	Vehicles	Feeder Roads	Training Centre
No.2					Electricity

Note : PS-Primary School, SS-Secondary School

(2) Masaka District and Counties

Actual Problem	Masaka District	Bukomansimbi County	Bukoto County	Kalungu County	Lwemiyaga County	Masaka Municipality	Mawogola County
General							
No.1	Poverty	Feeder Roads	Feeder Roads	Health	Water Supply	Funds	Water Supply
No.2	Infrastructure	Health	Housing	School (PS)	Drought	Housing	Marketing
No.3	Industry	Water Supply	Water Supply	Feeder Roads	Vehicles	Marketing	Education
Rural							
No.1	Water Supply	School (PS,SS)	Health	Water Supply	School (PS,SS)	Water Supply	Electricity
No.2	Health	Electricity	Feeder Roads	Electricity	Health	Roads	Health
No.3	Education	Water Supply	School (SS,TS)	Telephones	Electricity	Planning	Feeder Roads
Agricultural							
No.1	Inputs	Inputs	Inputs	Inputs	Inputs		Extension
No.2	Marketing	Extension	Marketing	Marketing	Vehicles		Equipment
No.3	Extension	Marketing	Extension	Extension	Water Spraying		Input
Livestock's							
No.1	Disease	Drugs	Poor Breeds	Drugs	Water	Poor Breeds	Water
No.2	Marketing	Tick Control	Disease	Disease	Drugs	Abattoir	Vehicles
No.3	Vehicles	Poor Breeds	Extension	Marketing	Milk Transport	Milk Facilit	Drugs
Other							
No.1	Disease(human)		Disease(human)	Housing	Telephones	Training	Orphans
No.2					Squatters		

Note : Education--School (PS,SS) and Adult Education,TS-Technical school

(3) Mpigi District and Counties

Actual Problem	Mpigi District	Busiro County	Butambala County	Entebbe Town	Gomba County	Kyadondo County	Mawokota County
General							
No.1	Education	Feeder Roads	Poverty	Town Roads	School (PS,SS)	Water Supply	School(PS,SS)
No.2	Poverty	Poverty	School (PS,SS)	Cutting Machinery	Health	Feeder Roads	Poverty
No.3	Health	Vehicles	Health	Funds	Water Supply	Fuel Wood	Health
Rural							
No.1	Water	Supply Health	Vehicles		Housing	Education	Feeder Roads
No.2	Feeder Roads	School (PS,SS)	Water Supply		Feeder Roads	Health	Water Supply
No.3	School (PS,SS)	Water Supply	Electricity		Electricity	Vehicles	Housing
Agricultural							
No.1	Input	Marketing	Inputs		Tractor Centre	Input	Vehicles
No.2	Industry	Input	Tractor Centre		Vehicles	Housing	Input
No.3	Marketing	Extension	Extension		Inputs	Industry	Industry
Livestock's							
No.1	Vehicles	Input	Dip Facility		Drugs	Veterinary Service	Poor Breeds
No.2	Drugs	Extension	Disease		Extension	Poor Breeds	Drugs
No.3	Dip Facility	Laboratory	Extension		Vehicle	Milk Processing	Milk Industry
Other							
No.1	Vehicles	Housing	Telephones	Training	Telephones	Telephones	Water Weed
No.2	Storage	Telephones	Reforestation		Industry	Marketing	Telephones

(4) Mukono District and Counties

Actual Problem	Mukono District	Bbaale County	Buikwe County	Buvuma County (1)	Mukono County	Nakifuma County	Ntenjeru County
General							
No.1	Funds	Water Supply	Feeder Roads	Feeder Roads	Feeder Roads	Water Supply	Water Supply
No.2	School(PS,SS)	School(PS,SS)	School(PS,SS)	Telephones	Water Supply	Poverty	Electricity
No.3	Health	Health	Health	Water Supply	School(PS,SS)	Electricity	Feeder Roads
Rural							
No.1	Water Supply	Water Supply	Water Supply	School(PS,SS)	Health	Water Supply	Water Supply
No.2	Feeder Roads	Vehicles	Telephones	Health	School(PS,SS)	Vehicles	School(PS,SS)
No.3	Housing	Feeder Roads	Training Cent.	Electricity	Feeder Roads	Training	Health
Agricultural							
No.1	Marketing	Water(Irrig.)	Few Agri. Land	Inputs	Inputs	Tractor Service	Inputs
No.2	Inputs	Inputs	Inputs	Marketing	Extension	Inputs	Marketing
No.3	Extension	Marketing	Extension	Storage	Marketing	Marketing	Vehicle
Livestock's							
No.1	Disease	Water	Poor Pasture	Disease	Inputs	Inputs	Poor Breeds
No.2	Extension	Drugs	Inputs	Extension	Poor Pasture	Poor Breed	Extension
No.3	Marketing	Poor Breeds	Extension	Marketing	Water	Vehicles	Inputs
Other							
No.1	Poverty	Poverty	Poverty	Poverty	Telephones	Telephones	Training Centre
No.2					Training Cent.	Post Service	

Note : (1) - From Interviews with District Executive Secretary

Table A1.2.3 Current Ongoing Projects and Requirements by Sub-County

(1) Luwero District

(Luwero District) 1/3

Sub-county	No.96	No.97	No.98	No.99
1.Wobusana				
Kikyisa	Health	World vision	Water supply	Formation of GPPS
111	Education	War-widows' funds	Machinery	Transport system
		Catholic secretariat	Electricity	
Zirobwe	Extension's maternity	Children survivor	School (development)	Water supply
112	Feeder road (construction)	Health (P.H.D.)	Electricity	Feeder road (construction)
	Schools' materials	Dispensary	Water supply (boreholes)	School (development)
Bamunanika	Teachers' training	Home's improvement	Teachers' training	Seminars on modern farming
113	Marketing	Farming system support	Transport (loan)	New crops (vanilla,chilies)
	Transport	Hatchery by Red Cross	Medical services	Chemicals for mankind
			Water supply	
Kalagala	Feeder road (rehabilitation)	Bakery	School (rehabilitation)	Seminars on modern farming
114	Crop finance	Coffee factory	Health centre (rehabilitation)	New crops (vanilla,chilies)
	Teachers' training	Farming society	Water supply	Chemicals for mankind
			Electricity	Mechanised cultivation
Kamira	Immunigation	War-widows' project	Medical centre	Outcome for the format
115	Administration drawing	Home-park	Feeder road	Allowance for Kategaya
			Valley dam, borehole	
			Iron sheets for works	
2.Buruli				
Nabisweera	Eduction	School (PS)	School (PS,SS)	Butcher & hides
121	Health	Construction's maternity	Health services	Water supply (borehole,valley)
	Social infrastructure	Feeder road	Feeder road	Feeder road (con./main.)
	Productive ventures			Transport, Extension
Lwampanga	Cattle disease	Maternity ward	Valley dam, borehole	None
122	Cassava mosaic	School (PS,SS)	Health centre	
	Post-harvest	Valley dam	Transport	

Note : 96 - Main issues concerning progress and development in your sub-county
97 - Ongoing Projects in your sub-county
98 - Requests - You would like to make to central government administration, district and/or county?
99 - Requests - You would like to make to this study team?

(Luwero District) 2/3

Sub-county	No.96	No.97	No.98	No.99
2.Buruli				
Wabinyonyi	Marketing	Health centre	Valleydam, borehole	Water supply (borehole/valley)
123	Funds	Environmental protection	Health centre	Hospital (ambulance)
		School	Opening of the bank	Materials for health centre
Kakooge	Water supply	School	Water supply	Water supply
124	Transport	Clinics	Electricity	Agricultural inputs
	Marketing	Beekeeping	School	Breed
	Agricultural inputs			
Kalungi	Water supply	Hospital (maternity)	Public office	Water supply (borehole/valley)
125	Technical staff	School (SS)	Communication centre	School (PS,SS)
	Transport	Habilitation for humanity	Welfare facilities	Hospital, Health
3.Katikamu				
Butuntumula	Health	Dispensaries	Water supply	Water supply
131	Education	School	Marketing	Income activity
	Farming	Agriculture	School	Clinics
Luwero	Health	Dispensaries	Water supply	Water supply
132	Education	School	Electricity	Electricity
	Farming	Agriculture	School	School
Katikamu	Education	Clinics	Water supply	Agricultural production
133	Water supply	Feeder road	School (PS,SS)	Livestock's production
	Agricultural Development		Hospital	Water supply (borehole)
Nyimbwa	Education	Vedco	School	Funds (loan)
134	Health	Red Cross	Agricultural development	Technical staff
	Communication		Water supply	
	Transport			
Makulubita	School (materials)	Vedco	Feeder road	Funds (short term)
135	Hospital	World vision	Teachers' training	Subsidies of materials
	Electricity	Plan international	Transport	
4.Nakaseke				
Ngoma	None	World vision project	Feeder road	Water supply
141			Boreholes, dams	Hospital, clinic
			Milk collecting centre	School
			Drugs for animals	Improvement of farming

(Luwero District) 3/3

Sub-county	No.96	No.97	No.98	No.99
4.Nakaseke				
Wakyato	School	Rural project	Feeder road	Formation of GPPS
142	Water supply	Community projects	School	Transport system
	Dispensary	Women farming projects	Health centre	Feeder road (construction)
Kikamuro	Dairy farms	Dairy farms project	Health centre	Health centre
143	Poultry farms	Poultry farms project	School (PS)	School (PS)
	Bricks making	Bricks making project	Water supply	Water supply (borehole)
			Transport	Transport (bus)
Kapeeka	Teachers' training	School (SS)	Hospital	School
144	Medical persons	Maize mill	Feeder road	Hospital
	Agricultural machinery	Women tailoring unit	School	Feeder road (construction)
Nakaseke	Poultry farms	Brick making project	Water supply	Water supply
145	Dairy farms	Poultry farms project	Feeder road	Feeder road
	Brick making	Dairy farms project	School	School
			Health centre	Health centre
Semuto	Transport	Poultry		
146	Electricity	Rural development		Seminars
	Skilled manpower			

(2) Masaka District

(Masaka District) 1/3

Sub-county	No.96	No.97	No.98	No.99
1.Masaka muni.				
Katwe-Betego 211	Education Disease	Uganda rehabili.& development World vision project Tree planting project	Feeder road Water supply School Health Factory	Development project Transport system Technical school
Kyabakuza-Kimanya 212	Water supply	Orphan centre	Agricultural technology	Seminars
Nyendo-Ssenyange 213	Technical staff Water supply Electricity	None	Seminars to farmers Seminars to revenue	Monitoring to farmers
2.Bukoto				
Buakakata 221	Improved production Electricity Social services School (SS,TS)	Peasant farming Passion fruit, mangoes Vanilla, mushroom, pepper Bee keeping	Water weed Transport of RCs Allowances to RCs	Formulation of projects School (SS,TS) Loans
Mukungwe 222	Poverty Increased employment Self-sustaining activity	None	Vanilla Silkworm Bee keeping Zero grazing	Vanilla Silkworm Credit (loan)
Buwunga 223	Transport Small scale industry Education	Bee keeping Zero grazing	Hospital Electricity Farm-machinery	School (PS,SS) Water supply (well) Electricity
Kyanamukaka 224	Poverty Electricity Agricultural development	Education (orphan, adult) Seminars	School (PS,SS) Accommodation Zero grazing	Loans (farm machinery) Small scale industry
Kaddwa 225	Feeder road Capital (funds)	Dispensary School (PS,SS) UNDP housing project UNDP sheep rearing	Staff training Hospital Electricity	Electricity Water supply Health School (SS,TS)
Kisekka 226	Poverty Agricultural development Industrialization	School (PS,SS)	Agricultural development Water supply Electricity	Farm machinery Processing Water supply

(Masaka District) 2/3

Sub-county	No.96	No.97	No.98	No.99
2.Bukoto				
Lwengo	Poverty	Orphan	Agricultural improvement	Agricultural improvement
227	Transport		Transport	Transport
	Water supply		Water supply	Water supply
	School			
	Electricity			
Malongo	Agricultural inputs	Education common	Water supply	Water supply
228	Water supply	development	Feeder road	Agricultural improvement
	School		Agricultural improvement	School (PS,SS)
	Health		Marketing	
3.Bukomansimbi				
Bigasa	Maternity centre	Tree planting project	School	School
231	Health centre	SW integrated project	Feeder road	Feeder road
	School (PS,SS)		Clinics	Clinics
Kitanda	School	None	Improvement of office	School
232	Hospital		Prison	Feeder road
	Feeder road		Accommodation	Hospital
Butenga	Electricity	Tree planting	Feeder road	Improvement of farming
233	Feeder road	SWIP	School (SS)	
	Hospital			
Kibinge	Education	Health	Feeder road	Developments' projects
234	Disease		School	School (SS)
	Poverty		Agricultural loans	
4.Kalungu				
Lwabenge	School (PS,SS)	School (PS,SS)	Agricultural improvement	Extension
241	Water supply	Education	School (PS,SS)	Breeds
	Hospital	Tree planting project	Health	
Kyamulibwa	Feeder road	Tree planting	Agricultural machinery	Farming method
242	Electricity	Medical research	Feeder road	Crop varieties
	School (SS)		Electricity	Increased investment
Bukulula	School	Tree planting	School	Modern technology
243	Factory	GTZ project	Drugs for animals	Extension
	Hospital	Orphans	Feeder road	

(Masaka District) 3/3

Sub-county	No.96	No.97	No.98	No.99
4.Kalungu				
Kalungu	Small fragmented land	Poultry	Crop finance to buy	Implementation's project
244	Market information	Zero grazing	Loaning facilities	Farming communities
	Transport (trucks)	Cross breeds	Extension services	Suitable projects
5.Lwemiyaga				
Lwemiyaga	Technical staff	Drilling project	Milk cooling plant	Feeder road
251	Transport	Feeder road	Maize mills	School
	Migration	Farming systems	Accommodation	Hospital
				Tractors
Ntuusi	Communication	Banana research	Feeder road	School
252	Transport	Farming system	Electricity	Water supply (Valley dam)
	Feeder road	Drilling project	Hospital	Feeder road
	Education			Storage
6.Mawogola				
Mijwala	Education	Feeder road	School (PS,SS)	Livestock's processing
261	Health	Water supply(boreholes)	Community centre	Storage (maize,beans,etc.)
	Water supply	Farming system	Staff training	Hospital
Matete	Agricultural machinery	None	Electricity	Electricity
262	Inputs		Transport	Transport
	Electricity		Telecommunication	Communication
				Water supply
Lwebitakuli	Education	School (HS)	Hospital	Electricity
263	Extension staff	Health centre	Transport	Health
	Inputs	Football ground	Education	Education
		Water supply (valley dam)		

(3) Mpigi District

(Mpigi District) 1/4

Sub-county	No.96	No.97	No.98	No.99
1.Entebbe Muni. 320				
2.Busiro Masulita 321	Feeder road Marketing	Vocational training Agro-forestry	Extension service Allowance	Storage Electricity Untaxed loans
Namayumba 322	School Health Industry	Health centre School (SS) Maize meal	Extension services Hospital Electricity	Agricultural machinery Factory equipments Livestock's inputs
Kikiri 323	Feeder road Farm inputs Marketing	F.S.S.P. Horticulture Child immunization	Feeder road Extension worker Education's cost	Storage Agricultural machinery
Wakiso 324	Farm inputs Feeder road Extension service	Health F.S.S.P. Horticulture Heifer project	Feeder road Electricity Water supply	Storage Irrigation Extension service
Nsangi 325	Primary processing Labour's cost Managerial skills	Silviculture Apiculture Horticulture Heifer project	Water supply Feeder road	Extension service Irrigation
Ssisa 326	Accommodation Feeder road	Heifer project F.S.S.P. Horticulture	Feeder road Allowance	Electricity Storage Processing Hospital
Kasanje 327	Extension staff Feeder road Health	Horticulture Heifer project F.S.S.P.	Extension worker Feeder road Agro-industry	Dairy industry Electricity Health service Irrigation
Katabi 328	Methods' production Marketing system Transport	Heifer project Horticulture	Feeder road Transport Accommodation	Extension staff Storage Inputs

