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No. 52

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE MINISTRY OF NATURAL RESOURCES,
THE GOVERNMENT OF THE REPUBLIC OF UGANDA

THE STUDY ON RURAL WATER SUPPLY IN MPIGI, MUBENDE AND KIBOGA DISTRICTS IN THE REPUBLIC OF UGANDA

FINAL REPORT

EXECUTIVE SUMMARY

SEPTEMBER, 1996

SANYU CONSULTANTS INC., JAPAN

Exchange Rate
(as of February, 1996)

US$ 1.00 = UShs. 1,000.- = ¥ 104.72
UShs. 1.00 = US$ 0.001

UShs. = Uganda Shillings

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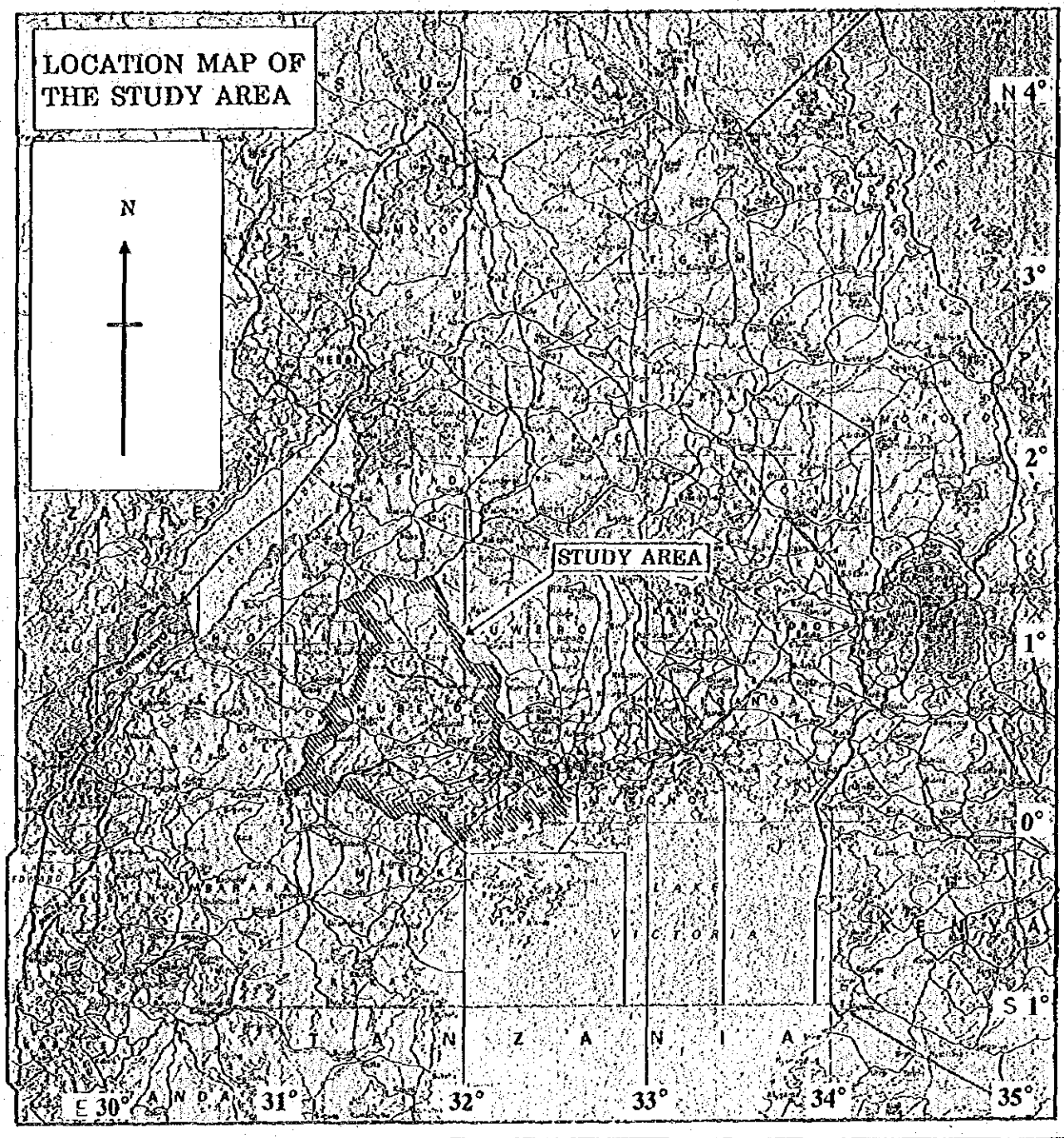
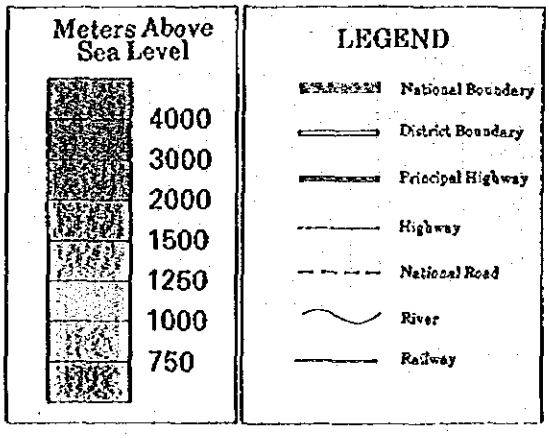
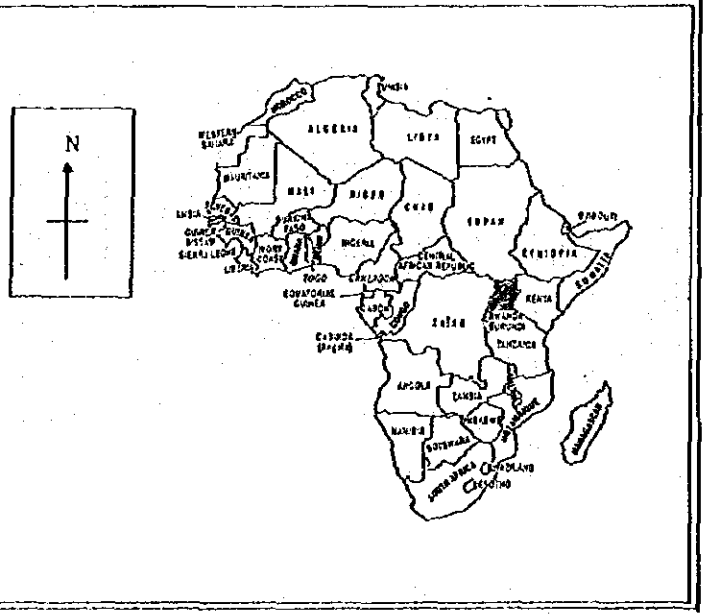
SUMMARY
OF
THE RURAL WATER SUPPLY PROJECT
IN
MPIGI, MUBENDE AND KIBOGA DISTRICTS
IN
THE REPUBLIC OF UGANDA

1. Target Districts	Mpigi	Mubende	Kiboga	Total
2. Target Communities	93	95	88	276
3. Service Population (as of 2005)	76,100	71,002	57,691	204,793
4. Water Supply Coverage (%)				
(1) Present	23	27	30	27
(2) After Project	100	100	100	100
5. Required Water Facilities				
(1) Boreholes (successful)	162	164	120	446
(2) Boreholes (dry)	32	66	36	134
(3) Shallow Wells	37	20	4	61
(4) Protected Springs	57	65	65	187
(5) Level-II System	0	0	1	1
(6) Valley Dams	5	8	0	13
(7) Total	261	257	190	708
6. Project Cost (US$ '000)				
(1) Facility Construction				9,650
(2) Procurement of Equipment				171
(3) Training Intervention				446
(4) Engineering				1,027
(5) Administration				513
(6) Contingency				1,181
(7) Total				12,988
6. Project Evaluation				
(1) EIRR (%)				8.9
(2) FIRR (%)				0.4


LOCATION MAP OF THE STUDY AREA
N
STUDY AREA
N 4°
3°
2°
1°
0°
S 1°
E 30°
31°
32°
33°
34°
35°
SUDAN
ZAIRE
UGANDA
KENYA
TANZANIA
LAKE VICTORIA


Meters Above Sea Level
4000
3000
2000
1500
1250
1000
750
LEGEND
National Boundary
District Boundary
Principal Highway
Highway
National Road
River
Railway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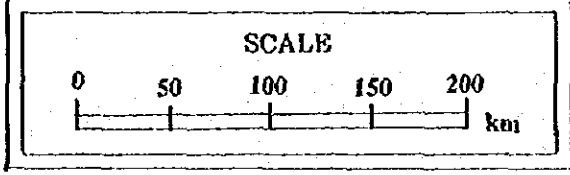
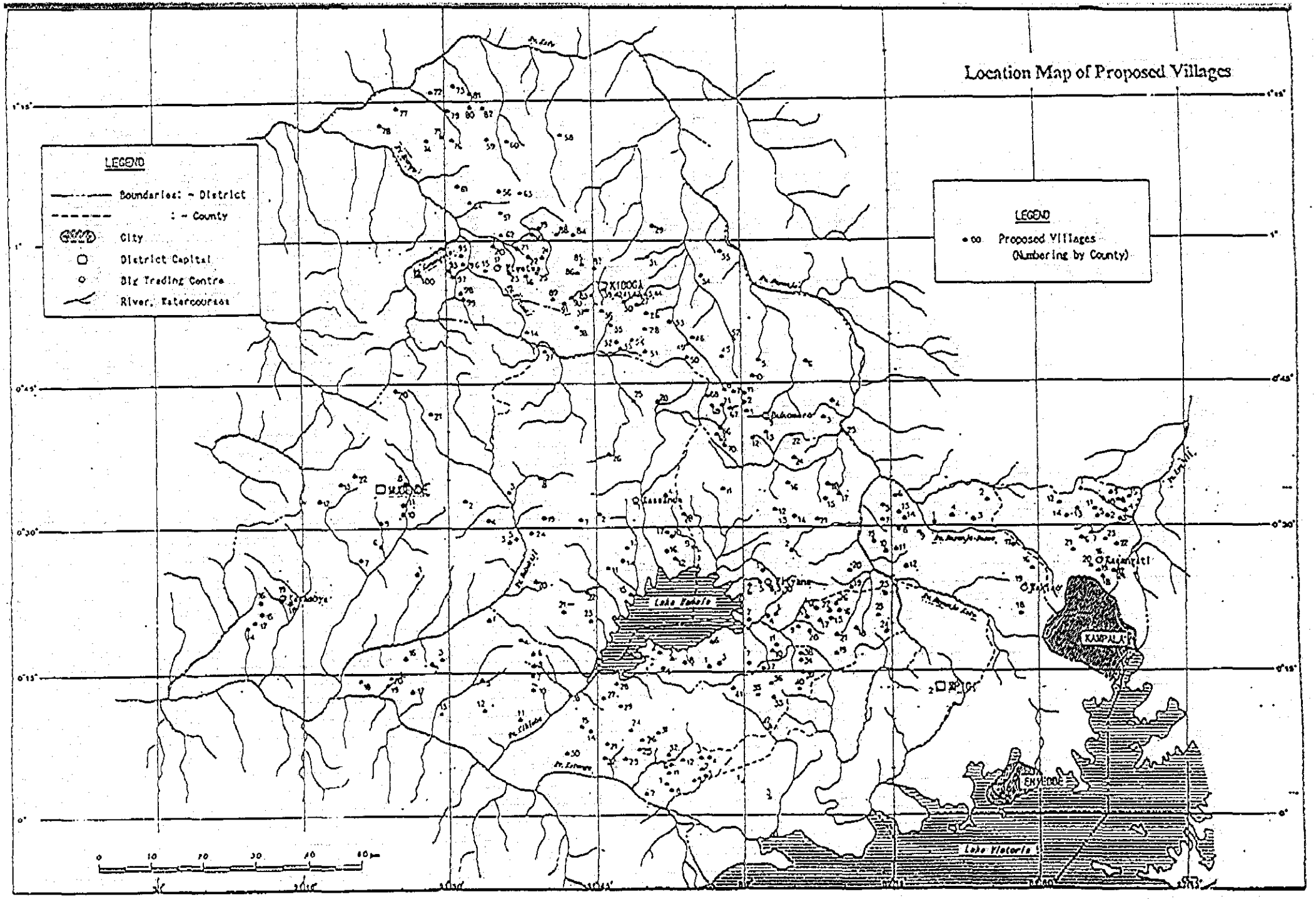

SCALE
0
50
100
150
200
km


Location Map of Proposed Villages
LEGEND
Boundaries: - District
: - County
City
District Capital
Big Trading Centre
River, Watercourses
LEGEND
Proposed Villages
(Numbering by County)
KIBOGA
MUBENDE
Lake Kwania
Lake Victoria
KAMPALA
ENTEBBE
0 10 20 30 40 50 km

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The Study on Rural Water Supply
in Mpigi, Mubende and Kiboga Districts in Uganda
Final Report

EXECUTIVE SUMMARY

1. Introduction

1.1. Background

The Government of the Republic of Uganda (GOU) requested, in 1994, to the Government of Japan (GOJ) to extend its technical cooperation to the project study on rural water supply in Mpigi, Mubende and Kiboga Districts.

In response to the request, the GOJ dispatched, through Japan International Cooperation Agency (JICA), the official agency to implement the technical cooperation program of the GOJ, preparatory study teams to Uganda to identify the facts and discuss the scope of work on the "Study on Rural Water Supply in Mpigi, Mubende and Kiboga Districts in the Republic of Uganda" (the Study) with the relevant agencies of the GOU. Both sides agreed on the scope of work of the Study (S/W) in April, 1995.

Based on the S/W, JICA organised the study team and dispatched the team to Uganda to implement the Study in September 1995.

1.2. Outline of the Study

The study is to cover Mpigi, Mubende and Kiboga Districts (refer to the "Location Map of the Study Area" attached); to evaluate potential of water resources in the study area focusing on groundwater; to formulate sustainable water supply plan (mainly using groundwater) for 300 villages including six trading centres to the year 2005; and to pursue technology transfer to counterpart personnel in the course of the study.

The counterpart agency of the study is the Directorate of Water Development (DWD) of the Ministry of Natural Resources (MNR).

2. Uganda in Overview

2.1. The Nation

Uganda is a landlocked country located in the heart of East African high plateau occupying an area of 239,000 km^2.

The political structure of Uganda consists of the National Resistance Council at the national level and the Local Council (LC) at five local levels. Under the National Resistance Movement and the democratic decentralisation policy, the administration of Uganda is taken by the central (GOU) and local governments. The GOU is composed of the president, the vice president, the prime minister, three vice prime ministers and 19 ministers who are in charge of the ministries of finance and economic planning (MFEP), foreign affairs (MFA), local government (MOLG), health (MOH), natural resources (MNR), gender and community development (MGCD) and others. The local government consists of 39 Districts (LC5) which are formed by Counties (LC4), Sub-counties (LC3), Parishes (LC2) and Communities (LC1).

2.2. Socioeconomy

(1) Population

In accordance with the 1991 census, the population of Uganda was 16,672 thousand and the mean annual growth rate since 1980 was 2.55%. The life expectancy is 45.7 years for male and 50.5 years for female.

(2) Ethnic Group

Uganda has over thirty ethnic communities, which can be divided into five broad linguistic categories, namely the Bantu, the Atekerin, the Luo, the Highland Nilotics and others called as the Madi-Moru group.

(3) Gross Domestic Product

In 1994, GDP of Uganda grew to US$ 4,776 million at current market price at an average annual growth rate of 56 % for the period 1987-1994, while the real annual growth rate was 6% on average during the same period. Per capita GDP at current market price amounted to US$ 256 in 1994 at the average annual growth rate of 51% since 1987.

(4) **Import and Export**

Non-oil private imports reached to US$ 709 million in 1994/95. Among the imported goods during these 14 years since 1981, the commodity group of machinery and transport equipment had the highest share rate.

The amount of exports' value grew to US$ 402 million in 1994/95. This good performance of export sector is mainly due to the dramatic improvement in terms of trade of coffee in last two years.

(5) **Industry**

The agricultural sector is the largest industry in Uganda. It contributes to the GDP about 25 % in monetary sector in every year since 1987. There are several manufacturing commodity groups in industrial sector in Uganda.

(6) **Consumer Price**

According to the statistic data, almost the whole country has an increasing ratio of price as about 22% for the period from 1990 to 1994. The highest increasing rates are those for sectors of food, beverage and tobacco, rent, fuel and utilities, transport and communication, and other goods and services.

When the interbank market was established on November 1993, UShs currency has appreciated gradually against US$, and the mid-rate in March 1996 was UShs. 1,020 per US$.

(7) **Education**

Women in Uganda are impoverished and there are a large gender gap in education. The adult literacy rate is 48 % in males, but only 35% in females. Only 48% of girls, but 72% of boys enrolled in the primary school, graduate from P7 grade.

(8) ***Morbidity and Mortality***

Leading causes of morbidity are malaria, ARI, intestinal worms, diarrhoeal disease and trauma. The leading causes of mortality are malaria, diarrhoeal diseases, HIV/AIDS, ARI and nutritional deficiencies. Most of this morbidity and mortality are preventable.