Sub-county	No.96	No.97	No.98	No.99
3.Butambala				
Kalamba	Improvement of farming	Dispensary	Marketing	Farmers' loan
331	Health	Water supply	Subsidy for input	Extensionstaff
	School	Electricity	Loans to farmers	Processing
Kibibi	Improvement of farming	Vocational centre	Subsidy for inputs	School (PS, SS, TS)
332	School	Farming projects	Marketing	Processing
	Health	Small scale industry	Loans to farmers	Extension worker
Budde	Loans	Nursery project	Home lines	Loan
333	Transport	Women farming project	Rural farming scheme	Rural farming scheme
	School	Women's club (market)	Accommodation	Inputs
	Dispensary		Transport	
			Loans	
Bulo	Feeder road	F.S.S.P.	Feeder road	Training staff
334	Environment		Transport	Transport
	Agricultural bank		Accommodation	Irrigation
Ssabaddu-	Productivity	Hospital	Assistance's left project	Loans
Ngando	Technical methods	S.S.S	Inputs	Technical methods
335	Inputs	Vocational institute	Feeder road	Irrigation
				Storage
4.Gomba				
Mbenja	School	Children immunization	Small scale industry	Irrigation
341	Feeder road	Horticulture	Feeder road	Extension service
		F.S.S.P.	Subsidy for inputs	School
Kyegonza	Water supply	Children immunization	Feeder road	Processing (animals,crops)
342	Feeder road		Loans	Irrigation
	Marketing			Storage
Kabulasoke	Production methods	Nec.beef cattle rearing	Feeder road	Storage
343	Marketing	Children immunization	Extesion staff	Irrigation
	Transport		Training staff	Tractors
	Water supply		HO catchment	Inputs
Maddu	Water supply	Milk collecting centre	Feeder road	Water supply
344	Communication	Children immunization	Transport	Farm infrastructures
	Feeder road		Accommodations	Tractors
	Electricity			Inputs

Sub-county	No.96	No.97	No.98	No.99
5.Kyadondo				
Busukuma	Tractors	F.S.S.P.	Feeder road	Loans
351	Breeds		Electricity	Agricultural machinery
	Inputs		School (PS,SS)	Extension services
	Water supply			
Gombe	Feeder road	Brick making	Technical skills	Feeder road
352	Transport	Vanilla growing	Feeder road	Transport
	Hospital	Zero grazing	School (PS,SS)	School (PS,SS)
	School (TS)	F.S.S.P.	Teaching personnel	Hospital
				Inputs
Nangabo	Tractors	Water supply	Feeder road	Loans
353	Inputs	Health	Electricity	Agricultural machinery
	Breeds	Cassava project	School	Extension services
	Small farm holding	Horticulture		
Kira	Hospital	Dispensary	Inputs	Loans (credit)
354	Extension staff	Women farming clubs	Tractor hire	Inputs
	Transport	Young farmers' club	Storage	
	Storage			
Nabweru	Land fragmentation	Child health project	Extension services	Loans (tax free)
355		Heifer project by church	Revival of all bylaw	Storage
Makindye	Small size farms	F.S.S.P.	Inputs	Loans
356	Inputs	Horticulture	Processing	Inputs
	Capital investments	Heifer project	Industry	
6.Mawokota				
Muduma	Slow development	Dispensary	Inputs	Inputs
361	Agricultural machinery	Zero grazing	Building materials	Building materials
		Orphan-age school	Water supply	Water supply
Kiringente	Improvement of farming	Community hall	Seminars	Seminars
362	Project work	Hospital	Transport	Transport
		Women green vegetable	Farming equipments	Irrigation
Mpigi	Farm institute	F.S.S.P.	Accommodation	Processing
363		Horticulture	Extension services	Water supply (borehole)
		Children immunization		Storage facility

Sub-county	No.96	No.97	No.98	No.99
6.Mawokota				
Kamengo 364	Loans Education (high cost) Welfare services	Livestock project F.S.S.P. Horticulture	Extension services Feeder road Inputs Animal drugs	Extension workers Loans
Buwama 365	Cooperative experience Capitals (funds)	Livestock project Solidarity club (sunflower)	Seminars Tractors Loans	Inputs Transport Breeds
Kituntu 366	Feeder road Electricity Dispensary Water supply	Dispensary School Electricity	Feeder road Agricultural machinery Electricity	Agricultural machinery Electricity School (PS,SS) Irrigation
Nkozi 367	Tractors Funds Technical support Transport	F.S.S.P. Horticulture	Tractors to farmers Transport Storage Training	Loans Tractors Transport Irrigation

(4) Mukono District

(Mukono District) 1/3

Sub-county	No.96	No.97	No.98	No.99
1.Bbale				
Galiraya 411	Feeder road Transport Communication Social services	School (SS)	Feeder road School (PS,SS) Transport	School (PS,SS) Hospital
Bbale 412	Health services Agricultural machinery Water supply School	Dispensary School (PS,SS)	School (PS,SS) Feeder road Inputs	Processing Modern farming technology Marketing
Kayoza 413	Feeder road Electricity Agricultural technology	Water supply School (SS)	School (PS) Health centre Feeder road	Solar energy equipment Development projects Seminars
Kitimbwa 414	Electricity Extension worker Transport	School (SS) Dispensary	Electricity Feeder road Allowance	Living conditions Extension services
2.Buikwe				
Wakisi 421	Health Education Water supply	Health clinic project School (SSS) Water supply	Electricity Public staff unity Police post & lock-up	Wanders for 90-bed Feeder road Water supply
Najjembe 422	Dispensary Water supply (borehole)	Dispensay	Dispensary	Didpensary Feeder road School (PS,SS)
Nyenga 423	Feeder road Hospital Water supply (borehole)	None	Social services School (PS,SS) Inputs (subsidy)	None
Kawolo 424	Electricity Processing-tomato, mango Working capital	Dispensary Public office New latrine-public office	Electricity Feeder road Hospital Dispensary	Inputs Processing Storage Fuel wood conversation
Buikwe 425	Transport Farmers store High prices to crops	Brick making Water supply (borehole)	Transport (bus) Hospital School (PS,SS)	Agricultural machinery Hospital Inputs
Ngogwe 426	Transport Hospital	Health School (SS)	Transport (bus)	None

(Mukono district) 2/3

Sub-county	No.96	No.97	No.98	No.99
3.Buvuma				
Busamuzi 431	Education	School (PS) Dispensary	Dispensary School	Feeder road Hospital
Bweema 432	Isolation from mainland Safe transportation Communication	None	Feeder road Transport (ferry) Hospital Extension workers	Transport network Communication
Nairambi 433	Education Communication Extension	School (PS) Rural bank Vanilla planting	Feeder road Dispensary Workers' training	Feeder road Communication Vanilla planting
Bugaya 434	Modern fishing Modern fish smoking Stores	School Hospital	Hospital Water transport Water supply (borehole)	Improvement's livestock Improvement's agriculture Water transport
4.Mukono				
Kyampisi 441	Inputs Transport system Electricity Postal services Trained officers	KRUDEP BMDP Namasumbi women project	Inputs Feeder road Marketing	Inputs Transport Electricity Seminars
Goma 442	Poverty Education	Health Feeder road	Feeder road	Feeder road Health
Kauga 443	Poverty Education	Water supply Health	Education Health Feeder road Transport	School (PS,SS) Health Feeder road Transport
Nakisunga 444	Feeder road Health Education Water supply	Hospital	Feeder road Health School (PS,SS) Water supply	Feeder road School (PS,SS) Hospital Extension-farmers'assistance
Ntenjeru 445	Education Health Agriculture	Schools development pro. Health development pro.	Public office Transport	School (PS,SS) Health
Kome 446	Transport (ferry) Extension services Feeder road, Electricity	None	Electricity Hospital More teachers	Feeder road Communication

(Mukono District) 3/3

Sub-county	No.96	No.97	No.98	No.99
5.Nakifuma				
Seta- Namuganga 451	Assistance to farmers Loans New system of farming	Dispensary Water supply (borehole) Cocoa,coffee,vanilla	Industries Electricity Transport (bus)	Allowance Agricultural machinery Subsidy to farmers
Kasawo 452	Subsidy Breed Farmers' group	Health Water supply (borehole) Cacao, vanilla, coffee	Collecting stores Marketing Transport (bus)	Transport Irrigation Breed
Ntunda 453	Feeder road Communication Agricultural machinery Water supply	Dispensary School (SSS) Water supply (borehole)	School (PS,SS) Feeder road Public office	Feeder road Agricultural machinery Water supply
Nabbaale 454	Feeder road Water supply Inputs	Dispensary	Feeder road Water supply (borehole) Agricultural machinery	Agricultural technology Inputs Water supply (borehole)
Nakifuma 455	Marketing Feeder road Inputs	Dispensary	School (PS,SS) Health Extension workers	Feeder road Water supply School (PS,SS)
Nagojje 456	Transport Communication School (SSS,TS)	Dispensary Public office School	Transport (bus) School (SSS) Health	Improvement's farmers Transport (bus) Dispensary
6.Ntenjeru				
Busaana 461	Feeder road Electricity Water supply	School (SS) Dispensary Health (maternity)	Water supply Electricity Tractors Agricultural machinery	Building materials Agricultural machinery Dispensary
Kayunga 462	Water supply Electricity Agricultural machinery	Water supply Agriculture	Water supply (borehole) Electricity Agricultural machinery Marketing	Water supply (borehole) Electricity Agricultural machinery Marketing
Nazigo 463	Electricity Feeder road School (PS,SS)	Dispensary	Feeder road PTA funds Public office	Electricity Feeder road School (PS,SS)
Kangulumira 464	New method of farming Health New technology	Health School (PS)	Extension staff Soil conservation Marketing	Diversification Bio-gas plants

Table A1.2.4 Requests to the Master Plan (made of Sub-county Chiefs)

Item	Luwero(21)			Masaka(24)			Mpigi(31)			Mukono(30)			Total	Ratio	
	FIS	AR	ST	FIS	AR	ST	FIS	AR	ST	FIS	AR	ST	(106)	%	
Tractor Service	6	9	15	6	5	11	16	6	22	7	16	23	71	67	③
Chemical	3	2	5	2	2	4	14	3	17	3	8	11	37	34.9	⑤
Fertilizer	3	2	5	2	2	4	11	2	13	4	8	12	34	32.1	⑥
Irrigation(Horticulture)	0	1	1	0	1	1	11	0	11	1	0	1	14	13.2	
New Crop	2	0	2	2	0	2	0	0	0	1	0	1	5	4.7	
Breed	1	0	1	0	1	1	1	0	1	2	0	2	5	4.7	
Seminar	2	0	2	3	0	3	1	0	1	3	0	3	9	8.5	
Extension	2	0	2	7	0	7	11	0	11	3	0	3	23	21.7	⑨
Storage	0	0	0	2	2	4	10	3	13	1	0	1	18	17.0	
Marketing	0	0	0	0	2	2	0	0	0	2	0	2	4	3.8	
Processing	0	0	0	3	1	4	6	4	10	2	0	2	16	15.1	
Feeder Road	5	14	19	6	4	10	2	23	25	9	14	23	77	72.6	②
Borehole	7	9	16	8	14	22	3	21	24	5	14	19	81	76.4	①
Spring Protection	0	3	3	0	1	1	0	6	6	0	2	2	12	11.3	
Valley Dam	6	0	6	1	3	4	1	3	4	0	3	3	17	16.0	
School(PS,SS)	7	2	9	10	1	11	5	0	5	8	0	8	33	31.1	⑦
School(SSS)	0	0	0	0	1	1	0	0	0	0	0	0	1	0.9	
School(TS)	0	0	0	3	2	5	1	0	1	0	0	0	6	5.7	
Training Centre	0	0	0	1	0	1	0	0	0	0	0	0	1	0.9	
Communication Centre	0	0	0	1	1	2	0	0	0	0	0	0	2	1.9	
Health Centre	7	1	8	6	8	14	3	1	4	11	1	12	38	35.8	④
Electrification	1	1	2	5	11	16	3	7	10	3	2	5	33	31.1	⑦
Vehicle	4	1	5	3	3	6	3	5	8	3	1	4	23	21.7	⑨
Others	5	8	13	4	3	7	5	10	15	3	1	4	39	36.8	
Total	61	53	114	75	68	143	107	94	201	71	70	141	599	149.8	
Ratio per sub-county	3	3	5	3	3	6	3	3.0	6.4	2.4	2.3	4.7	5.7		

Source : Results of FIS and Interview with Sub-county Chiefs on AR.

Note : FIS = Farmer's Intention Study, AR = Additional Request, ST =Sub Total

( ) = Number of Sub-county, ① - ⑨ = In order of priority.

Appendix 1.3 Land Tenure

1. Eligibility

Any Ugandan is free to settle on any free land anywhere in Uganda.

2. Ownership

1) Customary

This is when one settles on land which he has not leased. He does not have a land title. He owns only the developments he makes on the land.

2) Leasehold

One owns the land and the developments he makes on it. He has a land title for a specified period: 49 years for individuals on public land. 99 years for those on former mailo or freehold land.

The 99 years started in 1977. 199 years for Municipal Councils, Religious organizations and other public bodies.

3. Acquisition

1) Customary

One can obtain land for customary ownership in two ways.

(1) Allocation

If one locates free public land he applies to be local authorities in the sub-county. He should indicate his identity and the use he intends to use the land for. If there are no disputes he is offered the land and registered as a customary tenant of the area.

(2) Transfer

Land can be transferred from some one who previously owns it to another person. This can be a result of selling or giving it away. The local authority must be informed of the transactions and they endorse the written agreement between the two. Also if one dies his people inherit the land.

It should be noted that in customary tenure transfer is only for the developments on the land and not the land itself.

2) Leasehold

When one locates free public land he applies to the Uganda Land Commission (ULC) through the local authority.

The land inspected by the District Land Committee (DLC) to note whether the amount of land applied for is available and without disputes. It (DLC) makes appropriate recommendations to the Uganda Land Commission (ULC).

When the ULC finds it fit it gives the offer.

One gets a land title after the land has been surveyed mapped and paid for.

A customary tenant can apply to lease a piece of land he already occupies. The process is the same as above. Payments for land are made to the Ministry concerned with land.

An initial period of five years is given to the lease to develop the land in rural areas. If he develops it to a required standard as indicates in the lease document the term of lease is extended to 49 years.

If the lease fails to show reasonable development within the five years, other people can apply for the same land.

4. Transfer

1) Customary tenant

As already mentioned a customary tenant can sell or give away his land to another person, but only transferring the developments on it.

2) Leasehold

Likewise a lease can sell his piece of land provided he is accepted by the ULC. One is not allowed to sell land unless he has made some developments on it and the lease extended to full term.

5. Former Mailo and Freehold Land

1) In the past the kings offered some individuals land which they were to own for ever. Their offsprings could inherit the land.

In many cases the land was large such that they could not use it al. So they had tenants on the land. The tenants used to pay a rent to the owner of the land (Landlord). This was a form of Feudal System.

2) In 1977 the Mailo and Freehold tenure were abolished and whoever had such land was granted an automatic lease of 99 years. From that year the tenants were sopped from paying rent but allowed to remain on the land as customary tenants while the landlord owns the land.

3) The landlord can sell part or all his land to other people including the tenants themselves with permission of the ULC which gives a land title to the transfer.

6. Termination of Occupation

1) The government can request anybody to leave when it has an important project to carry out on the land. Before the people are evicted, they are compensated for the land (lease) and any developments made on it. (Lease and customary tenants).

2) A landlord on the former Mailo and Freehold land can request the tenants on his land to leave on mutual understanding whereby he compensates for their developments. In case there are misunderstandings the government has to examine the development plan the landlord to decide whether it is worthwhile to evict the tenants.

Also it may be necessary sometimes for the government value to assess the value of the developments to be compensated.

7. *Minerals in Land*

Having a lease or customary tenancy does not give you the right on the minerals which may be found in your land.