2.3. Natural Environment

(1) **Geography and Geomorphology**

The plateau forms the major landscape element of the country occupies about 85% of the

land area. The surfaces of the plateau, around 1,200 m elevation, are remnants of an old dissected peneplain.

Most of Uganda lies within the upper part of the White Nile basin, which consists of seven major catchments. About 17% of Uganda is covered by lakes and swamps.

(2) Meteorology, Hydrology and Water Resources

Most of Uganda has fairly well-marked wet and dry seasons. The mean annual rainfall ranges from more than 1,600 mm along the coast of Lake Victoria to less than 500 mm in the north-eastern part. Annual rainfall of about 1,200 to 1,500 mm occurs in the northern area of Lake Victoria and along the western boundary of Uganda. The rainfall in the north-east Karamoja zone ranges from 400 to 1,000 mm annually, intense dry and hot seasons come from November to March. The rainfall in the southern Lake Kyoga zone which includes Mubende and Kiboga Districts ranges from 800 to 1,200 mm falling on 140 to 170 days per year.

The mean temperatures over the whole of Uganda show no great variation. The highest temperatures occur generally in February. The lowest temperature takes place in July or August. In the south and in Karamoja the temperatures reach 32 to 35°C during the dry season and 27°C during rain season.

The country's hydrology is dominated by the extensive lake system which occupies an area of 36 thousand km2 or 17% of the total area. Most of southern part of the country drains into Lake Victoria from where it escapes over the Owen Fall Dam into the Victoria Nile. By way of Lake Kyoga to Lake Albert, it then flows out of Lake Albert, as the Albert Nile. All of the country's rivers ultimately reach the White Nile.

(3) Geology, Hydrogeology and Groundwater

The geology of Uganda consists of Precambrian rocks over the whole country, Paleozoic Karoo shales in very limited area, volcanic rocks of Tertiary to late-Cretaceous in the western Rift Valley and the eastern areas; and Quaternary sediments over the whole country. The Precambrian rocks are largely divided into three formations: the cover formation, gneissose formation and mobilised and intrusive granites.

The gneissose formation called "Gneiss Complex" overlies the country extensively. The rocks are mainly composed of granitised and metamorphosed gneisses including elements of the cover formation. The "cover formation" is found widespread in the southern region including the study area. The formation is divided into eight formations; and three of them; "Mityana Series", "Singo Series" and "Buganda-Toro System" are distributed in the study area.

The major geological structures of Uganda was formed by the orogenic fold and shear in Precambrian era, the rift movement in the late-Cretaceous to Tertiary. By the rift movements the Western Rift Valley was formed and filled with sediments of 1,800m thick in places. The latest stage of the rift movements gave rise to renewed volcanic activity in the centre of the country which produced the Lake Kyoga drowned valley system and Lake Victoria.

The Gneiss Complex is distributed over some 75% of the country and forms principal source of groundwater supplies.

In the Cover Formation such as Mityana Series and Buganda-Toro System, the weathering extends to 100 m depth in some places, and the borehole successful rate is low. The rocks, however, have opportunities to obtain water when fresh rock is encountered.

The groundwater in the rocks occurs in weathered zone and fractures as local and discontinuous system. The occurrence of groundwater in the main water bearing horizon is rather variable but related in a general way to topography.

The main urban centres such as Kampala, Jinja, Entebbe, and the majority of district centres obtain supplies from surface water sources. Groundwater may be used to supplement these supplies. In the rural areas, water is obtained from the natural sources, such as lakes, springs, valley dams, dug wells or water holes, and boreholes. Some 10,000 boreholes have been drilled in the country. More than 90% of boreholes are fitted with handpumps for rural water supplies.

(4) Soils, Land Use and Vegetation

Red or yellowish sand to sandy clay loams are found over the country. Some 92%, or 180,000 km² of the land area is considered to be arable. The area under cultivation is about 67,000 km², the major crops being coffee and cotton. Livestock rearing is practised, particularly in Karamoja. A large percentage of the land area, some 15% or 31,000 km², is allocated to forest and game reserves, mainly in the western part of the country.

Grassland savannah occurs extensively over most of northern Uganda and a large part of the south-west. Forest savannah occurs in the higher rainfall area bordering Lake Victoria and dense forest is extensive in the mountainous areas.

2.4. Development Plans

The national development plan now on-going in Uganda is the "Rehabilitation and Development Plan (1993/94-1995/96)"(RDP). The plan will be built on the progress made under the previous "Economic Recovery Programme (1987/88-1992/93)" to achieve accelerated economic growth and a sustained improvement in social welfare of the Ugandan

population.

In the social sector, the GOU will intensify its efforts to address the needs of most vulnerable groups with a view to alleviating poverty in general and mitigating the social costs of adjustment in particular. Sustainable poverty reduction requires greater efforts to achieve accelerated and broadly based economic growth while at the same time improving human resources through better health and education, and, in the short term, targeted intervention to alleviate poverty particularly amongst the vulnerable groups.

The number of recommended projects is 327 in the new RDP Priority List. Total RDP expenditure in the plan period is estimated at UShs. 1,980 billion or US$ 1.94 billion in 1993 constant price.

The national plans in Uganda on the water sector are the "Water Action Plan for Water Resources Development and Management (WAP)" and the "Rural Water Supply Programme (RWP)".

The WAP has been formulated in the principles and strategy about development and management of water resources that were derived up to the UN Conference on Environment and Development convened in Rio de Janeiro 1992.

The RWP was formulated by the DWD in 1991 presenting the frame work for the planning and implementation of programme for the rural water supply and environmental sanitation to 2000.

2.5. Water Supply and Environmental Sanitation (WES) Sector

(1) CBMS

The GOU takes a strategy in the "community based maintenance system (CBMS)" in the operation and maintenance (O&M) of the improved rural water schemes. The GOU recommends the use of a "demand driven approach" to ensure that the limited resources are only invested into those communities with willingness and ability to independently manage their water facilities. Hence, the capacity building in the institutional and human resources is essential for success.

(2) Institutional Set-up

At the national level, the MFEP is responsible for national economic planning, approves and coordinates externally funded projects. The technical support to the WES sector by the GOU is through the MNR, the MOH, the MOLG and the MGCD.

At the LC levels, the WES staff of district consist of a District Health Inspector (DHI), a District Community Development Officer (DCDO), a District Water Officer (DWO) and a

Borehole Maintenance Supervisor (BMS). Other important district staff to assist the WES staff to achieve their targets are members of the District Health Team headed by a District Medical Officer (DMO). The key staff members in the education of health and environmental sanitation are the DMO, the DHI, the Distract Health Educator (DHE) and the District Health Visitor (DHV). The district WES staff use the WES committees organised in other LC levels, especially in LC3 and LC2, extensively for all their activities especially for mobilisation.

At the user level, a Water User's Committee (WUC) is to be established by each water facility. Two of WUC members are the caretakers, one of them is to be a woman. Further the WUC consists of a chairperson, a treasurer, a secretary and another member. The WUCs are responsible for the O&M of the water sources.

The maintenance of water sources equipped with a handpump (HP) are done by local Handpump Mechanics (HPM) under contract with WUCs. The HPM are mainly men with previous technical experience. They are selected by the WES committee in LC3 which also pays for their training.

The DWD recommends the U3 HPs for boreholes and dug wells. The U3 HP is a local adoption of the India Mark II HP. The HP is now manufactured in Uganda. Presently all spareparts can be purchased directly from the manufacturer in Kampala. Further most spareparts are available in any district.

(3) External Supports in Water Sector

The main rural water supply projects in Uganda at present are the RUWASA and WES Programme of UNICEF (WES-UNICEF). The RUWASA provides water, sanitation and hygiene education to eight districts in Eastern Uganda with technical and financial assistance from DANIDA. WES-UNICEF provides support to all other 30 districts except Kampala with financial assistance from SIDA, CIDA, Norway and others, and technical assistance through UNICEF. The programme is an umbrella scheme providing assistance to "capacity building" of district staff within the WES sector.

Further multiple international NGOs support projects in the WES sector. Some of these include; Lutheran World Foundation, Water Aid, Plan International, Care International, World Vision International, AVSI and so forth.

(4) Sanitation and Environmental Hygiene

The Health Inspectorate of MOH has developed standardised national sanitation guidelines. The guidelines include general recommendations and detailed designs for a sanitation platforms (san-plats), slabs and ventilated improved pit-latrines (VIP). These guidelines are

presently being revised and adapted to decentralisation. The main strategy is promotion of improved latrines and environmental sanitation through health education. The chosen approach should ensure community participation and fully utilise the potential community resources.