Table A1.3.1 Private Land Tenure

District		Total	Unregistered Freehold	Registered Freehold	Lease hold	Customary Public	Kibanja	Squatter	Other	Remark
Luwero	NO. of Parcels	49,380	5,064	4,527	916	786	36,442	830	816	
	Area (ha)	87,666	14,259	11,531	3,939	866	55,979	370	721	
Masaka	NO. of Parcels	100,122	6,351	1,891	1,279	6,708	80,679	764	2,450	
	Area (ha)	147,466	31,337	9,271	12,692	5,188	86,942	873	1,160	
Mpigi	NO. of Parcels	96,909	5,560	16,529	1,887	4,061	65,998	883	1,992	
	Area (ha)	164,309	24,624	20,019	31,815	3,743	82,260	584	1,264	
Mukono	NO. of Parcels	173,514	3,329	2,813	2,352	15,569	142,330	2,265	4,856	
	Area (ha)	243,676	17,295	16,491	16,549	29,669	161,984	1,020	669	
Total	NO. of Parcels	419,925	20,304	25,760	6,434	27,124	325,449	4,742	10,114	
	Area (ha)	643,117	87,515	57,312	64,995	39,466	387,165	2,847	3,814	
	Ratio (%)	100	13.6	8.9	10.1	3.1	60.2	0.4	0.6	
26 Districts	NO. of Parcels	2,725,222	136,907	122,848	23,055	572,572	1,761,483	41,102	67,255	
	Area (ha)	3,683,288	254,205	230,808	175,088	637,684	2,177,877	144,870	62,756	
	Ratio (%)	100	6.9	602.0	4.8	17.3	59.1	3.9	1.7	

Source : Uganda National Census of Agriculture and Livestock (1990-91)

Table A1.3.2 Public Land Area by Sub-county

(1) Luwero District

County	Sub-county	Land Area	Public land		
			Dry land	Wet land	Total
		(ha)	(ha)	(ha)	(ha)
Wabusana	Kikyusa	35,160	13,050	20	13,070
	Zirobwe	25,160	2,580	2,520	5,100
	Bamunanika	11,040	770	770	1,540
	Kalagala	13,750	680	0	680
	Kamira	34,130	9,150	730	9,880
Buruli	Nabiswera	130,710	64,480	32,240	96,720
	Lwampanga	39,760	32,880	100	32,980
	Wabinyonyi	48,400	280	120	400
	Kakooge	55,920	120	100	220
	Kalungi	64,110	300	200	500
Katikamu	Butuntumula	32,650	22,300	250	22,550
	Luwero	20,140	500	2,960	3,460
	Katikamu	17,230	900	150	1,050
	Nyimbwa	10,880	20	0	20
	Makulubita	17,200	450	1,340	1,790
Nakaseke	Ngoma	187,240	121,960	15,980	137,940
	Wakyato	75,660	37,050	16,360	53,410
	Kikamulo	16,620	3,270	1,630	4,900
	Kapeeka	26,170	10	0	10
	Nakaseke	26,520	50	0	50
	Semuto	13,290	10	0	10
Total		901,740	310,810	75,470	386,280
		(%)	(%)	(%)	(%)
Ratio		100.0	34.4	8.4	42.8

Note :* - Other Kinds of public land excluded here.
Source: Interviews with Sub-county chiefs

(2) Masaka District

County	Sub-county	Land Area	Public land		
			Dry land	Wet land	Total
		(ha)	(ha)	(ha)	(ha)
Masaka Muni.	Katwe-Butego	2,010	0	17	17
	Kimanya-Kyabakuza	1,490	0	11	11
	Nyendo-Ssenyange	1,730	0	7	7
Bukoto	Bukakata	26,080	0	9,260	9,260
	Mukungwe	11,950	0	220	220
	Buwunga	25,660	0	2,000	2,000
	Kyanamukaka	37,660	6,720	3,360	10,080
	Kaswa	20,770	0	100	100
	Kisekka	15,660	1,500	20	1,520
	Lwengo	38,320	11,610	0	11,610
	Malongo	36,820	5,550	0	5,550
Bukomansimbi	Bigasa	19,420	7,030	370	7,400
	Kitanda	13,630	0	130	130
	Butenga	14,000	70	130	200
	Kibinge	10,190	0	50	50
Kalungu	Lwabenge	24,740	440	650	1,090
	Kyamulibwa	10,890	10	100	110
	Bukulula	26,640	1,570	680	2,250
	Kalungu	17,090	0	0	0
Lwemiyaga	Lwemiyaga	31,090	15,380	0	15,380
	Ntuusi	47,720	480	0	480
Mawogola	Mijwala	98,770	29,980	0	29,980
	Mateete	22,540	220	0	220
	Lwebitakuli	31,660	3,210	0	3,210
Total		586,530	83,770	17,105	100,875
		(%)	(%)	(%)	(%)
Ratio		100.0	14.3	2.9	17.2

(3) Mpigi District

County	Sub-county	Land Area	Public land		
			Dry land	Wet land	Total
		(ha)	(ha)	(ha)	(ha)
Entebbe Muni.		3,550	0	0	0
Busiro	Masulita	11,610	0	90	90
	Namayumba	18,230	30	80	110
	Kakiri	17,460	4,300	0	4,300
	Wakiso	17,500	10	10	20
	Nsangi	11,830	0	2,200	2,200
	Ssisa	16,650	0	200	200
	Kasanje	33,610	0	8,770	8,770
	Katabi	7,000	510	170	680
Butambala	Kalamba	8,640	1,700	0	1,700
	Kibibi	8,420	260	20	280
	Budde	5,950	0	1,330	1,330
	Bulo	7,200	20	0	20
	Ssabaddu-Ngando	11,480	0	10	10
Gomba	Mpenja	18,690	12,500	0	12,500
	Kyegonza	20,670	2,020	0	2,020
	Kabulasoke	45,070	5,510	0	5,510
	Maddu	83,890	40,730	0	40,730
Kyadondo	Busukuma	11,830	20	0	20
	Gombe	13,920	0	20	20
	Nangabo	10,240	0	0	0
	Kira	7,340	0	40	40
	Nabweru	4,130	0	0	0
	Makindye	6,850	0	0	0
Mawokota	Mududuma	16,610	20	0	20
	Kiringente	7,060	20	0	20
	Mpigi	15,400	0	0	0
	Kammengo	23,900	10	0	10
	Buwama	19,060	50	0	50
	Kituntu	14,110	10	0	10
	Nkozi	18,830	0	0	0
Total		516,730	67,720	12,940	80,660
		(%)	(%)	(%)	(%)
Ratio		100.0	13.1	2.5	15.6

(4) Mukono District

County	Sub-county	Land Area	Public land		
			Dry land	Wet land	Total
		(ha)	(ha)	(ha)	(ha)
Bbaale	Galiraya	30,050	12,900	440	13,340
	Bbaale	31,810	13,200	1,900	15,100
	Kayonza	34,440	9,000	5,320	14,320
	Kitimbwa	14,900	6,050	3,200	9,250
Buikwe	Wakisi	18,740	1,620	90	1,710
	Najjembe	19,650	1,910	1,230	3,140
	Nyenga	15,530	1,000	1,140	2,140
	Kawolo	14,020	1,500	2,720	4,220
	Buikwe	20,660	2,000	2,040	4,040
	Ngogwe	35,870	1,500	9,090	10,590
Buvuma	Busamuzi	11,000	1,140	0	1,140
	Bweema	3,810	440	0	440
	Nairambi	11,120	220	0	220
	Bugaya	2,610	0	0	0
Mukono	Kyampisi	13,140	1,060	1,340	2,400
	Goma	11,550	750	2,190	2,940
	Kauga	15,230	1,600	2,300	3,900
	Nakisunga	18,740	1,320	900	2,220
	Ntenjeru	32,380	700	4,280	4,980
	Kome	10,090	530	0	530
Nakifuma	Seta-Namuganga	19,320	1,120	1,400	2,520
	Kasawo	12,990	350	580	930
	Ntunda	12,740	710	1,090	1,800
	Nabbaale	12,020	880	2,350	3,230
	Nakifuma	10,630	1,800	1,630	3,430
	Nagojje	16,520	470	4,930	5,400
Ntenjeru	Busaana	14,080	370	1,010	1,380
	Kayunga	17,590	1,930	3,660	5,590
	Nazigo	10,770	670	1,070	1,740
	Kangulumira	11,780	530	460	990
Total		503,780	67,270	56,360	123,630
		(%)	(%)	(%)	(%)
Ratio		100.0	13.3	11.2	24.5

Appendix 1.4 Relevant Data for the Regional Development Planning

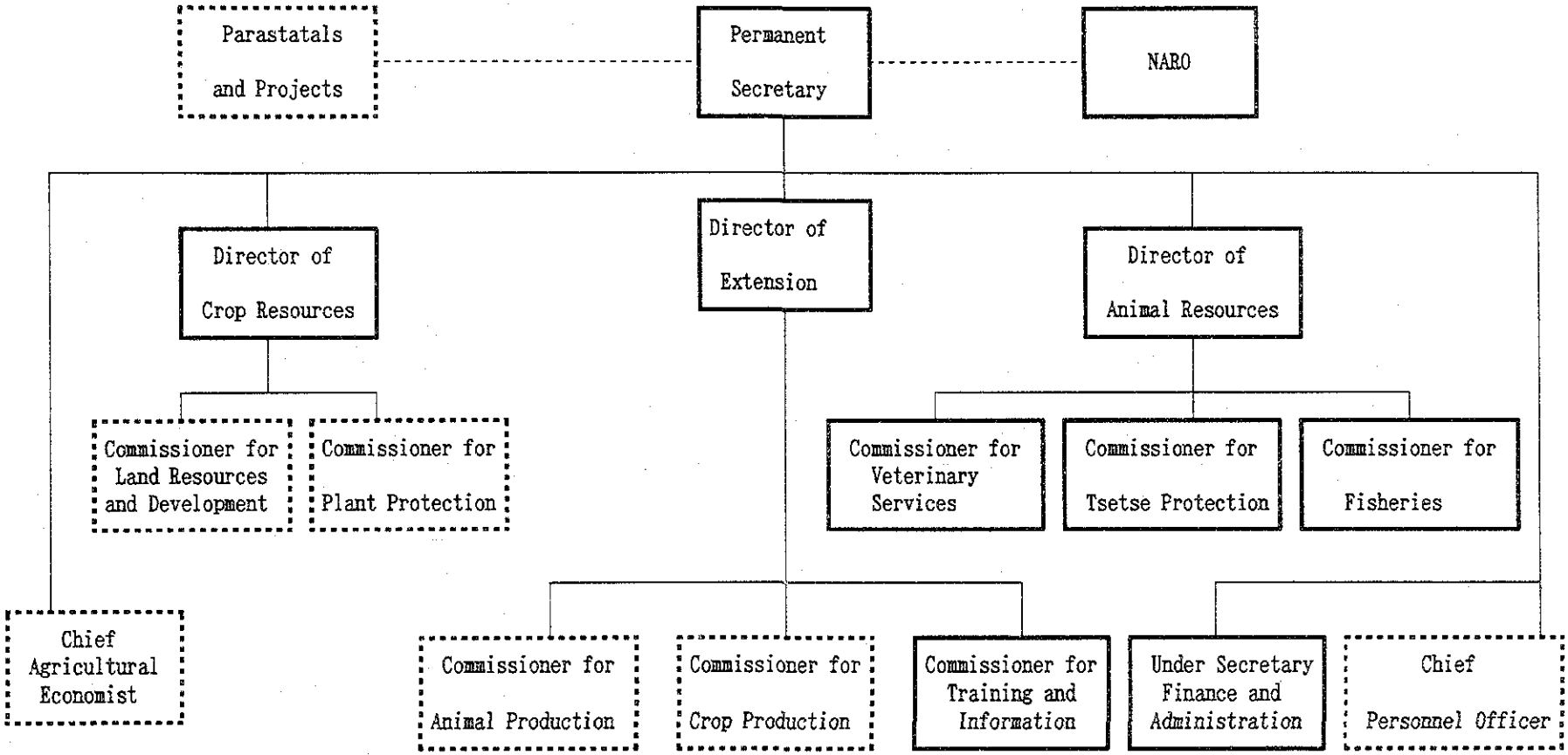
Table A1.4.1 Estimate of the Population

Item	1990	1991	1992	1993	1994	1995	Stage 1 1996	1997	1998	1999	Stage 2 2000	2001	2002	2003	Stage 3 2004	2005	2006	2007
IBRD(AIDS-No Control)																		
Annual Ratio	3.15	3.15	3.15	3.15	3.15	3.15	3.10	3.10	3.10	3.10	3.10	3.13	3.13	3.13	3.13	3.13	3.13	3.13
Cumulative Ratio		100.00	103.15	106.40	109.75	113.21	116.72	120.34	124.07	127.92	131.89	136.02	140.28	144.67	149.20	153.87	158.69	163.66
Uganda		16,672	17,197	17,739	8,298	18,874	19,460	20,063	20,685	21,327	21,989	22,677	23,387	24,119	24,875	25,653	26,457	27,285
Study Area		3,027	3,122	3,221	3,322	3,427	3,533	3,643	3,756	3,872	3,992	4,117	4,246	4,379	4,516	4,658	4,804	4,954
IBRD(AIDS-Control)																		
Annual Ratio	3.16	3.16	3.16	3.16	3.16	3.16	3.14	3.14	3.14	3.14	3.14	3.27	3.27	3.27	3.27	3.27	3.27	3.27
Cumulative Ratio		100.00	103.16	106.42	109.78	113.25	116.81	120.48	124.26	128.16	132.18	136.50	140.96	145.57	150.33	155.25	160.33	165.57
Uganda(1,000 p.)		16,672	17,199	17,742	18,303	18,881	19,475	20,086	20,717	21,367	22,037	22,757	23,501	24,269	25,063	25,883	26,730	27,604
Study Area(1,000p)		3,027	3,123	3,221	3,323	3,428	3,566	3,647	3,761	3,879	4,001	4,132	4,267	4,406	4,550	4,699	4,853	5,012
Medium Prevalence																		
Annual Ratio	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Cumulative Ratio		100.00	103.50	107.12	110.87	114.75	118.77	122.93	127.23	131.68	136.29	141.06	146.00	151.11	156.40	161.87	167.54	173.40
Uganda(1,000 p.)		16,672	17,256	17,859	18,484	19,131	19,801	20,495	21,212	21,954	22,722	23,518	24,341	25,193	26,075	26,987	7,932	28,909
Study Area(1,000p)		3,027	3,133	3,243	3,356	3,473	3,595	3,721	3,851	3,986	4,125	4,270	4,419	4,574	4,734	4,900	5,071	5,249
Master Plan																		
Annual Ratio		3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Cumulative Ratio		100.00	103.10	106.30	109.60	113.00	116.50	120.11	123.83	127.67	131.63	135.71	139.92	144.26	148.73	153.34	159.09	162.99
Uganda(1,000 p.)		16,672	17,189	17,722	18,273	18,839	19,423	20,025	20,645	21,285	21,945	22,626	23,327	24,051	24,796	25,565	26,357	27,174
Study Area(1,000p)		3,027	3,121	3,218	3,316	3,421	3,526	3,636	3,748	3,865	3,984	4,108	4,235	4,367	4,502	4,642	4,785	4,933
Luwero(1,000 p.)		450	464	478	493	508	524	540	557	574	592	611	630	649	699	690	711	733
Masaka(1,000 p.)		839	865	892	919	948	977	1,008	1,039	1,071	1,104	1,139	1,174	1,210	1,248	1,286	1,326	1,367
Mpigi(1,000 p.)		914	942	971	1,002	1,033	1,065	1,098	1,132	1,167	1,203	1,240	1,279	1,318	1,359	1,401	1,445	1,490
Mukono(1,000 p.)		824	850	877	902	932	960	990	1,020	1,053	1,085	1,118	1,152	1,190	1,226	1,265	1,303	1,343