The GOU has encouraged the privatisation of manufacturing and selling of san-plats and slabs. The san-plat and slab production is now heavily subsidised. GOU aims to eliminate the subsidies by the year 2000.

3. The Study Area and Target Communities

3.1. Natural Environment

(1) Geography and Geomorphology

The study area situates in the south-western area of Uganda, and average axes are approximately 110 km east-west and 135 km north-south with the total area of 17,102 km^2. The elevation ranges from 700m to 1,800m.

The topographical features of the study area are represented by flat topped and broadly rounded hills and valleys which are filled by papyrus swamp, high grass or forest.

Flat topped hills are especially characterised in the southern half of the area showing a similar summit level between 1,300 and 1,350m elevation. Their profiles commonly show a relatively steep upper and rapidly flattening to long pediment slopes.

Although there are few major rivers, the Mayanja, Katonga and Kafu, flow the boundaries of the study area. There are very many tributaries of moderate size with valleys narrower than the major water courses, but most of the valleys are dry in hot season. In general the river network bears little relation to geological structure in the area of sedimentary rocks, but in gneiss and granite areas rectilinear character of the streams are well structurally controlled. In the south there is Lake Wamala. The drainage in the south area is towards Lake Victoria, either directly or by way of Lake Wamala and River Katonga. The drainage in the north belongs to the Victoria Nile catchment and towards River Kafu.

(2) Meteorology and Hydrology

An average annual rainfall at Entebbe is 1,556 mm. There is a relatively dry season between December and March, and another in June and July. The central and southern areas of Mpigi District belong to the same rainfall pattern.

The rainfall records of Kiboga and Mubende show similar pattern. The annual rainfall is 1,197 mm at Kiboga and 1,166 mm at Mubende. Two peaks associated with the Equatorial

Pattern are evident, one during March-May, the other September-November. A much drier zone with the mean annual totals below 875 mm extends from the west of Mpigi to near Lake Wamala.

The maximum monthly temperature ranges from 25.0 to 26.8°C at Entebbe and from 26.2 to 28.6°C at Mubende. The highest monthly mean temperatures occur during dry season in January or February. The minimum temperature ranges from 16.1 to 17.9°C at Entebbe and from 14.7 to 15.7°C at Mubende. The lowest minimum temperatures occur in June or July.

The major rivers in the study area are the Kafu, Mayanja, Mpongo, Katonga, Kibimba and Nabakazi.

River gauging stations in the study area are located in the Katonga, and no station for the Kafu. River discharge of the study area is largely affected by the presence and scale of swamps.

(3) Geology and Hydrogeology

The study area is underlain by the Cover Formation, Gneiss Complex and the intrusive granites of Precambrian era, and the sediments of Pleistocene to recent. Major Cover Formation distributed in the area is the Mityana Series and the Buganda-Toro System.

The major hydrogeological units in the study area are the Mityana Series, Buganda-Toro System, Gneiss Complex and Intrusive Granites. The Mityana Series is distributed around Lake Wamala and predominates siliceous sandstone and conglomerates. Many boreholes were drilled in and around Mityana Town. An average borehole yield is 2.2 m^3/hr.

The Buganda-Toro System predominates in schists and phyllites, and the average yield is 1.3 m^3/hr. Some boreholes drilled in the area, however, have high yield, and it is considered from the evaluation of the existing borehole records that those penetrated into underlain Gneiss Complex.

The Gneiss Complex is the most reliable aquifer in the area. The fractures are able to be detected easily as high peaks of conductivity by the electromagnetic survey. The average borehole yield is 2.0 m^3/hr. However, the yield in Kiboga District is only 1.0 m^3/hr and 3.0 m^3/hr or more in the north-east region of Mpigi District.

Intrusive granites are distributed in the limited area and average yield is 1.3 m^3/hr. The granites are normally hard and massive.

3.2. Socioeconomy

(1) Population and Household

Demographic data (as of 1991) of three districts under the Study are as below:

District	Area (km^2)	Popul'n (1000)	Growth Rate (%)	Density per km^2	No. HH (1000)	Person per HH
Mpigi	6,308	501	3.11	84	112	4.48
Mubende	6,278	914	2.65	202	210	4.36
Kiboga	4,004	142	2.89	37	33	4.28
Total/Av	16,590	1,557	2.82	109	355	4.39

(2) Socioeconomic Perspective

Main economic activities in three districts under the study are agriculture, livestock raising, fisheries and the light manufacturing. The crop production is maize, beans, groundnuts, bananas, finger millet, soya beans, sim-sim, sweet potatoes, and Irish potatoes as the food crops; coffee, cotton, tea as the cash crops and fruits.

3.3. Water Resources

(1) Surface Water

A preliminary study on the water balance was conducted by monthly basis in the drainage basins where large swamps are not included. The study basins are River Mawokota Kato (the basin area; 92 km^2) in Mpigi District, River Katabaranga (198 km^2) in Mubende District and River Nakayenga (60 km^2) in Kiboga District.

The water balance study shows that the change in storage of groundwater in the Mowokota Kato basin was estimated at 478 mm/year which is 31 % of total rainfall. In the Katabaranga and Nakayenga basins, the change is estimated at 433 mm/year which is 28 % of total rainfall.

Annual groundwater recharges in each basin were estimated as 44 million m^3 (MCM) for Mowokota Kato basin, 86 MCM for Katabaranga basin and 26 MCM for Nakayenga basin. Major part of recharge is induced during the month of March, April and May and it takes out during dry season from December to February. Base flow discharge may probably compensate for the deficiency.

Small valley dams are proposed in the study for the low groundwater potential communities. The mean inflow to dam per unit basin area was estimated by the mean monthly rainfall,

runoff coefficient and evapotranspiration evaluated in the previous water balance study. The estimate shows that the cumulative inflow from an unit catchment area to a dam reaches a good enough amount of water of 171,000 m^3/annum for a usual community size.

A study on rainwater balance was carried out in order to evaluate the potential of rainwater harvesting in the study area. The study concludes that the capacities of rain-tanks per typical household reach 13 m^3 in Entebbe, 9 m^3 in Mubende and 15 m^3 in Kiboga. The figures show that the rainwater harvesting system is to be applied as a supplemental measure but not as a substantial rural water supply system.

(2) **Groundwater**

The summary of the existing borehole records in each hydrogeological unit and their distributed areas is as follows:

The mean borehole yield is the highest in Mityana Series in Mubende District and the lowest in Buganda-Toro System over the whole districts and Granites in Mubende.

In Kiboga District, the yield ranges from 0.9 to 2.1 m^3/hr on an average in Buganda-Toro System,, and from 0.5 to 1.5 m^3/hr in Gneiss Complex. The remarkable hydrogeological characteristics of the district are low static water level at 31m and deep pump setting location at 49m depth both on an average.

In Mubende District, the highest yield of 3.2 m^3/hr takes place in Myanzi which faces Lake Wamala and is underlain by Mityana Series consisting of sandy rocks, and the lowest is in Butayunja underlain by schists. Argillites of Buganda-Toro System are broadly distributed in the district and the potential of the formation is low. The district is also characterised by low groundwater level at 25m and deep borehole depth at 90m.

The hydrogeology in Mpigi District is clearly divided into two areas: The western area which is composed mainly of argillites of Buganda-Toro System shows the low potential yield ranging from 0.6 to 1.0 m^3/hr on an average. The eastern area covered by Gneiss Complex shows a comparatively high yield ranging from 1.1 to 2.9 m^3/hr. Total borehole depth and groundwater level are shallower in the eastern area than the western area.

The geophysical sounding was performed under the Study in the potential areas selected by the preliminary hydrogeological survey. The electromagnetic (EM) sounding is applied to detect the fracture zone. The resistivity sounding is also adopted to detect depth to the fracture zone and the thickness and litho-facies of the overburden and highly weathered layers of bed rocks. It is found out that both soundings are effective in borehole siting.

In order to obtain the detailed hydrogeological conditions and to perform the pilot study on the actual community participation, Test drilling of borehole was conducted in the study employing a local drilling contractor. Five boreholes were successful out of ten holes drilled.

The headworks and pumps were installed to two boreholes each of Mpigi and Kiboga Districts and one in Mubende District.

As a result of integrated study of the hydrogeological conditions, 28 low groundwater potential communities are identified from the target communities.

Water at 102 sources were tested in-situ and 58 samples taken from springs, boreholes and rivers were sent to the DWD Entebbe laboratory for testing.

In the in-situ test, pH, electric conductivity (EC), temperature and contamination by coliform/bacteria were tested by field test kits. The pH values of the boreholes range from 5.65 to 7.65 and those of the springs from 4.98 to 6.16. The EC ranges from 91 to 2,420 μS/cm.

Simplified paper tests for biological contamination were performed. The results show that 45% of the boreholes and 67% of the springs were contaminated biologically.

Forty eight (48) samples were taken from boreholes, nine (9) samples from springs and one from river. Total 25 items were analysed which are standard test items of DWD except coliform. Many samples from boreholes exceeded the permissible limit of the National Guideline in colour, turbidity and total iron. Other items are mostly in the permissible limit.

3.4. Target Communities

(1) Community Inventory

A village inventory survey was conducted to identify and inquire the relevant information to the chairpersons and to the heads of the sampled households in the target communities in the Study. The inquiry was made through the questionnaire form designed previously. The actual survey and analytical works were sub-contracted to a local consultant.

The communities identified by the inventory survey are 282 in total instead of 300 in the original list.

The totals of population and number of households are 165 thousand and 35,182 respectively. An average community size is 585 population and 125 households. An average household size is 4.7 persons.

(2) Community Type

The community types are categorised by the population size and the existing water source. The communities are grouped by four population sizes as 200 or less, 201 to 600, 601 to 1,000 and 1,001 or above. About two-thirds of the rural communities have a population of 201 to 600 .

The communities are also categorised on the basis of availability of safe water sources. A

safe water source is here considered to be the boreholes, the wells with handpumps or the protected spring. Numbers of villages are counted according to the number of such safe water sources.

As to the availability of boreholes only 9% of the surveyed communities have working boreholes. The same for wells with handpumps, protected springs and gravity fed system are 3%, 10% and 4% respectively. Combining the above four sources of safe water, the overall availability of safe water for the Districts are 23%, 27% and 30% for Mpigi, Mubende and Kiboga Districts respectively. The average for all three districts is 27%.

(3) Socioeconomy

The inventory survey shows that almost 74% of people in the Study Area are engaged in agriculture. The subsistence farmers share 52%, and 20% of cash crop farmers. The other major occupation in the Area are 9% each full time labours and seasonal labours, 5% of shopper/traders and 2% of dairy farmers.

The pastoralism related to the dairy farming has a high occupation rate in Mpigi compared with the other two districts. Most animal husbandry is cattle breeding in the Study Area.

Houses facilitated with latrine are 63 %, but those with modern san-plats or slabs are only 9 % to the total houses with latrine. Remaining 91 % of houses have traditional ones with no modern san-plats or slabs.

The electrification of communities in the Study Area is only 14 %. However, the electricity breaks down three times a week, and the down time is 4.6 hours per time on an average.

An average accessible land in the Area is 2.2 ha per household, but actual cultivated land is only 1.0 ha. The food crops produced in the Area are cassava, yams, sweet potatoes, Irish potatoes, maize, sorghum, beans, finger millets, soy beans, matoke bananas (plantains) and so on. A representative cash crop in the Area is coffee. They produce very little cotton and tea.

(4) Women's Role

The present pressure on gender issues in development has increased women's already heavy daily workload. Whereas women's gain in social power has been comparably insignificant. The WES projects decrease the women's time spent on water collection, but ask women to take active part in other activities. Women, however, mainly get the unpaid and poorly recognised tasks. The WES project should empower the women in the society by enabling them to become self-reliant and public authorities. The lack of gender awareness in the community needs to be addressed. Women should get equal access to learn skills, which enhance their financial power. Women should gain access to training as HPM and water

fundi.

Attempts has been done to address the problem of non-involvement of women in the WES sector. The MGCD has developed gender specific guidelines for the WES-sector. But, this is still gender biased and many grassroots communities are to a large extent gender segregative.

3.5. Existing Water Supply and Sanitation

(1) Water Supply Facilities

The inventory survey clarified that the existing water supply facilities in the study area were categorised into (a) borehole with handpump (BH), (b) shallow well with handpump (WP), (c) shallow well without handpump (WL), (d) valley dam (DM), (e) protected spring (PS), (f) unprotected spring (US), (g) water hole (WH), (h) gravity-fed system (GF) and (i) rain harvest (RH).

Out of a total 743 facilities used at present, 254 or 34% are WH and 221 or 30% are US. 54% of water sources show high to medium yield, but 13% of them show no yield. The users suppose that 64% of water sources are not reliable.

(2) Existing Sanitation System

The sanitation coverage in the study area is as high as 87% of households and have some kind of sanitation facilities. The sanitation coverage is the highest in Mpigi (90%) and the lowest in Kiboga (85%).

The majority (65%) use a traditional pit latrine with log and mud floor and a rudimentary superstructure. About 10% of household have improved traditional latrines with a simple cement floor padded directly on the dirt ground. Less than 6% use pit latrines with san-plats, slabs or VIP latrines. Totally 16% has some kind of improved sanitation. This percentage is the highest in Mpigi (24%) and the lowest in Kiboga (8%).

(3) User's Awareness

The knowledge and awareness of the relation between water, sanitation and health is low in the population in the study area. Whereas, most of the communities are aware of their need for water, few are concerned with the quality. And while most households in the study area have a perceived need for privacy during defecation, less find the hygienic condition of the latrine facilities important. The personal and environmental hygiene practices in the study area is generally poor, due to low awareness of the importance for health.

User's knowledge of how to operate and maintain boreholes is very limited. Less than 10% of the communities with boreholes have received any formal training in the recent GOU

concept of CBMS.

The knowledge and awareness of gender issues is basically lacking at community level. The present community efforts to change women's positions in the community is not based on knowledge and awareness, but mainly dictated.

(4) Health and Hygiene

The total fertility rate (TFR) in Uganda is 7.3 per fertile women and one of the highest in Africa. The maternal mortality rate (MMR) is about 700 to 1,000 per 100,000 births, and one of the highest in the World. The infant mortality rate (IMR) is 122 per 1000 live birth, one of the highest in Africa.

The average IMR for Mpigi, Mubende and Kiboga is respectively 94, 119 and 138 per 1,000 live birth. The average child mortality rate (CMR) for Mpigi, Mubende and Kiboga is respectively 154, 198 and 231 per 1,000 live birth.

According to the health facility (HU) statistics from the study area, malaria, dysentery and acute respiratory infections (ARI) are the leading causes of mortality, and along with intestinal worms, skin and eye infections among the ten main causes of morbidity in the study area.

Malaria, which is endemic in the study area, is the overall leading cause of morbidity and mortality in children under five. Diarrhoea is the second most common cause of morbidity and mortality among under five's. Nutritional disorders are common in the study area. About half of all children under five show signs of stunting, related to chronic malnutrition. The incidence of ARI is the second most common reason for visit to HUs and the third most common reason for morbidity and mortality among under five's in the study area. Other prevalent airborne infections are measles and TB.

The impact of improved water and sanitation is estimated that the median reduction in diarrhoea morbidity, Ascaris, hookworm and schistosomiasis to be 26%, 29%, 4% and 77% respectively. The median reduction in diarrhoea diseases is to be only 15% and 20% for improved water quality and quantity, but 33% and 36% for hygiene education and sanitation. Improved access to water was estimated to decrease the prevalence of intestinal worms by 5%; improved water combined with sanitation by 15%; improved water with health education by 25%. The combined intervention of water, sanitation and health education was estimated to decrease the prevalence by 30%.

(5) The Needs of Water Supply and Sanitation Systems.

The WES related diseases can be classified according to their route of transmission, as "water-borne", "water-washed", "water-related vector-borne", "water-based" and "faecal-

disposal-related".

The control of "water-borne" diseases requires a safe water source of a high quality and with enough water for the practice of general water hygiene, to ensure that the water stays safe. The control of "water-washed" diseases depends on easy access to large quantities of water and the motivation to use more water for personal hygiene. The control of "water-related vector-borne" diseases depends on improved environmental hygiene and decreased exposure to the vector. The control of "water-based" diseases depends on elimination of contact with the infected water source.

The reliability of a water source depends on its daily O&M. An improved water source can be contaminated if poorly maintained. The motivation of the community to maintain and protect their water source is, therefore, of critical importance to ensure a sustainable reduction in not only water borne diseases, but also to prevent an increase in the incidence of water-related vector-borne diseases.

As all water-borne and faecal-disposal-related diseases, as well as some water-based diseases, depend on infecting agents from human excreta, the provision and hygienic use of adequate sanitation are crucial for their control.

(6) Users Participation in O&M

In three districts, the WES staff in district level consist of a DHI, a DWO, a DCDO and a BMS. Other district staff important for the WES activities is the DHT headed by DMO. There is a general shortage of extension workers, especially CDAs and HEs, in the study area.