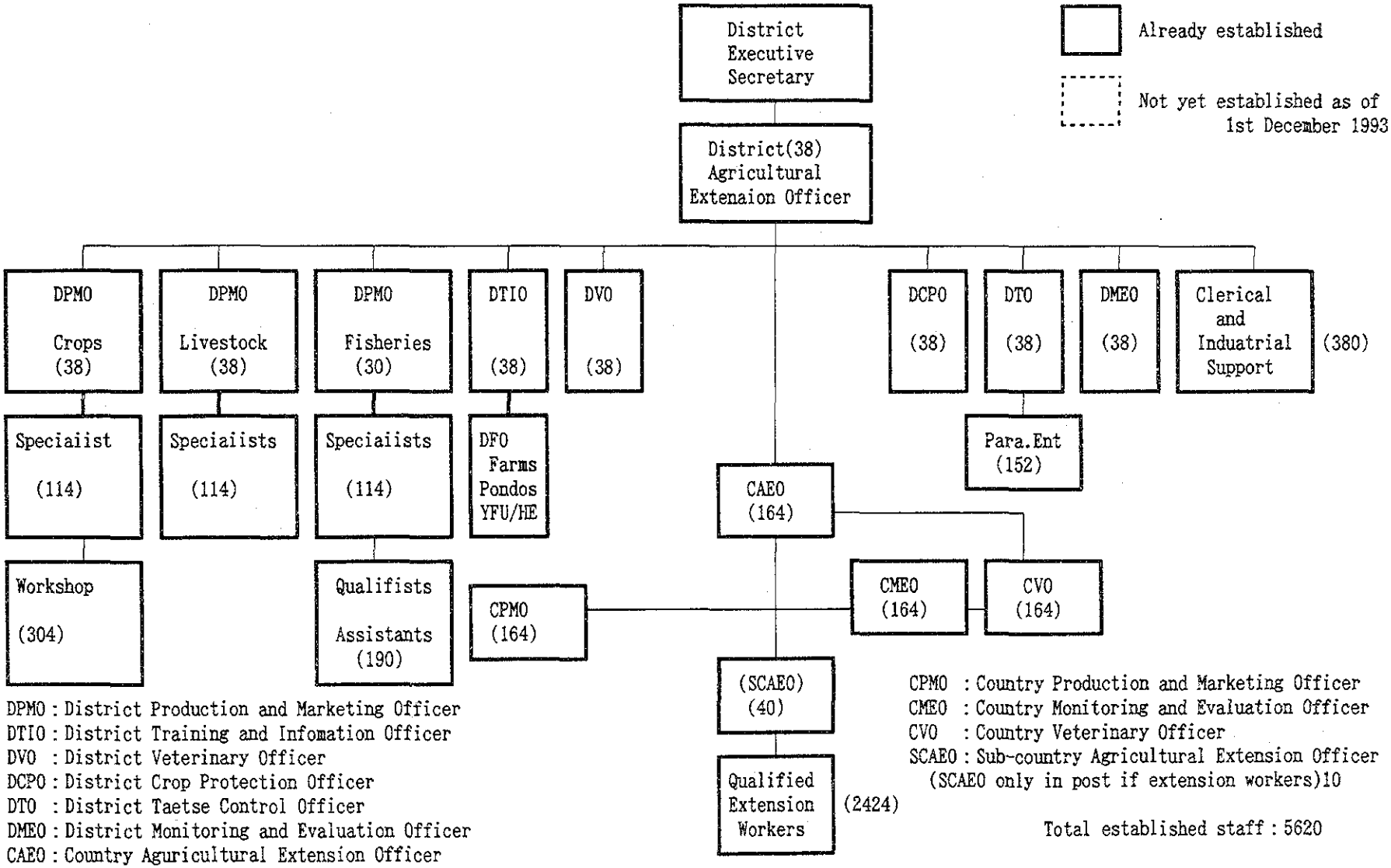
Source: Final Result of 1991 Population and Housing Census, Population factors in national reconstruction and development (1989)

Figure A1.4.1 Administrative Structures related to Ministry of Agriculture, Animal Industry and Fisheries

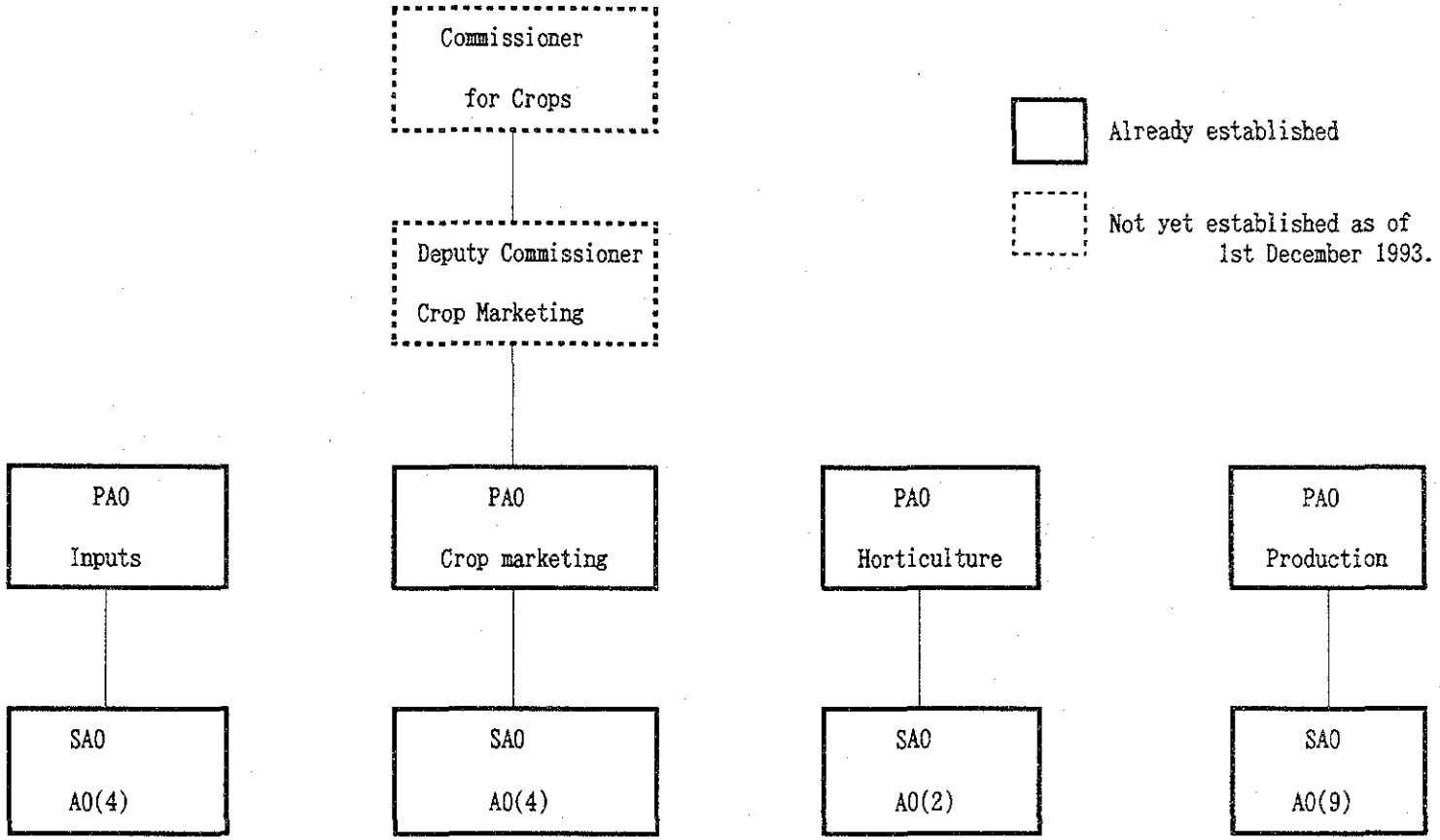
(1) MAF Proposed : Ministry Top Management