Presently the main organisation for community development is the LC structure. LC structure reaches from national, district (LC5) to grassroots (LC1) level. To facilitate the management of WES activities, WES committees in LC3 has been established throughout the three districts. Further about a third of the villages have a Village Water Committee (VWC) to oversee all water sources in the community. VWCs are not made up from only users of all the water sources. They oversee, hence they have limited interest in their O&M. Presently most communities are involved in the implementation of water sources, but few commit themselves to participate in O&M. Most water sources in the project area are poorly maintained and have no WUCs or caretakers.

The WES-UNICEF has developed extensive training guidelines and manuals for use at district level. The training package recommended by UNICEF consists of several modules. Most district staff in the three districts have been trained to facilitate the implementation of these training modules.

The maintenance of water sources equipped with handpumps is done by a local handpump

mechanic (HPM). All three districts have trained HPMs, with the aim to have one in each LC3. Many of these HPM go idle today, as there are too few boreholes in most LC3s.
Only 100 communities in the study area have a VWC. Only 25% of these had received any training by GOU, NGOs or donors. Nearly 80% of VWC had set rules for use of the water source, but only about half of the committees could present a written set of rules. About 40% had a maintenance fund for their water source. The majority collected funds at the time of break-down.

3.6. Pilot Study

A pilot study was carried out as a link of the study to assess the impact of training interventions on the community's willingness and ability to improve the environmental sanitation in their communities and to take responsibility for the O&M of their new Boreholes.
Five communities, two each in Mpigi and Kiboga, and another in Mubende, were selected for the study. One each borehole facility was installed for five communities. Out of five communities, two pilot communities were selected, one each in Mubende and Kiboga. Then two priority communities in Mpigi and one in Kiboga are allocated.
The training interventions were covered only for the pilot communities. The training was taken by two local facilitators specialised in the community participation, environmental sanitation and O&M. Key persons at LC3, LC2 and WUC inclusive of caretakers were trained.
A baseline survey was conducted in all five communities before the borehole drilling and training to assess the conditions in socioeconomy, health and environmental sanitation. Further survey was carried out on the pilot communities after the interventions to measure the training effect. The Monitoring survey clarifies an overwhelming effect of training in the pilot communities in comparison with other priority communities.

4. Project Plan

4.1. Introduction

(1) Basic Strategy and Criteria

A WES project is to be formulated three basic components as (a) the extension of appropriate knowledge and habit in hygiene and sanitation to users, (b) extension of safe water and improved environmental sanitation facilities; and (c) O&M by users themselves.

The project is said to be composed of software, inclusive of (a) and (c) above, and hardware, (b) above, categories.

The GOU has already established the system in the software category accumulating a lot of experiences and knowhows through a number of WES projects with the cooperation of UNICEF, DANIDA and NGOs.

In this Study, the plan in the category is to respect and follow the existing system of the GOU.

As per the hardware category, the basic strategy is to allocate those facilities which make a sustainable CBMS possible.

The basic strategy in the planning of water sector is to be as below;

(a) the water supply is to cover all population in the target community,

(b) the water facilities are to be selected by the following conditions;

- borehole equipped with handpump for those communities where deep groundwater is available,
- Level-II system for those communities where the population size is large and dense,
- protected spring for those communities where the spring is available,
- valley dam for those communities where neither deep nor shallow groundwater is available.

The basic strategy in the sanitation sector is to stay in the formulation of a guideline for the extension of improved sanitation facility and hygiene education.

The major criteria in the planning and design are as follows;

- target year	:	2005
- basic water supply rate	:	20 lcd,
- the maximum covering distance	:	1.5 km,
- design capacity of handpump	:	720 l/hr,
- daily design capacity of handpump	:	8,640 l/day
- service population per handpump	:	430
- successful borehole rate in Mpigi	:	80 %
in Mubende	:	60 %
in Kiboga	:	70 %
- the least community size for borehole	:	150
- number of borehole by community size	:	430 each

(2) Strategy for Intervention

The assistance for intervention for education and training of users is to be formulated in accordance with the related guideline of the DWD.

(3) Allocation of Water Facility

Type and number of water facility to the target communities are allocated by the result of the village inventory survey. A total of six communities, two (2) under examination of cooperation by EU, four (4) filled by the test boreholes made under the study, are omitted from facility allocation. The number of facilities by type and by district is as shown below:

District	Comm'y	BH	Sh. Well	P. Spring	Level-II	Val. Dam	Total
Mpigi	93	162	37	57	0	5	261
Mubende	95	164	20	65	0	8	257
Kiboga	88	120	4	65	1	0	190
Total	276	446	61	187	1	13	708

4.2. Water Resources Development

The water source of the facilities is deep and shallow groundwater and the surface water where groundwater is not available. The rainwater harvesting is omitted from the Study.

4.3. Facility and Equipment

(1) Facility

The types of water supply facility are the borehole equipped with handpump, shallow dug-well equipped with handpump, protected spring, Level-II system and valley dam.

(2) Equipment

The procurement of equipment for the project implementation is to plan to cover the vehicles for project management, a servicing rig and workshop equipment for BMU in Mpigi and the water analysis kits for each district.

All the equipment and materials necessary for facility construction are to be provided by the contractor.

4.4. Education and Training

(1) Community Management Training

All training activities will focus on the empowerment of individual users, especially women, in the overall communities. The main training methodology will be a gender sensitive community participatory (PROWWESS) approach. The community based trainers will be trained to use the PROWWESS approach for training of their community.

(2) Hygiene Education

The hygiene education will be made to enhance the community's understanding for the "link between water, environmental sanitation and health". Specific attention will be paid to the users of facilities other than borehole, which are mostly biologically contaminated, in "water boiling" campaign as the preventive measure for water-borne diseases.

(3) Training Programme

The technical and financial assistance for the training of trainers in LC levels for the education and training interventions for users and HPMs is to be included within the project.

4.5. Guideline for Sanitary Facility

(1) National Sanitation Guidelines

The MOH has developed the "National Sanitation Guidelines" in 1992. The main strategy is to ensure community participation and involvement. The guidelines recognise that all communities have a capacity to solve their sanitary problems. The guidelines provide detailed designs for improved latrines and other basic sanitation facilities. A heavy subsidy is now given to the manufacturing and sale. The GOU plans to privatise this sector eliminating any subsidy by 2000.

(2) Guidelines for Project

The project will follow the said National Guidelines in the health education. The community based health education will aim to enhance the community's awareness of the "link between water, sanitation and health". This awareness will enhance the need to access the environmental sanitation and improved latrines.

4.6. O&M

The O&M of the water supply facilities constructed under this project are to be taken by WUCs organised by users of each facility. The resources necessary for O&M are to be borne by the WUCs.

The support service for WUCs is to be the responsibility of the WES committees in all levels of LCs. The WES committee in LC3 is to bear the substantial responsibility in the organisation and management of WUCs, the selection and training and facilitation of HPM, the supervision of stock of spares of handpump in the hardware dealer in its LC3 and so forth.

The district WES staff is to keep communication with LCs and WUCs and to monitor the necessity of additional guidance, education and training and so forth.

The DWD through its BMU and District staff is to monitor and conduct a heavy maintenance work on the facilities.

4.7. Institutional Strengthening

The institutional system in WES sector in Uganda is realistic, well formulated and functioning if "enough number of qualified staff in LC levels", "the capacity building of LC levels" and the "necessary fund" are sustainablly secured. Out of staff, the allocation of extension staff is to be urgently secured.

The WES staff in district level have almost no means for transportation for their activities. A certain number of light vehicles and water analysis kit for district level are urgently required to strengthen the function the staff.

A BMU of the DWD is in Mpigi to cover the region inclusive of the project area. The substantial activities of the unit can not be fulfilled without equipment. The allocation of workshop equipment, vehicles and borehole servicing rig for a heavy maintenance service for boreholes and handpumps is urgently necessary.

4.8. Groundwater Monitoring

The following monitoring is necessary to make groundwater use sustainable:

- rainfall gauging at Mazzu County, Mpigi District,
- river discharge gaugings at five river basins,
- groundwater level gaugings at 10 groundwater basins; and
- monitoring of groundwater quality in the above basins.

4.9. Project Cost

The cost for project implementation is estimated based on the local prices as of March, 1996; and as below:

(1) Facility Construction	: US$	9,650,000
(2) Procurement of Equipment	: US$	171,000
(3) Assistance for Intervention (Education & Training)	: US$	446,000
(4) Engineering (10% of (1) to (3) above)	: US$	1,027,000
(5) Administration(5% of (1) to (3) above)	: US$	513,000
(6) Contingency (10% of (1) to (5) above)	: US$	1,181,000
(7) Total Project Cost	: US$	12,988,000

4.10. Financial Management

(1) Required O&M Cost

The monthly O&M cost inclusive of the replacement cost for pumps and generator were estimated at UShs. 3,653/HH for Level-II system which covers 794 HH; and at UShs. 581/HH for handpump equipped facilities which cover a typical WUC with 91 HH.

(2) Affordable O&M Cost

According to the inventory survey, the water users in the study area are buying 20 litre water for UShs. 19. They are willing to pay UShs. 45 for 20 litre water when new water source is provided.

In the latter case, the monthly expenditure per household becomes to UShs. 5,770 (UShs. 69,000/year). The willingness to pay for water becomes larger when the community size is larger.

The annual income of household in the area ranges from UShs. 349,000 to UShs. 981,000, UShs. 696,000 on average. The expenditure for water may account for some 10% of mean annual income per household.

Thus, the affordability of water expenditure by household is deemed to be UShs. 2,000 to UShs. 2,550 per month.

(3) Consideration

The required O&M cost for Level-II system exceeds the said mean affordability. But it is within the range of actually paid amount in the same community size. Thus the cost may be affordable to the users of the system.

The required cost for handpumps for the typical community (430 population, 91 HH) is to be sufficiently affordable. Even for the minimum community (150 population, 31 HH), the monthly cost is at an affordable level of UShs. 1,635/HH.

5. Project Evaluation

5.1. Introduction

The project is synthetically evaluated in terms of finance, socioeconomy, institution, technology and environment.

5.2. Finance

The FIRR of the project is evaluated to be 0.4% if the users bear UShs. 2,000/month /HH of water fee. The rate shows to a feasible extent as a self-sustainable project.

5.3. Socioeconomy

The EIRR of the project shows an excellent rate being 8.9%. Thus the project is evaluated to have a considerable socioeconomic feasibility in the BHN sector.

5.4. Institution

The institutional system in WES sector in Uganda is, in general, realistic, well formulated and well functioning except the constraint in shortage of staff and fund.

5.5. Technology

The technical and engineering sector in Uganda involves many constraints caused by the shortage of staff and fund.

In the drilling sector, measures to commercialise the drilling project and to sustainablly develop the groundwater resources are poorly organised.

The siting and logging of boreholes by means of geophysical equipment are not usually applied.

The drilling of boreholes is conducted only by air-hammer method even in the soft formation. Few equipment and little experience in mud-circulating drilling have been existing in Uganda so far. Many boreholes which penetrated thick soft formation to 30m have been given up since they could not be deepened for lack of any mud-circulating tools.

Some borehole records which are, in general, poorly filled by drillers have been collected in the DWD.

5.6. Environmental Impact

(1) Introduction

The significant impacts of the project to the environment have been clarified by IEE made in the stage-one study. They are the "vested groundwater right" and "quantity and quality of groundwater resource" in the area.

(2) Impact to Vested Groundwater Right

71 shallow dug-wells are operating at present within the area. In order to prevent any impact in the existing well yield, the hydrogeological condition in shallow depth shall be confirmed and considerations shall be taken to install the blank casing to a 30m depth of new boreholes to be constructed near the existing wells.

(3) Impact to Quantity and Quality of Groundwater Resource

A severe impact to quantity and quality of groundwater resource would take place when new boreholes are additionally drilled to those areas where the existing boreholes have been densely constructed like Mityana and Kiboga towns. It is recommended in those cases that supplemental water sources shall be considered other than deep groundwater.

5.7. Synthetic Evaluation

The project is evaluated to be excellent in terms of finance and socioeconomy if the users afford UShs. 2,000 per month per household. The synthetic impact of the project seems to be excellent and very feasible in terms of the stability of daily lives of users by the provision of safe and stable water source, the vitalisation of economic activity, child care, education opportunity of users, particularly women and children, generated by the mitigation of workload for water collection, decrease of water-borne diseases and so forth.

6. Project Implementation Plan

6.1. Organization

The main body of project implementation is the DWD. At the commencement of the project, the DWD is to coordinate with the agencies related to the project; and to employ and control an engineering consultant and a contractor.

The consultant is responsible to prepare the detailed designs and tender documents, to assist the DWD in the bidding and contract processes with the contractor; and to conduct the training interventions, siting and construction supervision.

The contractor is responsible to provide all necessary equipment, materials and labour force and to construct facilities.

6.2. Packaging and Prioritisation

In consideration of the socioeconomic situation, degree of shortage of water sources as well as technical difficulties, the project is to be implemented in the priority order of Mpigi, Kiboga and then Mubende. The packaging of the project shall be district-wise.

6.3. Implementation Schedule

In consideration with the annual working days, the working days required for unit facilities and others, the required period of facility construction is 40 months in total, 14 months in Mpigi, 11 months in Kiboga and 15 months in Mubende.

A preparatory period for the detailed designs, bidding and mobilisation may take eight months. The total project implementation period will be 48 months.

7. Conclusions and Recommendations

7.1. Conclusions

Most of some 165 thousand population (as of 1995) residing in 282 communities in the study area which consists of Mpigi, Mubende and Kiboga Districts in Uganda use remote and unsafe water sources at present. They are obliged to be subjected to heavy workload for water collection (1.8 hr/day in a rainy season and 6.5 hr/day in a dry season) and medical

expenses for water borne diseases (US$ 5.3/yr/household).

As a result of the study, total 708 water supply facilities are required to cover 205 thousand population by 2005. A breakdown of facilities by type and number is; 446 boreholes, 61 shallow wells, 187 protected springs and a Level-II system to those communities where the groundwater is available; and 13 valley dams to those communities where the groundwater is hardly available.

In Uganda, the O&M of those facilities are to be managed by users themselves establishing a water user's committee (WUC) for each facility. In order to support WUCs, the relevant governmental agencies are to conduct such intervention activities as guidance, motivation, education and training of users and handpump mechanics who are to be allocated by Sub-county, and so forth. The governmental interventions are, in general, conducted not so smoothly due to the shortage of staff and financial resources. The technical and financial assistance by the donor is practically indispensable for the interventions.

Women are the first grade beneficiaries of the project. Simultaneously, women may play specifically important roles in the CBMS in WES sector.

The project cost inclusive of costs required for facility construction, equipment procurement, assistance for interventions, engineering, administration and contingency is estimated to be US$ 13 million (US$ 63 per user).

The village inventory survey shows the user's willingness and affordability of water fee is within the range between US$ 2.0 to 2.6 per month per household (6% of income). The cost required for O&M of facility is deemed to be sufficient within this range.

A marked socioeconomic effect of the project is evaluated in terms of stabilisation of daily life of users in the security of safe and permanent water source, vitalisation of socioeconomic activities, child care, education opportunity generated by the mitigation of workload for water collection, decrease of water-borne diseases and so forth. Even in financial and economic analyses made within an extent of tangible benefits, the IRR of the project is significant (FIRR: 0.4% and EIRR: 8.1 %).

The organisation of project implementation consists of the DWD as the main body, an engineering consultant and a construction contractor.

In consideration of various conditions, the project is to be implemented in the priority order of Mpigi, Kiboga and Mubende.

The project implementation period will be 48 months in total.

7.2. Recommendations

(1) Urgent Commencement of the Project

The project is to cover an area in the lowest water supply coverage in Uganda which is ranked in the least coverage group in the world. The project is, therefore, urgently necessary and its impact would be remarkably significant. It is strongly recommended to commence the project as promptly as possible.

(2) Assistance in Training Interventions

The intervention for education and training of users and handpump mechanics is the key issue to the success of the project. The prospective donor which will cooperate with the project shall, therefore, not hesitate to extend its technical and financial assistance to this sector taking the reality in Uganda in the shortage of staff and fund into account.

(3) Allocation of Extension Staff

The WES related staff, particularly the extension staff of hygiene and sanitation, in the local governments in the area is far short of the prescribed number. It is strongly recommended to the Ugandan side to urgently allocate a reasonable number of staff until the commencement of the Project.

(4) Water Facilities other than Boreholes

In terms of safety of water, the borehole facility is the most favourable amongst the facilities proposed in the project. The facilities other than the boreholes are, however, also important water sources for the users in such communities where deep groundwater is scarcely available. It is recommended to the prospective donor that those facilities other than boreholes may not be excluded from the extent of its cooperation for reasons of quality of water.

(5) Water Boiling Campaign

In connection with the above and in order to prevent water-borne diseases, it is recommended to Ugandan side to extend an extensive campaign in "Water Boiling" to the users covered by facilities other than boreholes.