(2) MAF Proposed : District Organisation

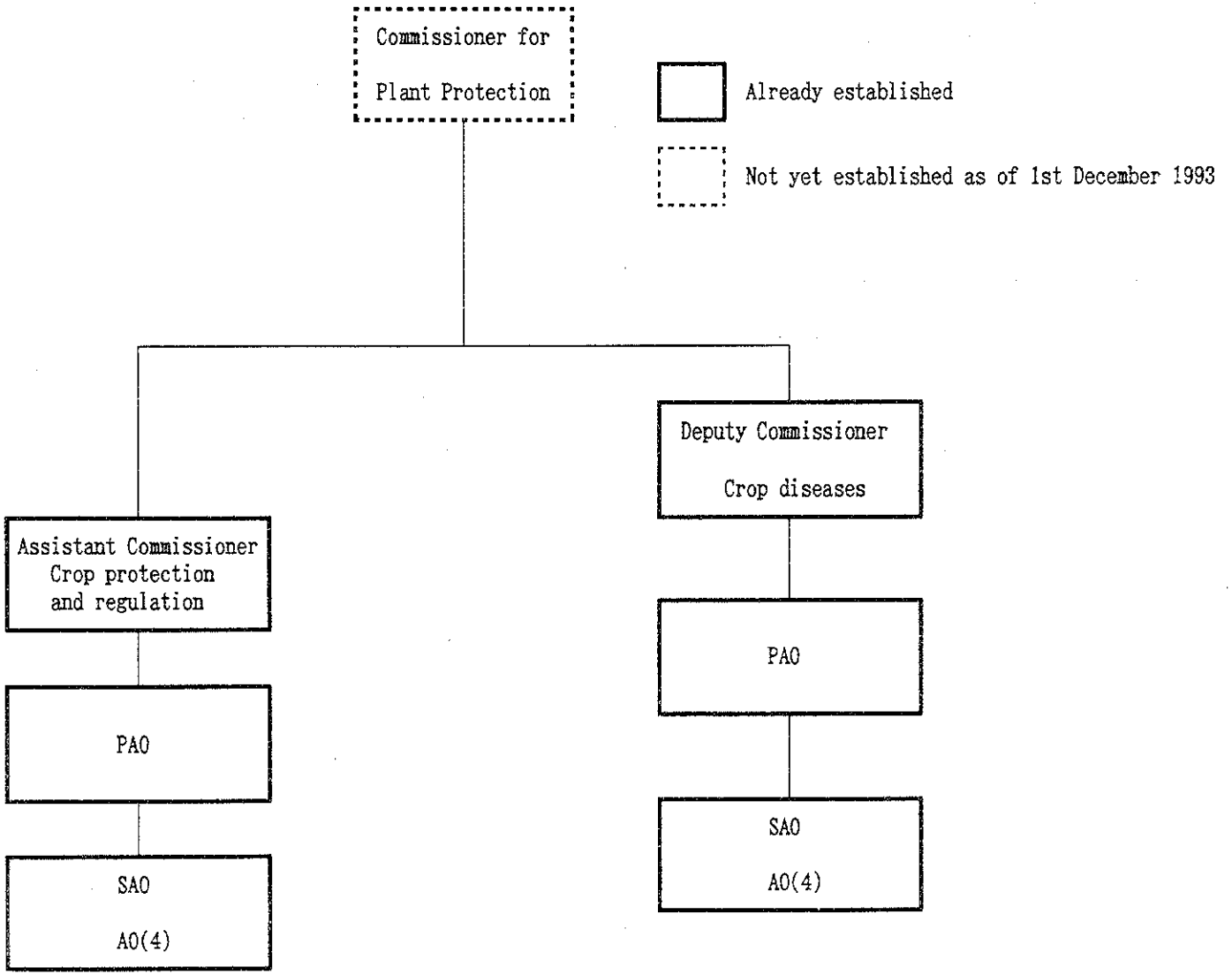


(3) MAF Proposed Crops Extension HQ Structure

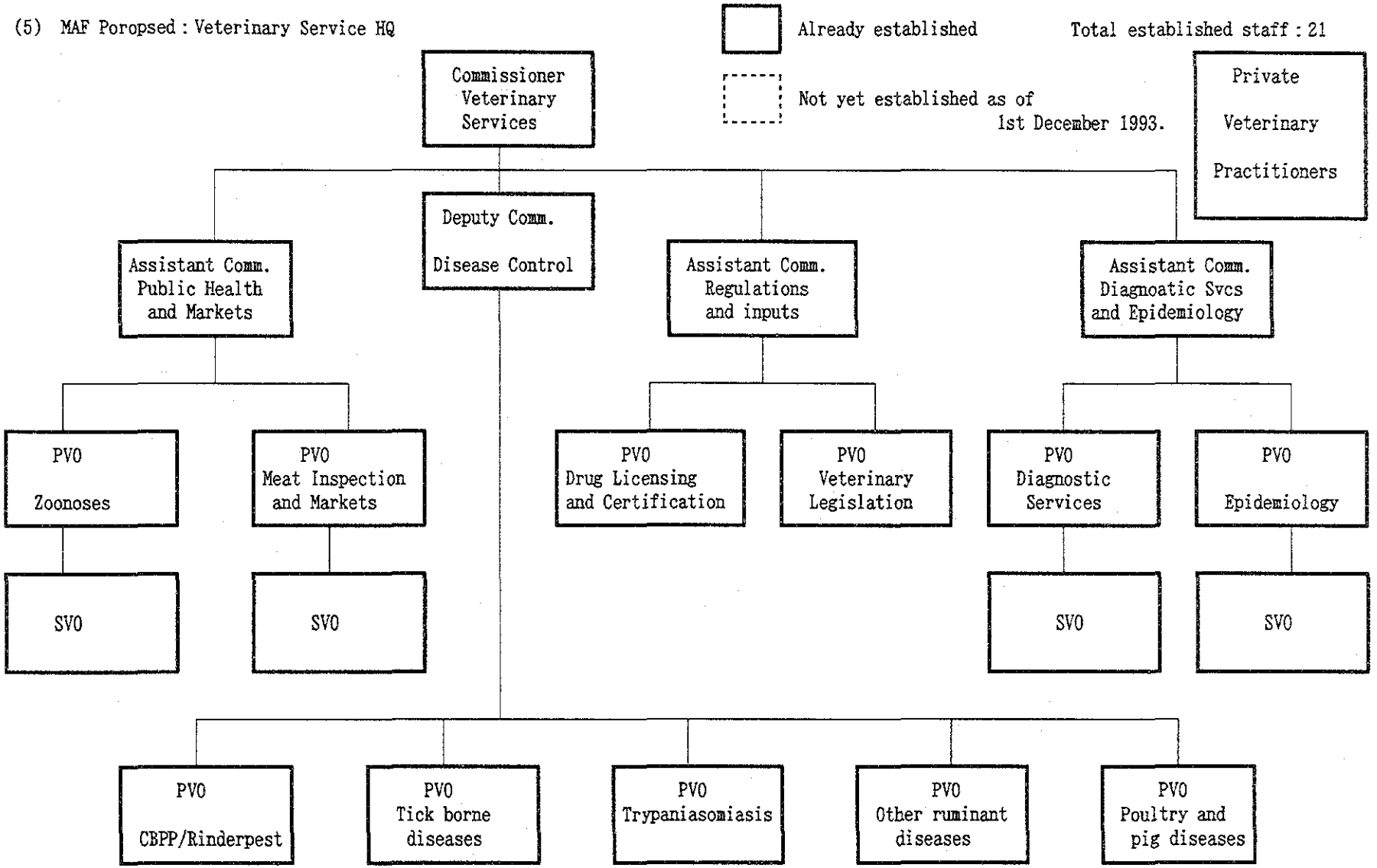


Total established staff : 40

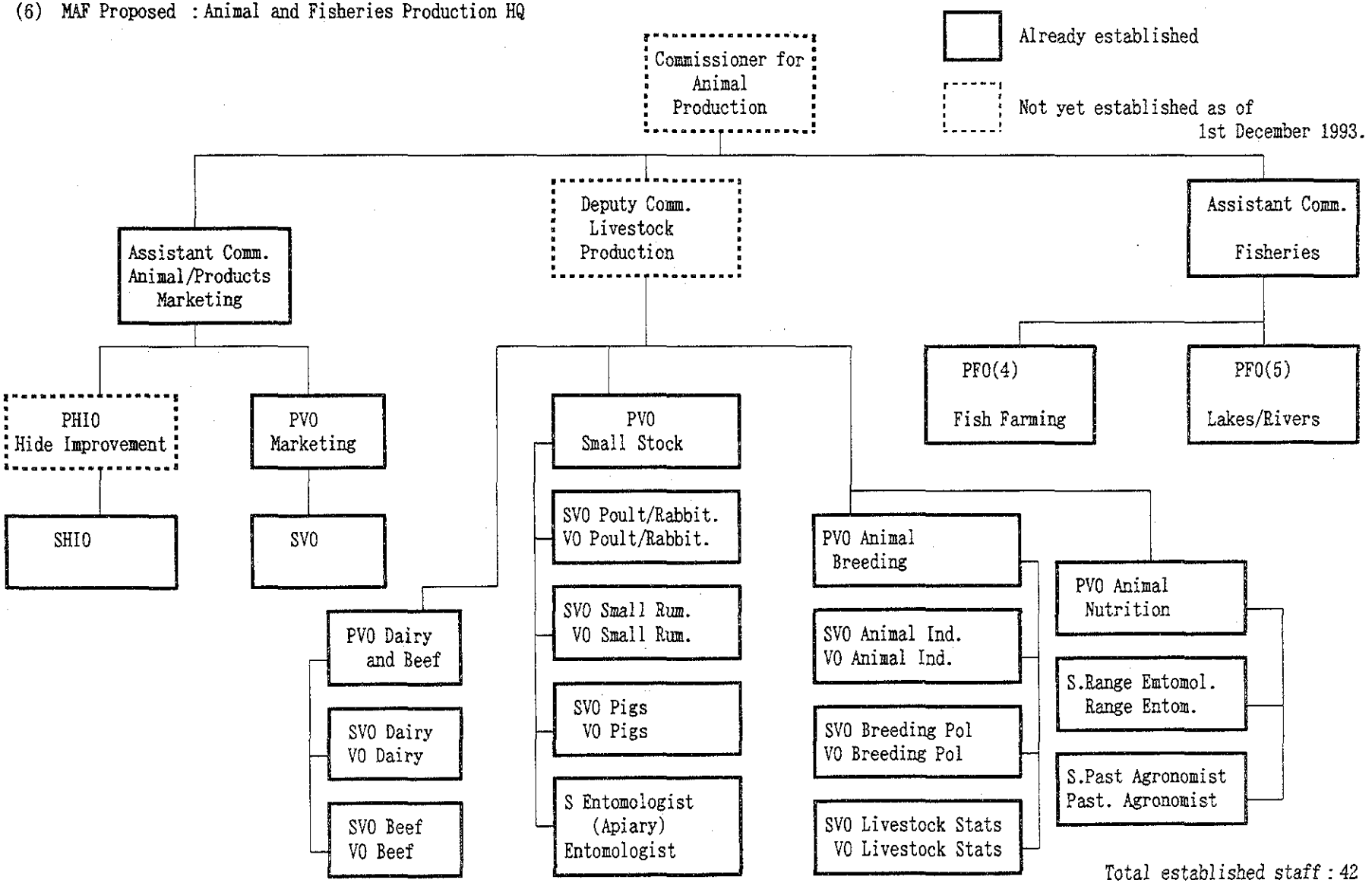
(4) MAF Proposed : Plant Protection HQ



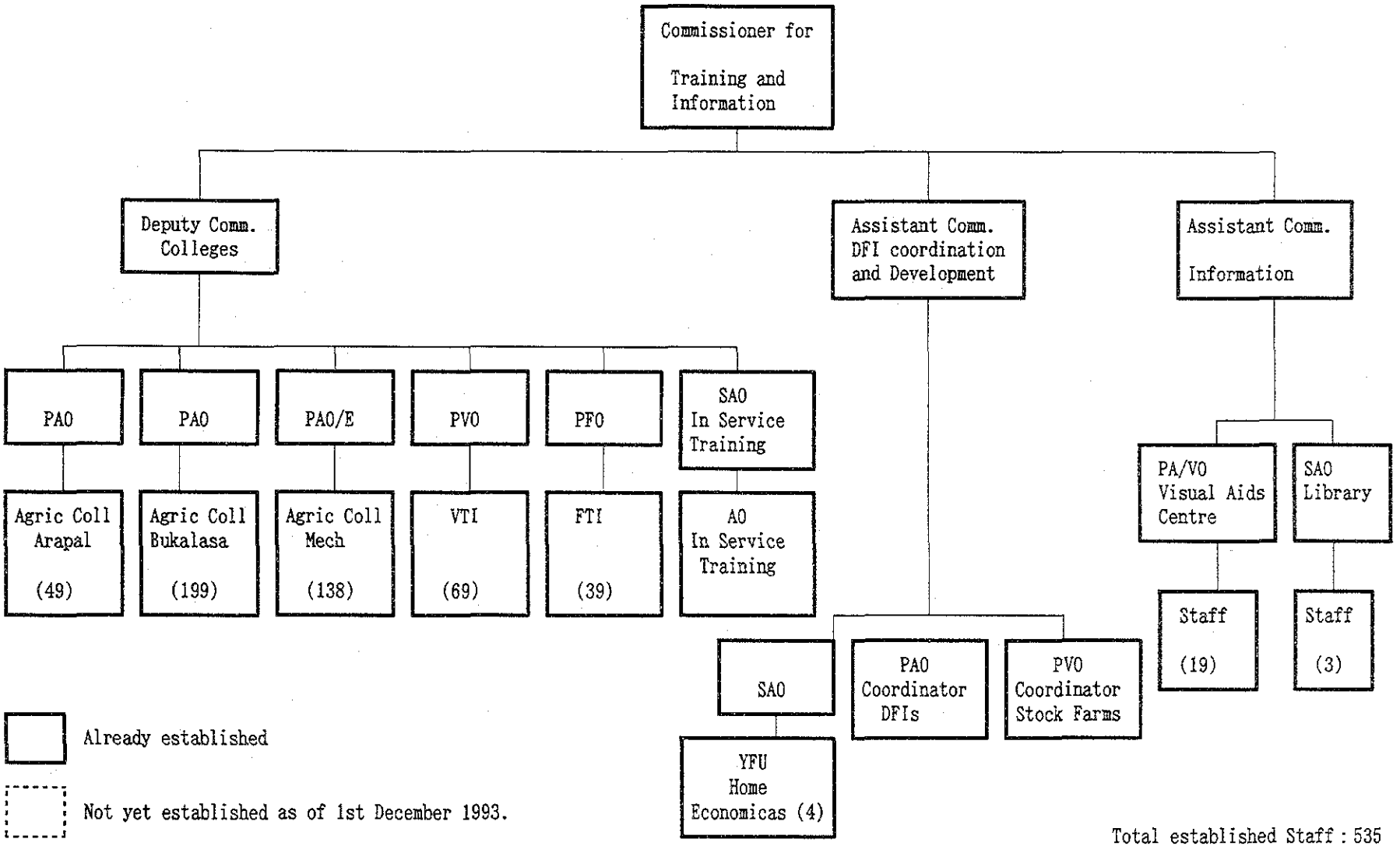
(5) MAF Poropsed : Veterinary Service HQ



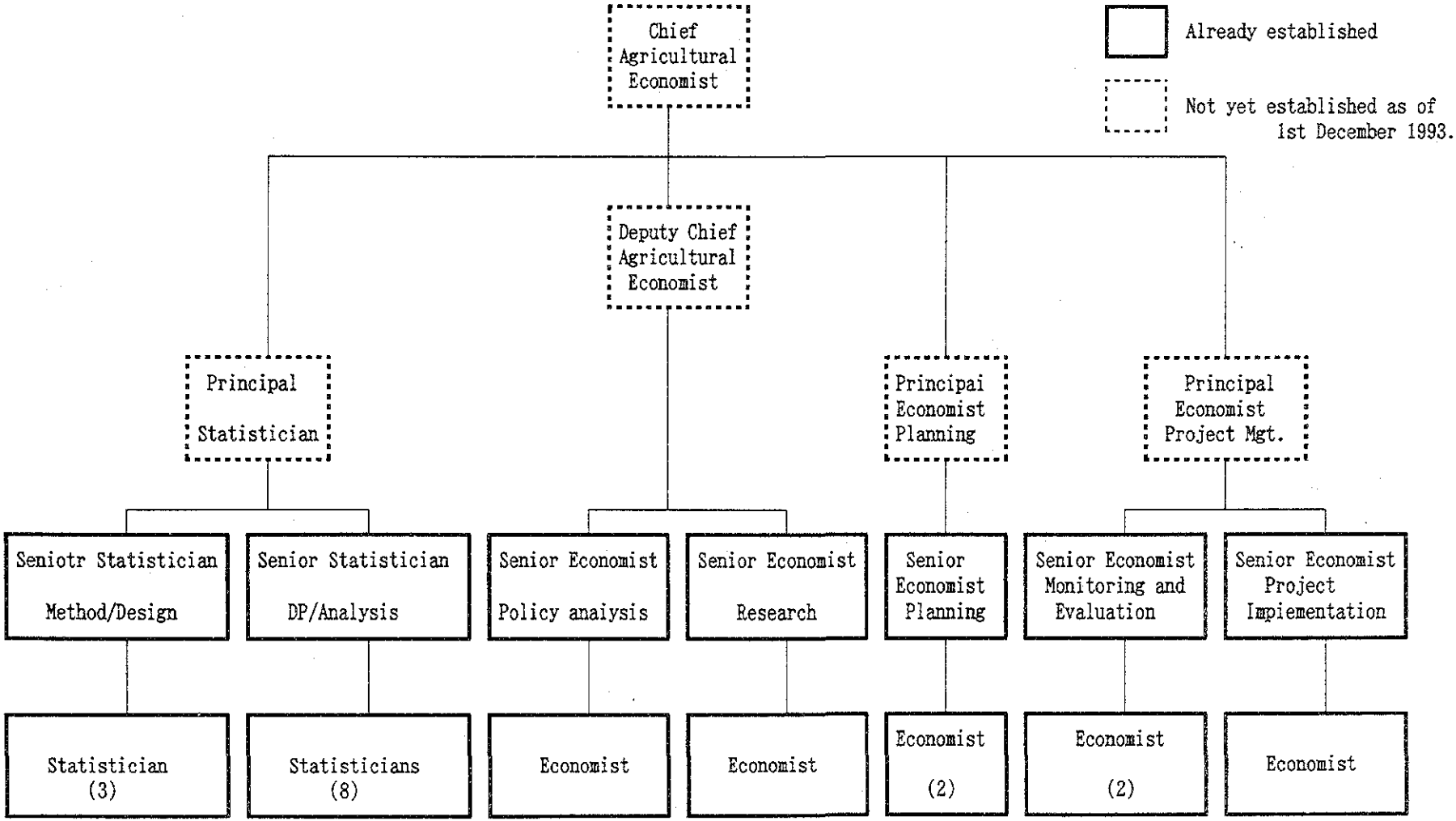
(6) MAF Proposed : Animal and Fisheries Production HQ



(7) MAF Proposed : Training and Information



(8) MAF Proposed : Planning



Total established staff 29

Table A1.4.2 Foodstuff Trade of Uganda (weight base)

(1) Export (Unit : Upper-1,000 ton/Lower-1,000US$)

Item	1984	1985	1986	1987	1988	1989	1990	1991
Coffee (green	133.20	152.30	129.00	151.00	144.20	176.45	141.49	127.44
+roast)	381,193	420,460	308,820	309,300	265,300	262,810	140,380	120,790
Cacao (beans)	0.30	0.24	0.21	0.37	0.23	0.40	0.31	0.75
	650	480	450	740	440	600	504	900
Tea	2.60	1.14	2.79	2.08	3.08	3.20	4.76	7.02
	3,900	1,500	3,000	2,500	4,600	2,553	3,566	6,780
Tobacco	0.95	1.00	1.00	1.00	-	0.49	2.27	2.47
(manufactured)	1,150	1,100	1,300	1,500	-	569	2,821	4,540
Cotton (lint)	6.50	7.00	4.00	3.50	2.10	2.32	3.81	7.82
	11,000	10,000	4,500	4,500	2,800	4,020	5,795	11,731
Cotton (seed)	0.50	0.60	1.00	0.60	0.70	0.80	-	-
	65	50	100	65	90	100	-	-
Maize	8.00	2.00	-	-	-	-	26.70	33.10
	1,800	400	-	-	-	-	3,320	4,190
Pluses	0.30	0.60	0.70	-	-	-	9.30	14.40
	160	300	480	-	-	-	4,150	4,274
Groundnut	-	-	-	-	-	-	0.10	0.17
	-	-	-	-	-	-	81	121
Soybean	-	-	-	-	-	-	-	2.38
	-	-	-	-	-	-	-	470
Banana	-	-	-	-	-	-	0.95	1.81
	-	-	-	-	-	-	519	162
Pineapple	-	-	-	-	-	0.55	0.28	0.10
	-	-	-	-	-	350	176	180

Source : FAO Yearbook Trade 1986,1987,1989,1991

(2) Import (Unit:Upper-1,000 ton/Lower-1,000US$)

Item	1984	1985	1986	1987	1988	1989	1990	1991
Bovine cattle	8.00	7.50	10.00	10.00	-	1.30	0.50	0.15
	3,000	3,000	3,900	3,900	-	1,800	800	30
Canned meat	0.40	0.45	0.25	0.10	-	0.30	0.20	0.37
	800	1,000	500	150	-	600	600	850
Dry milk	3.00	2.00	2.40	2.50	2.80	2.00	1.60	1.00
	5,140	3,590	3,540	3,500	5,500	5,000	3,500	1,900
Butter	0.60	0.75	0.20	0.20	0.60	1.00	0.50	-
	1,100	1,100	400	560	1,800	3,500	1,600	-
Wheat (flour)	15.10	12.20	10.70	14.10	22.00	10.00	11.90	25.50
	3,000	2,150	1,730	2,400	3,300	2,000	1,900	3,600
Rice	7.50	6.00	6.00	6.00	-	6.10	-	-
	2,500	2,000	2,000	1,800	-	2,200	-	-
Maize	8.00	2.00	-	-	-	-	-	-
	1,800	400	-	-	-	-	-	-
Pluses	0.30	0.60	0.70	-	-	-	9.28	14.42
	160	300	480	-	-	-	4,150	4,274
Sugar (refined)	3.30	0.81	22.85	73.30	9.20	15.98	10.00	7.07
	1,050	250	6,600	24,000	3,450	5,900	4,600	2,600
Jute+Bast fibres	-	-	-	0.30	-	1.50	-	-
	-	-	-	100	-	500	-	-
Animal oil+Fat+Grease	1.00	0.50	1.90	1.20	7.90	11.90	12.60	6.00
	600	300	1,000	730	5,200	6,900	5,800	2,800
Palm oil	-	-	-	2.10	4.00	4.30	3.70	10.00
	-	-	-	970	2,100	2,200	1,500	4,000
Margarine	-	-	-	0.22	0.25	0.10	-	-
	-	-	-	290	350	170	-	-
Rape oil+Mustard oil	-	-	-	-	-	1.00	2.00	1.20
	-	-	-	-	-	900	1,800	1100

Source : FAO Yearbook Trade 1987,1989,1991

Note : Figures for bovine cattle are in 1,000 head.

Appendix 2

Present Situation for Each Sector

Appendix 2.1 Meteorology, Hydrology and Groundwater

2.1.1 Meteorology

Table A2.1.1.1 Data Provided by Meteorological Stations

	LAT.	LONG.		
Luwero				
Bukalasa	0.43 N	32.30 E		
	Rainfall (1971~1977)			
Kakoge	1.04 N	32.28 E		
	Temperature (1971~1977)		Dewpoint (1971~1978)	
	Sunshine (1971~1977)		Evapolation (1971~1972, 1976~1977)	
	Windrun (1971~1974, 1976~1977)			
Masaka				
Katigonda	0.13 S	31.44 E		
	Rainfall (1971~1992)			
Masaka	0.21 S	31.44 E		
	Temperature (1971~1978)		Dewpoint (1971~1978)	
	Rainfall (1971~1978)		Sunshine (1971~1978)	
	Radiation (1971~1978)		Evapolation (1971~1978)	
	Windrun (1971~1974, 1976,1978)			
Ntusi	0.08 N	31.13 E		
	Temperature (1971~1978)		Dewpoint (1971~1978)	
	Rainfall (1971~1977)		Sunshine (1971~1978)	
	Radiation (1971~1978)		Evapolation (1971~1978)	
	Windrun (1971~1978)			
Mpigi				
Entebbe	0.03 N	32.27 E		
	Temperature (1971~1977, 1990~1992)		Dewpoint (1971~1975, 1977)	
	Rainfall (1971~1992)		Sunshine (1971~1975, 1977)	
	Radiation (1971~1975, 1977)		Evapolation (1971~1972, 1974~1975, 1977)	
	Windrun (1971~1974)			
Kabanyoro	0.28 N	32.37 E		
	Temperature (1971~1981)		Dewpoint (1971~1974)	
	Rainfall (1975~1987, 1990~1991)		Sunshine (1971~1974)	
	Radiation (1971~1974)		Evapolation (1971~1972, 1974)	
	Windrun (1971~1974)			
Namulonge	0.32 N	32.37 E		
	Temperature (1971~1978, 1980)		Dewpoint (1971~1975, 1977~1978)	
	Rainfall (1971~1989, 1991~1992)			
Mukono				
Kituza	0.16 N	32.46 E		
	Temperature (1971~1975)		Dewpoint (1971~1975)	
	Rainfall (1975, 1977~1992)		Sunshine (1971~1975)	
	Radiation (1971~1975)		Evapolation (1971~1975)	
	Windrun (1971~1974)			
Jinja	0.27 N	33.11 E		
	Temperature (1978~1984)		Dewpoint (1971~1975, 1977~1980)	
	Rainfall (1977~1992)		Sunshine (1971~1975, 1977~1978)	
	Radiation (1971~1975)		Evapolation (1971~1972, 1974~1975, 1977~1978)	
	Windrun (1971~1975, 1977~1980)			

2.1.2 Hydrology

Table A2.1.2.1 Hydrological Stations in the Study Area

NO	Station Name	Location	Code Number	District	Data Availability	Data Type	Total Years
1	L. Victoria	Bukakata Pier	81205	MASAKA	1955 - 1990	h	27
2	R. Katonga	Kampala - Masaka Road	81259	- do -	1965 - 1982	hc	18
3	R. Katonga	Nkonge Road Bridge	81260	- do -	1966 - 1990	hc	19
4	R. Katonga	Nkonge Railway Bridge	81261	- do -	1966 - 1989	hc	19
5	R. Kibale	Falla	81243	- do -	1964 - 1972	hc	9
6	R. Kibale (Bukora)	At Katera	81258	- do -	1964 - 1980	hc	17
7	L. Kijanebalola	Rweswera	81240	- do -	1959 - 1977	h	19
8	L. Kijanebalola	Kyetaka	81234	- do -	1958 - 1980	h	21
9	R. Musansale	Masaka - Bukakata Road	81264	- do -	1979 - 1990	hc	18
10	R. Nabajjuzi	Masaka - Kyotera Road	81265	- do -	1987 - 1992	hc	12
11	R. Katonga	Bugomora	81219	- do -	1974 - 1979	hc	7
12	R. Kibale	Upper	81233	- do -	1958 - 1980	hc	23
13	L. Kijanebalola	Kisozi Island	81257	- do -	1964 - 1966	h	3
14	L. Victoria	Entebbe Pier	81201	MPIGI	1896 - 1992	h	39
15	R. Kibimba	Kanoni - Mubende Road	81260	- do -	1965 - 1982	hc	16
16	R. Mayanja Kato	Kampala - Mityana Road	-	- do -	1971 - 1972	hc	2
17	R. Sezibwa	Sezibwa Falls	81225A	MUKONO	1957 - 1975	hc	15
18	R. Sezibwa	Lugula	81225B	- do -	1971 - 1975	h	5
19	L. Victoria	Kome Island	81215	- do -	1972 - 1987	h	17
20	L. Victoria	Jinja Pier	81202	- do -	1912 - 1992	h	41
21	R. Nile	Mbulamuti	82203	- do -	1956 - 1992	hc	29
22	L. Kyoga	Rahemtulla Port	81210	LUWERO	1969 - 1978	h	10
23	L. Kyoga	Lwampanga	82206	- do -	1965 - 1975	h	5
24	R. Lugogo	Kagoye (Luwero)	83217	- do -	1973 - 1980	hc	8
25	R. Kafu	Kampala - Gulu Road	83213	- do -	1952 - 1992	hc	32
						TOTAL	431

Table A2.1.2.2 Principal Hydrological Indices

		Sezibwa (DWD) (long term)	Sezibwa (field survey)	Mr. Matovu's (field survey)	Remarks
Annual Average	Discharge (m^3/s)	2.06			
	Runoff Coefficient (%)	24.4			
	Specific Discharge ($l/s/km^2$)	11.8			
October 1993	Discharge (m^3/s)	1.97	0.7		
	Runoff Coefficient (%)	20.8	-		
	Specific Discharge ($l/s/km^2$)	11.2	4		
November 1993	Discharge (m^3/s)	2.94	1.0	0.120	
	Runoff Coefficient (%)	23.9	-	-	
	Specific Discharge ($l/s/km^2$)	16.8	6	13	

2.1.3 Groundwater

1) Geology

Uganda is situated in the most eastern part of the Congo Craton which is underlain by Precambrian rocks, and is widespread in Central Africa. The generation of Precambrian rocks in Uganda date back 1.8 billion years. Oregenic activity didn't occur in the Congo Craton up to date. But, igneous activities occur in the Western part of Uganda and Kenya since Mesozoic era.

The locality of igneous activities fall in East African rift zone which is topographically depression extending about 4,000 km northward in East Africa.

The rift zone is narrow depression resulted from normal faulting. Faulting activity may have been finished in the late of Tertiary Period Cenozoic. The rift zone is composed of Eastern rift and Western ore which extend to most western part of Uganda. Volcanic activity and modern seismic activity occur along the western rift zone.

Uganda belongs to East Africa swell about 1,000m in height. Victoria lake is shallow included in a wide basin. There are rising zones in the eastern and western part of the basin which are 1,000 ~ 2,000m higher than the swell. The rifts are located in these two rising zones.

Table A2.1.3.1 shows simplified geological succession in Uganda. The study areas are widely underlain by Precambrian rocks which are composed of undifferentiated gneiss and partly granulized Buganda - Toro system, general geology of each districts Are as follows.

Luwero District

The geology of the districts is dominated by the Precambrian Basement Complex. The dominant Precambrian unit is the undifferentiated Gneiss.

The lithologies which are likely to be encountered include biotite gneisses, banded migmatitic and granitic gneisses, hornblende and amphibolite gneisses, metaquartzites and some ultrabasic rocks.

The other Precambrian units are the rocks of the Buganda - Toro System. The System is predominantly composed of argillites, but parts are granulized and low grade phyllites.

Masaka District

The geology of the district is dominated by undifferentiated gneiss. The northern part of district is underlain by the Buganda - Toro System.

Mpigi District

The geology of the district dominated by the Buganda - Toro System which composed of partly granulized argillites. The boundary part to Luwero is underlain by undifferentiated gneiss.

Mukono District

The northern and central parts of Mukono District are underlain by undifferentiated gneiss of the Basement Complex. Recent sediments cover the eastern boundary along the Nile.

The southern parts of Mukono are underlain by the Buganda - Toro System (partly granulized and metamorphosed rocks) with basement Complex (granite gneiss) exposures running in the north east and south west direction.

From a monotonous flat topography in the north the land changes to an undulation topography in the central parts becoming noticeably hilly in the southern parts.

The central parts have intermediate to thick overburden while the southern parts have very thick overburden in the Buganda - Toro underlain areas.

2) Hydrogeology

(1) General Aquifer

Aquifers occur in crystalline basement rocks which underlie the greater part of Uganda and in which more than 95% of the existing boreholes are completed; and less commonly in sedimentary formations (Western Rift Valley region; local alluvial infills) and in volcanic rocks (Mt. Elogon on the eastern border and Mfumbira in the south-west). The Rift Valley sediments are mostly lacustrine and only the more local sandy facies constitute potential aquifers. The alluvial infills are widespread in the drainage systems but associated aquifers are constrained by limited storage and variability of recharge. The volcanic rocks occur in regions of high relief and groundwater occurrence is mainly associated with speing discharge and stream baseflow.

(2) Precambrian Aquifer

Precambrian aquifer occurs in the undifferentiated gneiss and sedimentary rocks which extend to greater part of the study area. This aquifer is main source of underground water in Uganda.

Groundwater occurs in weathered zones and fracture. Groundwater flow and storage is dependent on local hydrogeological conditions and properties are likely to vary rapidly laterally and vertically. The "aquifer" cannot be considered as a homogeneous hydrological unit but rather as specific hydrogeological zones which may or may not be interconnected. This has importance for the siting, testing and success of boreholes and wells.

In most cases three water bearing zones may be identified in this type of formation:

(a) an upper zone of weathering products, typically clay and sandy clay. The zone is often of variable thickness. Groundwater if present is usually unconfined.

(b) a middle zone comprising an upper highly weathered layer and a lower less weathered fissured layer. The upper layer has typically arenitic characteristics but the permeability of the formation is reduced by interstitial clay from the weathering of the silicates in the basement. If saturated, this layer is important for the groundwater storage in the system. The lower layer has fissures which have been widened by weathering and forms the zone with the highest storage and permeabilities in the sequence. The lower is likely to be confined or semi-confined.

(c) Fresh rock is usually encountered below the lower layer of zone b. Additional fractures are frequently found below zones of fresh rock. These may be partly weathered and have high transmissivities but storage coefficients will be low. If groundwater is abstracted from this layer the storage for the system is likely to be from the overlying layers.

Most boreholes rely on the occurrence of groundwater in zone b. This zone is most likely to be dry on steep slopes and groundwater divides. If the groundwater resource is entirely within the fractures in the lower part of this zone and in zone c the storage is likely to be inadequate for a sustained yield from the borehole. The upper part of zone b may be cased out by the driller but it still forms the storage for the recharge to the lower fracture zones.

The depth of weathering of granitic basement ranged from 30 to 50m in the low relief central plateau region, thinner in the marginal highland region and occur to a greater depth depending on the occurrence of fractures and the extent of surface erosion, greater thickness up to 70m or more have been identified in the weathering overlying the phyllites of the Buganda - Toro System. This weathering is very clayly and, therefore, of low permeability.

The bedrock aquifer component may have high transmissivity, if significant fracture systems are intersected. These are of two types, pressure release fractures which tend to be sub horizontal and more abundant in the vicinity of the regolith-bedrock interface, and tectonic fractures which typically occur in zonal concentrations which are medium to high dipping.

3) Groundwater Potential

Groundwater potential estimation found in the Feasibility study report by ODA is as follows. The potential may be similar to the other 3 Districts in the study area.

(1) Boreholes

Groundwater occurs in weathered zone and fractures. The mean yields of boreholes in each of the hydrogeological units of basement are as follows.

Undifferentiated gneiss : 1,525 l/hour

Buganda - Toro System : 2,748 l/hour

Transmissivity data are highly variable in this type of basement rock. Borehole yields may be derived from a single fracture unit with a very high transmissivity. If the whole saturated unit is considered in the calculation of transmissivity then the overall value is in most cases likely to be low. The specific yield of boreholes in this type of formation is a more useful comparison of the borehole performance. The mean specific yield in a sample from 25 boreholes drilled in the RUWASA project to the south east of Lake Kyoga was 0.07 l/m/s. The hydrogeological conditions are similar in the project area and similar specific capacity values can be expected.

Groundwater storage values are likely to be low due to the confined or semi confined nature of most of the groundwater intercepted in these boreholes. Unconfined storage in the upper parts of the weathered formation is likely to give slightly higher values of storage coefficient. This part of the formation provides most of the storage of the lower fracture systems. The groundwater potential of fracture systems in the lower parts of the formation rely on the upper zone storage. If this is not present the lower water yielding zones will be rapidly dewatered.

(2) Springs

Springs occur either where the flow of unconfined groundwater is interrupted by an impermeable formation or where the head of confined groundwater is released by flow to the surface. In the first type the occurrence of an impermeable layer will be due to change in lithology, caused either by a stratigraphic relationship or a structural change. The second occurs where a confined aquifer outcrops.

(a) Precambrian Sedimentary Formations

Both these types of spring are thought to occur in the Precambrian "Cover" Sediments. The weathering of the Precambrian Sedimentary formations contrasts to that of the Gneisses. The sedimentary units tend to form topographic highs with steeper slopes and more deeply incised valleys. This means recharge to the higher areas forms a groundwater head in the formation and springs occur frequently on the adjacent lower slopes and in the river valleys.

(b) Precambrian Undifferentiated Gneisses

Spring occurrence depends on contrasts in topography and hence hydraulic heads.

Most of the areas underlain by the gneisses are plateau areas with little topographic contrast. Slopes are generally gentle and valleys are heavily silted and clogged with superficial sediments. The weathered zone is generally thick with moderate groundwater storage. Large

areas have little contrast in the lithology and the formation in most cases has a uniform response to structural deformation. If groundwater rises to the top of fracture zones in the basement it may still not reach the surface due to the large thickness of permeable weathered zone above the formation. This combination of properties and weathering means there is only very low spring potential in most areas on this rock type.

In Luwero District the spring potential in the Precambrian sediments is good and in the gneisses it is poor.

Table A2.1.3.1 Simplified Geological Succession in Uganda

Cainozoic (Pleistocene-Recent)	3. Plateau deposits, black soils, alluvium, outwash fans, lakeshore deposits 2. Pleistocene volcanics (late Pleistocene) 1. Western Rift Valley deposits (clays, diatomites, sands) : Semliki (mid-Pleistocene) Kaiso (early Pleistocene)
Mesozoic-Tertiary	3. Eastern volcanics : agglomerates, lavas and tuffs (Miocene) and carbonatites/syenites (?Cretaceous) with sediments (mid-Tertiary Bugishu Series) 2. Kisegi Beds of Western Rift Valley (?L, Miocene-Pliocene) 1. Karamoja Beds : grits, tuffs, interbedded basalts (?Miocene)
Mesozoic	Ecca Shales (Karoo)
Pre-Cambrian	3. P (A) Relatively unmetamorphosed formations Singo Series — grits, sandstone, basal conglomerates, occasional shales Bukoban Series — fine-grained sandstones Mityana Series — conglomerates, arkose and quartzites Bunyoro-Kyoga Series — shales and phyllites, with arkose and greywackes in upper part Kibalian System — amphibolites 2. P (B) Partly granitised formations Madi Series — quartzite, schist, marbles, gneiss Karagwe-Ankolean System — argillites with interbedded arenites with metacalcarenties at base and quartzite, sandstone and conglomerates (Buhwezu) Bugnda-Toro System — predominantly argillites (amphibolites, phyllites) with basal arenites, extensively granitized 1. P (C) Wholly grantized or medium to high grade metamorphics Karasuk Series — acid gneisses, amphibolites, quartzites Mirian Gneisses — flaggy acid gneisses Aruan (and pre-Karasuk of Karamoja) — gneisses, migmatite, granite granulites Watian — granulites Undifferentiated gneisses and granulites and granitoid rocks Mobilized and intrusive granites Cataclasites (mylonites)

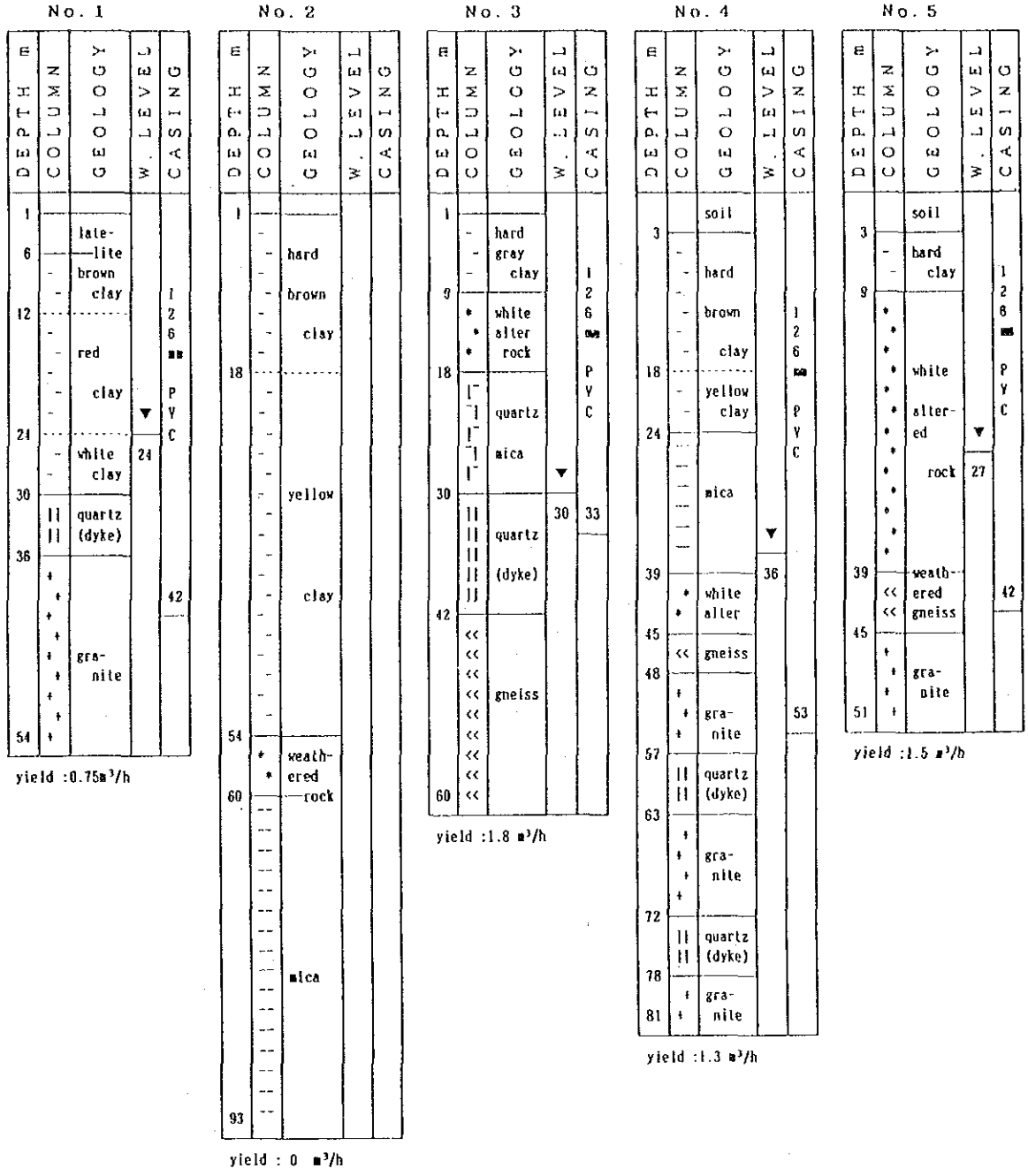
Source : National Rural Water Supply Programme (NRWSP)

Table A2.1.3.2 Water Quality of Test Wells in Mpigi District

Parameter		No.1	No.3	No.4	No.5	RUWASA Max.
Alkalinity	mg/l	420	41	100	72	
Hardness	mg/l	1,190	129	80	72	600
CaCO3	mg/l	395	63	14	36	
Mg	mg/l	194	16	16	8.8	
T.Fe	mg/l	0.09	0.02	0.13	1.98	5
Mn	mg/l	4.3	0	0	0.1	0.5
Cl	mg/l	307	56	4	4	800
F	mg/l	0	0.06	0	0	4
PO4	mg/l	2.4	0	0.09	0.3	
SO4	mg/l	84	8	2	5	600
HCO3	mg/l	512	50	122	87.8	
NO3	mg/l	2.2	7.92	6.6	3.08	40
TDS	mg/l		197	95	73.6	2,000
Conductivity	μS/cm	2,600	392	191	147	

Note : Numbers of well correspond to ones in Table 3.1.3.5 conducted by DWD laboratory

Figure 2.1.3.1 Drilling Logs of Test Wells in Mpigi District



Appendix 2.2 Topography, Soils and Land Use

2.2.1 Topography

1) Creating a database of information related to land use

(1) Outline

It is vital that the current conditions of land slope, soil, and land use in the area are grasped and that these are given due consideration when formulating land use plans. With the methods that have been in use hitherto, individual theme maps such as for land slope, soil, and land use are first prepared, then these are compared visually in order to select potential land for development and to formulate land use plan.

However, as this area extends over an extremely broad range with about 2.5 million ha of land and the respective theme maps for land slope, soil, and current land use are divided up into smaller areas for each classification, resulting in highly intricate maps it is difficult to carry out the study by visual judgment.

In recent years, thanks to advances in computer technology, the creation of computer databases for numerical data on national land survey is flourishing on an international scale. We decided to apply such methods to this study as well, and to create a database of information related to land use in the study area, using personal computer database software.

An outline of this is shown below.

Hardware:	Personal computer	NEC PC-9801 NA/C (with built-in 200MB harddisk)
	XY plotter	Roland DXY-1350
Software:	Database system	dBASE IV 2.0J
	Plotter output system	Self-developed software (Quick Basic Ver. 4.5)
Mesh divisions:	1km x 1km	
Area covered by mesh:	Entire study area	
Coordinates of mesh:	For mesh division, we used the division lines and coordinates published in 1:50,000 scale topographical maps, taking the X and Y coordinates in the bottom left-hand corner (southwest extremity) of each mesh as the code specifying the position of the mesh in question. However, since the Y coordinates north and south of the equator are not consecutive, we subtracted 10,000 from the Y coordinate south of the equator and used the negative product as the coordinates.	

Figure A2.2.1.1 Mesh Division and Coordinates

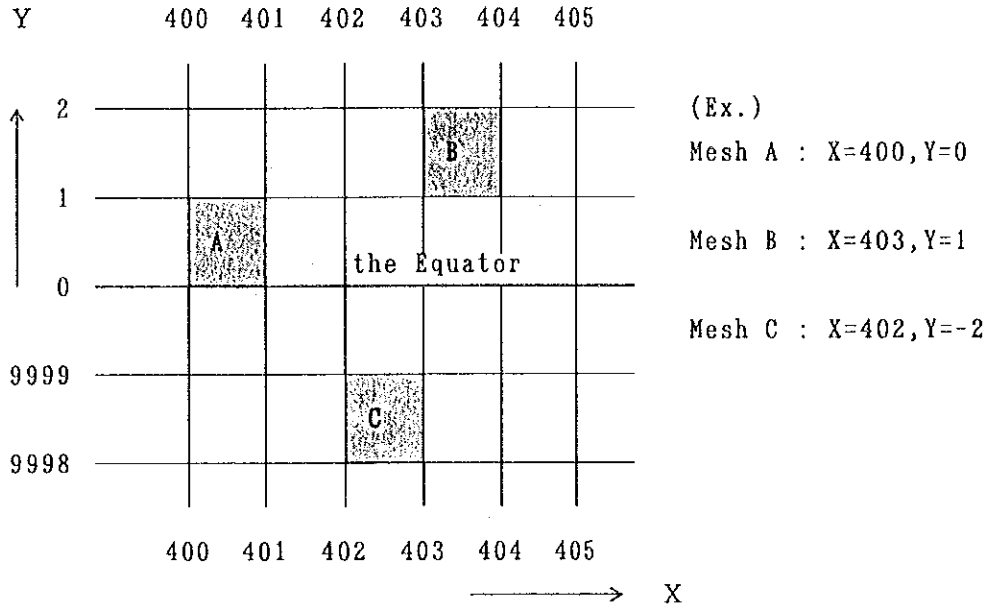


Table A2.2.1.1 Data Item of Mesh Database

Item	Code	Type	Digit
Basic Data			
X coordinate	X	Integer	3
Y coordinate	Y		4
Administrative division	ADM		3
Land slope classification	SLO		1
Soil type	SOI		2
Present land use	LUS		1
Water area	WAT		1
Primary Processed Data			
Around swamp division*	SWA		1
Reserve	ILN		1
Secondary Processed Data			
Soil fertility	CSO		1
Land gradient (Paddy)	CTP		1
Land gradient (Farm)	CTU		1
Land productivity (Paddy)	CLP		1
Land productivity (Farm)	CLU		1
Soil conservation	CLC		1
Land use suitability (Paddy)	CDP		1
Land use suitability (Farm)	CDU		1
Land suitability (Paddy)	CNP		1
Land suitability (Farm)	CNU		1
Synthesized overall land suitability	CNS	Integer	2

Note : "around Swamps" means the next meshes to swamps or water areas.

Table A2.2.1.2 Code Systems in Land Use Mesh Database

1.Administrative Division (ADM)

Code	Name
	LUWERO
	BURULI
111	KAKOOGE
112	KALUNGI
113	LWAMPANGA
114	NABISWERA
115	WABINYONYI
	KATIKAMU
121	BUTUNTUMULA
122	KATIKAMU
123	LUWERO
124	MAKULUBITA
125	NYIMBWA
	NAKASEKE
131	KAPEKA
132	KIKAMULO
133	NAKASEKE
134	NGOMA
135	SEMUTO
136	WAKYATO
	WABUSAANA
141	BAMUNANIKA
142	KALAGALA
143	KIKYUSA
144	ZIROBWE

Code	Name
	MASAKA
	BUKOMANSIMBI
211	BIGASA
212	BUTENGA
213	KIBINGE
214	KITANDA
	BUKOTO
221	BUKAKKATA
222	BUWUNGA
223	KASWA
224	KISEKKA
225	KYANAMUKAAKA
226	LWENGO
227	MALONGO
228	MUKUNGWE
	KALUNGU
231	BUKULULA
232	KALUNGU
233	KYAMULIBWA
234	LWABENGE
	LWEMIYAGA
241	LWEMIYAGA
242	NTUSI
	MASAKA MUN.
251	MASAKA MUN.
	MAWOGGOLA
261	LWEBITAKULI
262	MATEETE
263	MIJWALA

Code	Name
	MPIGI
	BUSIRO
311	KAKIRI
312	KASANJE
313	KATABI
314	MASULITA
315	NAMAYUMBA
316	NSANGI
317	SSISA
318	WAKISO
	BUTAMBALA
321	BUDDE
322	BULO
323	KALAMBA
324	KIBIBI
325	NGANDO
	ENTEBBE MUN.
331	ENTEBBE MUN.
	GOMBA
341	KABULASOKE
342	KYEGONZA
343	MADDU
344	MPENJA
	KYADONDO
351	GOMBE
352	KIRA
353	KYAMBOGO
354	MAKINDYE
355	NABWERU
356	NANGABO
	MAWOKOTA
361	BUWAMA
362	KAMMENGO
363	KIRINGENTE
364	KITUNTU
365	MPIGI
366	MUDUMA
367	NKOZI

Code	Name
	MUKONO
	BBALE
411	BBALE
412	GALIRAYA
413	KAYONZA
414	KITIMBWA
	BUIKWE
421	BUIKWE
422	KAWOLO
423	NAJJEMBE
424	NGOGWE
425	NYENGA
426	WAKISI
	BUVUMA
431	BUGAYA
432	BUSAMUZI
433	BWEEMA
434	NAIRAMBI
	MUKONO
441	GGOMA
442	KAWUGA
443	KKOME
444	KYAMPISI
445	NAKISUNGA
446	NTENJERU
	NAKIFUMA
451	KASAWO
452	NABBALE
453	NAGOJJE
454	NAKIFUMA
455	NTUNDA
456	SEETA
	NTENJERU
461	BUSANA
462	KANGULUMIRA
463	KAYUNGA
464	NAZIGO

2.Slope (SLO)

Code	Item
1	25%<=I
2	12%<=I<25%
3	6% <=I<12%
4	2% <=I<6%
5	0% <=I<2%

3.Land Use (LUS)

Code	Item
1	Forest Reserves
2	Other Forests
3	Forest/Farm-grassland mosaic
4	Savanna/Farm-grassland mosaic (densely wooded)
5	Savanna/Farm-grassland mosaic (sparsely wooded)
6	Plantations
7	Swamps
8	Urban areas
9	Water areas

4.Soil (SOI)

Code	Item
1	Koki C.
2	Tolero S.
3	Buganda C.
4	Kabira C. (Kyebe C. ,Bowa C.)
5	Mirambi C.
6	Mawogola C. (Kibula S.)
7	Makole S.
8	Mabira C.
9	Nakabango C.
10	Lukaya C.
11	Buyaga C.(Lubumba S.)
12	Buruli C.
13	Lwanpanga S.
14	Mulembo S.
15	Kifu S.
16	Bukora S.
17	Kaku S.
18	Sango S. (Katera S.)
19	Sesse S. (Bugoma S. ,Kikwayu S.)
20	Buganda C. / Mirambi C.

5.Water (WAT)

Code	Item
-	Land areas on topographical map (included parmanent swamps)
1	Water areas on topographical map (excepted Lake Victoria)
2	Water areas on land use map (excepted Lake Victoria)
3	Water areas of Lake Victoria on topographical map

(2) Preparing mesh data

Creating a land use database requires a considerable work in preparing mesh data. Therefore, the methods of compiling mesh data have to be studied in advance taking overall account of the level of accuracy and the effort involved. After preparing the theme maps, and then for converting this information to numerical data one of the following three methods is applied.

a) Manual method

After mesh division lines have been imposed on the theme maps and the various mesh codes and mesh data codes have been written in data sheets, the data are stored on magnetic media via data punching. This method allows mesh data to be prepared by manual operation without recourse to any special devices.

b) Coordinate measuring method (digitizer method)

A digitizer (coordinate reader) is used to measure the positions of target objects on the theme maps and simultaneously read the mesh data codes. After reading the coordinates, this method converts them from vector data (data showing consecutive coordinates) to ratter data (data in grid form).

c) Automatic color recognition method (color scanner method)

A color scanner reads the picture cells on a colored theme map, and records the position and color of each cell.

In converting theme map data to numerical data in this study, we used the 1:250,000 base maps for soil, and present land use classification as theme maps, while the 1:50,000 base maps were used for administrative and land slope classification charts. In converting the theme map data to numerical data, we adopted the digitizer method for the soil, and present land use classification, and the manual method for the administrative and land slope classification taking the characteristics of the respective maps into consideration.

3) Analysis of present conditions using the database

Using the database created above we calculated the area of each category with respect to general themes of slope, soil and present land use. Land use was graded according to mesh classifications.

When using the mesh system, allowance must be made for discrepancies between the area calculated from the number of meshed and the actual area. For this Study, revision coefficients were determined for each Sub-county. These were then applied to the mesh areas for each classification and Sub-county to obtain the final area.

Mesh coordinates and attribute codes were lifted from the database and output through an XY plotter color mesh system, to create diagrams for each theme.

Table A2.2.1.3 Areas and Conversion Rates of Mesh by Sub-county

(sq.km , num. of mesh & %)

District / County / Subcounty	Presumed Total Area (a)	Number of Mesh (b)	Conversion Rate (c)=(a)/(b)
LUWERO			
BURULI			
KAKOOGE	559.2	552	101.30
KALUNGI	729.7	725	100.65
LWAMPANGA	480.1	483	99.40
NABISWERA	1,316.4	1,266	103.98
WABINYONYI	483.9	474	102.09
SUB TOTAL	3,569.3	3,500	101.98
KATIKAMU	0.0		
BUTUNTUMULA	326.5	392	83.29
KATIKAMU	172.3	176	97.90
LUWERO	201.4	201	100.20
MAKULUBITA	172.0	172	100.00
NYIMBWA	108.8	110	98.91
SUB TOTAL	981.0	1,051	93.34
NAKASEKE	0.0		
KAPEKA	261.7	262	99.89
KIKAMULO	166.2	163	101.96
NAKASEKE	265.1	269	98.55
NGOMA	1,872.4	1,830	102.32
SEMUTO	133.0	128	103.91
WAKYATO	756.7	817	92.62
SUB TOTAL	3,455.1	3,469	99.60
WABUSAANA	0.0		
BAMUNANIKA	110.4	114	96.84
KALAGALA	137.5	141	97.52
KIKYUSA	692.9	690	100.42
ZIROBWE	251.6	228	110.35
SUB TOTAL	1,192.4	1,173	101.65
TOTAL	9,197.8	9,193	100.05
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		
	0.0		

District / County / Subcounty	Presumed Total Area (a)	Number of Mesh (b)	Conversion Rate (c)=(a)/(b)
MASAKA	0.0		
BUKOMANSIMBI	0.0		
BIGASA	194.2	193	100.62
BUTENGA	140.0	156	89.74
KIBINGE	101.9	113	90.18
KITANDA	136.3	140	97.36
SUB TOTAL	572.4	602	95.08
BUKOTO	0.0		
BUKAKKATA	410.3	409	100.32
BUWUNGA	377.7	365	103.48
KASWA	207.8	228	91.14
KISEKKA	156.6	161	97.27
KYANAMUKAAKA	1,188.8	1,140	104.28
LWENGO	383.1	395	96.99
MALONGO	368.1	360	102.25
MUKUNGWE	119.6	123	97.24
SUB TOTAL	3,212.0	3,181	100.97
KALUNGU	0.0		
BUKULULA	304.4	312	97.56
KALUNGU	170.8	166	102.89
KYAMULIBWA	108.9	114	95.53
LWABENGE	247.4	244	101.39
SUB TOTAL	831.5	836	99.46
LWEMIYAGA	0.0		
LWEMIYAGA	310.9	307	101.27
NTUSI	477.3	485	98.41
SUB TOTAL	788.2	792	99.52
MASAKA MUN.	0.0		
MASAKA MUN.	52.3	52	100.58
SUB TOTAL	52.3	52	100.58
MAWOGGOLA	0.0		
LWEBITAKULI	316.7	317	99.91
MATEETE	225.4	233	96.74
MIJWALA	987.6	984	100.37
SUB TOTAL	1,529.7	1,534	99.72
TOTAL	6,986.1	6,997	99.84

District / County / Subcounty	Presumed Total Area (a)	Number of Mesh (b)	Conversion Rate (c)=(a)/(b)
MPIGI			
BUSIRO			
KAKIRI	174.6	171	102.11
KASANJE	693.5	689	100.65
KATABI	295.0	337	87.54
MASULITA	116.2	112	103.75
NAMAYUMBA	182.4	180	101.33
NSANGI	118.3	115	102.87
SSISA	176.1	164	107.38
WAKISO	175.1	196	89.34
SUB TOTAL	1,931.2	1,964	98.33
BUTAMBALA	0.0		
BUDDE	59.4	60	99.00
BULO	72.0	72	100.00
KALAMBA	86.4	83	104.10
KIBIBI	84.2	87	96.78
NGANDO	114.8	107	107.29
SUB TOTAL	416.8	409	101.91
ENTEBBE MUN.	0.0		
ENTEBBE MUN.	249.8	267	93.56
SUB TOTAL	249.8	267	93.56
GOMBA	0.0		
KABULASOKE	451.7	452	99.93
KYEGONZA	212.3	227	93.52
MADDU	839.0	805	104.22
MPENJA	186.9	185	101.03
SUB TOTAL	1,689.9	1,669	101.25
KYADONDO	0.0		
GOMBE	139.2	144	96.67
KIRA	80.6	113	71.33
KYAMBOGO	118.3	111	106.58
MAKINDYE	85.7	85	100.82
NABWERU	41.3	42	98.33
NANGABO	102.4	94	108.94
SUB TOTAL	567.5	589	96.35
MAWOKOTA	0.0		
BUWAMA	335.9	430	78.12
KAMMENGO	241.9	250	96.76
KIRINGENTE	70.5	68	103.68
KITUNTU	141.1	139	101.51
MPIGI	153.9	154	99.94
MUDUMA	166.1	159	104.47
NKOZI	313.4	323	97.03
SUB TOTAL	1,422.8	1,523	93.42
TOTAL	6,278.0	6,421	97.77

District / County / Subcounty	Presumed Total Area (a)	Number of Mesh (b)	Conversion Rate (c)=(a)/(b)
MUKONO	0.0		
BBALE	0.0		
BBALE	319.2	286	111.61
GALIRAYA	410.0	389	105.40
KAYONZA	344.4	363	94.88
KITIMBWA	149.0	143	104.20
SUB TOTAL	1,222.6	1,181	103.52
BUIKWE	0.0		
BUIKWE	268.6	260	103.31
KAWOLO	140.1	143	97.97
NAJJEMBE	196.6	191	102.93
NGOGWE	474.2	472	100.47
NYENGA	208.4	204	102.16
WAKISI	187.4	183	102.40
SUB TOTAL	1,475.3	1,453	101.53
BUVUMA	0.0		
BUGAYA	6,895.5	7,129.00	96.72
BUSAMUZI	247.9	250	99.16
BWEEMA	384.5	404	95.17
NAIRAMBI	624.7	657	95.08
SUB TOTAL	8,152.6	8,440	96.59
MUKONO	0.0		
GGOMA	115.5	128.00	90.23
KAWUGA	152.3	161	94.60
KKOME	756.3	772	97.97
KYAMPISI	131.4	127	103.46
NAKISUNGA	189.5	177	107.06
NTENJERU	661.2	631	104.79
SUB TOTAL	2,006.2	1,996	100.51
NAKIFUMA	0.0		
KASAWO	129.9	119	109.16
NABBALE	120.2	122	98.52
NAGOJJE	165.1	157	105.16
NAKIFUMA	106.3	103	103.20
NTUNDA	127.4	131	97.25
SETA	193.2	187	103.32
SUB TOTAL	842.1	819	102.82
NTENJERU	0.0		
BUSANA	140.8	131.00	107.48
KANGULUMIRA	117.9	111.00	106.22
KAYUNGA	175.9	180	97.72
NAZIGO	107.7	106	101.60
SUB TOTAL	542.3	528	102.71
TOTAL	14,241.1	14,417	98.78
GRAND TOTAL	36,703.0	37,028	99.12

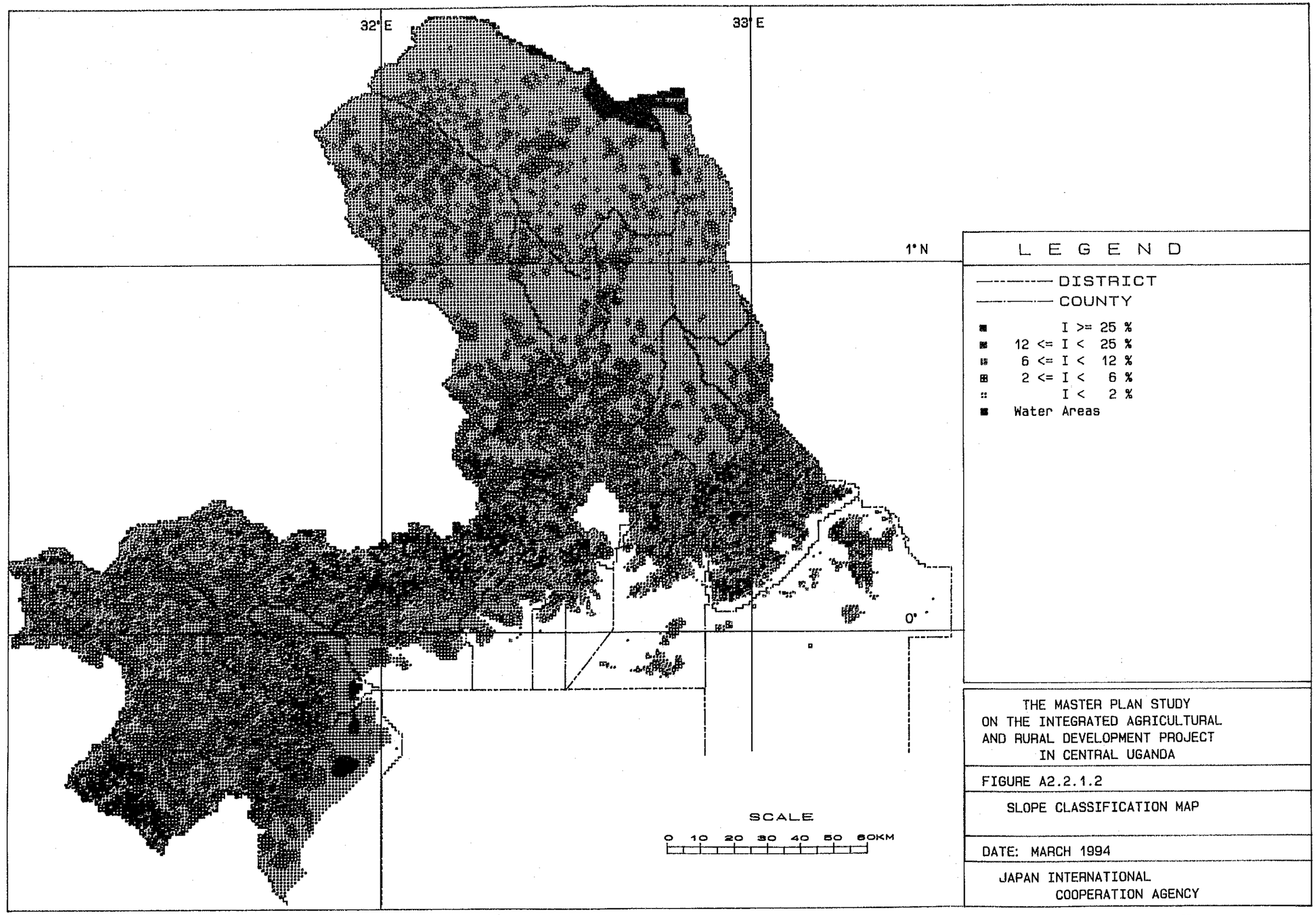
Note:Presumed Area by the Information from Statistics Department(MFEP)

Table A2.2.1.4 Land Slope Classification by County

(sq.km)

District / County	I < 2%	2%<=I<6%	6%<=I<12%	12%<=I<25%	I>=25%	Land Area
Luwero						
Buruli	2,947.7	418.7	13.3	3.0	6.1	3,388.8
Katikamu	643.8	232.7	89.8	13.7	1.0	981.0
Nakaseke	2,503.6	771.4	165.9	10.1	4.1	3,455.1
Wabusaana	909.2	217.2	48.2	15.8	2.0	1,192.4
Total	7,004.3	1,640.0	317.2	42.6	13.2	9,017.3
Masaka						
Bukomansimbi	238.7	160.8	138.6	34.3	0.0	572.4
Bukoto	1,100.2	444.1	319.8	250.7	14.3	2,129.1
Kalungu	392.2	185.0	134.4	80.9	1.0	793.5
Lwemiyaga	237.9	261.6	225.8	62.9	0.0	788.2
Masaka Mun.	14.1	9.1	26.1	3.0	0.0	52.3
Mawoggola	759.9	535.2	206.5	27.1	1.0	1,529.7
Total	2,743.0	1,595.8	1,051.2	458.9	16.3	5,865.2
Mpigi						
Busiro	602.3	301.0	281.6	145.3	9.0	1,339.2
Butambala	135.1	87.3	104.6	85.8	4.0	416.8
Entebbe Town	22.5	6.5	5.6	0.9	0.0	35.5
Gomba	761.6	433.5	329.2	145.5	13.5	1,683.3
Kyadondo	167.1	186.7	162.3	27.2	0.0	543.3
Mawokota	518.1	258.7	238.6	129.3	4.7	1,149.4
Total	2,206.7	1,273.7	1,121.9	534.0	31.2	5,167.5
Mukono						
Bbale	1,042.8	68.1	1.0	0.0	0.0	1,111.9
Buikwe	292.9	331.5	434.7	160.5	28.1	1,247.7
Buvuma	75.4	89.1	88.2	31.2	2.0	285.9
Mukono	323.8	263.4	333.6	79.0	11.5	1,011.3
Nakifuma	636.6	112.4	59.5	25.2	8.4	842.1
Ntenjeru	429.3	107.7	5.3	0.0	0.0	542.3
Total	2,800.8	972.2	922.3	295.9	50.0	5,041.2
Grand Total	14,754.8	5,481.7	3,412.6	1,331.4	110.7	25,091.2

Source : Mesh Database of Study Area



THE MASTER PLAN STUDY
ON THE INTEGRATED AGRICULTURAL
AND RURAL DEVELOPMENT PROJECT
IN CENTRAL UGANDA

FIGURE A2.2.1.2

SLOPE CLASSIFICATION MAP

DATE: MARCH 1994

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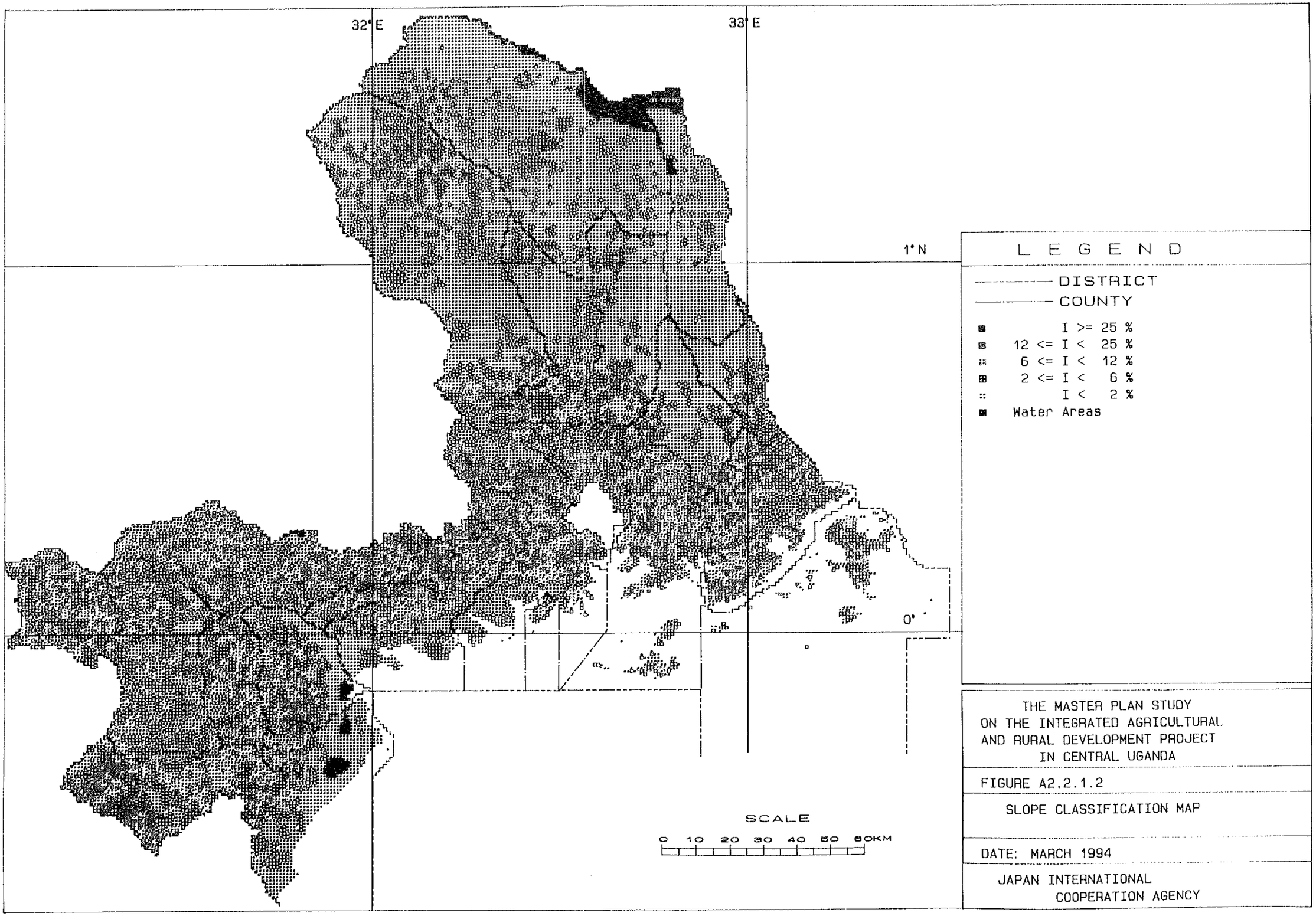

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