APPENDIX COMPARISON TABLE OF COMMUNITIES BETWEEN ORIGINAL LIST AND INVENTORY LIST

MPIGI DISTRICT (1/2)

ORIGINAL LIST					INVENTORY DATA				
NO.	PLACE	PARISH	SUB-COUNTY	POPTN.	COMM. NO.	COMMUNITY NAME	PARISH	SUB-COUNTY	POPTN.
1	Kyabagamba	Kyabagamba	Maddu	1730	1101	Kyabagamba	Kyabagamba	Maddu	857
2	Kabale	Kyabagamba	Maddu	?	1102	Kabale	Kyabagamba	Maddu	230
3	Kigayaza	Kyabagamba	Maddu	?	1103	Kigayaza	Kyabagamba	Maddu	400
4	Katwe	Kigezi	Maddu	716	1104	Kalyanjuba	Kigezi	Maddu	450
6	Kyambogo	Kigezi	Maddu	460	1105	Kyambobo	Kigezi	Maddu	300
7	Luhonda	Kigezi	Maddu	485	1106	Lukonda	Kigezi	Maddu	400
5	Makukuru	Kigezi	Maddu	?	1107	Makukuru	Maddu	Maddu	250
8	Kyamabale	Maddu	Maddu	689	1108	Kyamabale	Maddu	Maddu	700
9	Kasambya	Maddu	Maddu	378	1109	Kasambya	Mumyuka	Maddu	420
10	Kammengo	Degeya	Maddu	436	1110	Kamengo	Degeya	Maddu	436
11	Kirasi	Degeya	Maddu	1494	1111	Kirasi	Degeya	Maddu	535
12	Nakitembe	Degeya	Maddu	522	1112	Nakitembe	Degeya	Maddu	300
13	Buyanja	Degeya	Maddu	856	1113	Buyanja	Degeya	Maddu	200
14	Kagongero	Ntalagi	Maddu	503	1114	Kagongero	Ntalagi	Maddu	800
15	Kabwire	Ntalagi	Maddu	537	1115	Kabwire	Ntalagi	Maddu	600
16	Kyetume	Kyayi	Maddu	480	1116	Kyetume	Musale	Maddu	200
17	Kyengera	Kyayi	Maddu	387	1117	Kyengera	Degeya	Maddu	300
18	Kirimanjaga	Kyayi	Maddu	?	1118	Kyangabakama	Nkayi	Maddu	285
19	Nakaseeta	Kyayi	Maddu	?	1119	Kyayi	Kyayi	Maddu	563
20	Nabugayo	Kyayi	Maddu	368	1120	Nabugayo	Musale	Maddu	420
21	Nalwanga	Kalwanga	Kabulasoke	301	1121	Kalwanga A	Sabagala	Kabulasoke	450
27	Kiryanongo	Kalwanga	Kabulasoke	?	1122	Kiryanonga	Kalwanga	Kabulasoke	350
28	Kakubansiri P/S	Kalwanga	Kabulasoke	502	1123	Kakubansiri B	Kakubansiri	Kabulasoke	300
22	Lubale	Butiti	Kabulasoke	379	1124	Lubale B	Butiti	Kabulasoke	570
23	Nkokonjeru	?	Kabulasoke	?	1125	Nkokonjeru	Lugaga	Kabulasoke	500
30	Luggaaga P/S	Lugaaga	Kabulasoke	308	1126	Lugaaga	Lugaga	Kabulasoke	350
24	Lusongodde	Bulwadda	Kabulasoke	250	1127	Lusongode	Bulwadda	Kabulasoke	467
25	Luzira P/S	Bulwadda	Kabulasoke	405	1128	Luzira	Bulwadda	Kabulasoke	1328
29	Bulwadda	Bulwadda	Kabulasoke	620	1129	Bulwadda East	Bulwadda	Kabulasoke	530
					1129.1	Bulwadda West	Bulwadda	Kabulasoke	800
26	Kawoko P/S	Kisozi	Kabulasoke	305	1130	Kawoko	Kisozi	Kabulasoke	400
31	Nakulamudde P/S	Mawuki	Kabulasoke	404	1131	Nakulamudde	Mawuuki	Kabulasoke	800
32	Mawuki T/C	Mawuki	Kabulasoke	706	1132	Mawuki	Mawuki	Kabulasoke	480
						Bukandula	Bukandula B	Kabulasoke	798
33	Kiriri	Sabaddu	Mpenja	751	1133	Kiriri	Sabaddu-Kiriri	Mpenja	1500
34	Mpopo P/S	Mutuba I	Mpenja	406	1134	Mpopo	Mutuba I	Mpenja	420
41	Buyinjabutoole	Mutuba I	Mpenja	500	1135	Buyinjabutoole	Mutuba II	Mpenja	1000
35	Mpenja S.S S	Kakono	Mpenja	500	1136	Part of Kiriri (1133)			
36	Ngeya P/S	Nkoma	Mpenja	450	1137	Ngeye	Nkoma	Mpenja	400
37	Busolo	Mpogo	Mpenja	498	1138	Busolo	Mpogo	Mpenja	800
38	Maseruka	Maseruka	Mpenja	1292	1139	Maseruka	Mumyuka B	Mpenja	960
39	Kanzira P/S	Kanzira	Mpenja	777	1140	Kanzira	Kanzira A	Mpenja	220
40	Ngomanene	Ngomanene	Mpenja	899	1141	Ngomanene	Mutuba III	Mpenja	432
42	Kyetume P/S	Gobola	Mpenja	988	1142	Kyetume	Sabawali	Mpenja	800

APPENDIX COMPARISON TABLE OF COMMUNITIES BETWEEN ORIGINAL LIST AND INVENTORY LIST

MPIGI DISTRICT (2/2)

ORIGINAL LIST					INVENTORY DATA				
NO.	PLACE	PARISH	SUB-COUNTY	POPTN.	COMM. NO.	COMMUNITY NAME	PARISH	SUB-COUNTY	POPTN.
1	Wamirongo P/S	Wamirongo	Kyambogo	598	1201	Wamirongo	Wamirongo	Kyambogo	650
2	Busukuma	Busukuma	Kyambogo	452	1202	Busukuma	Mumyuka A	Kyambogo	340
3	Kasambya	Kikoko	Kyambogo	302	1203	Kasambya	Kikoko	Kyambogo	491
4	Kikoko	Kikoko	Kyambogo	384	1204	Kikoko	Kikoko	Kyambogo	225
5	Seeta	Susukuma	Kyambogo	371	1205	Seita	Mumyuka A	Kyambogo	185
6	Kijjude P/S	Sabaddu	Kyambogo	450	1206	Kijjudde	Magigya	Kyambogo	450
7	Magigya	Magigya	Kyambogo	603	1207	Magigi	Sabaddu	Kyambogo	450
8	Kiwenda P/S	Kiwenda	Kyambogo	349	1208	Kiwenda T/C	Musaale A	Kyambogo	960
9	Kiwenda T/C	Kiwenda	Kyambogo	727					
10	Nabitalo P/S	Kiwenda	Kyambogo	491	1210	Nabitalo	Musaale A	Kyambogo	750
11	Buso P/S	Kabumba	Kyambogo	681	1211	Buso	Sabawali	Kyambogo	750
12	Menvu T/C	Sugo	Kyambogo	588	1212	Menvu	Mutuba I	Kyambogo	1700
13	Kasozi Disp.	Sugo	Kyambogo	935	1213	Kasozi	Mutuuba I	Kyambogo	1500
14	Lugo Comm. Cen	Sugo	Kyambogo	780	1214	Lugo	Mutuuba I	Kyambogo	520
15	Bulessa P/S	Guluddene	Kyambogo	593	1215	Mairye	Musale B Guluddene	Kyambogo	800
16	Kasangati T/C	Kasangati	Nangabo	2000	1216	Kasangati TC/Kazinga	Wampewo Mumyuka A	Nangabo	200
					1216.1	Kasangati TC/Bulamu	Bulamu (B)	Nangabo	400
1	Seta village	Mufuka A			1217	Seeta	Mumyuka Wampewo	Nangabo	300
2	Magera	Wampewo			1218	Magere	Nangabo	Nangabo	400
3	Kide D&B School	Mufuka A			1219	Kazinga	Kazinga	Nangabo	330
4	Kiwalimu	Mufuka B			1220	Kiwalimu	Masooli	Nangabo	300
5	Kiti	Sabagabo			1221	Kiti A	Wattuba	Nangabo	250
6	Manyangwa P/S	Musale			1222	Manyangwa	Kabubu	Nangabo	750
7	Nalyangonja	Musale			1223	Nalyamaponja	Gayaza	Nangabo	450
8	Seeta CAU & Mosque	Mufuka A			1224	Part of Seeta (1217)			
9	Kito village	Mufuka A			1225	Part of Magere (1218)			
1	Bulunga P/S	Sugali	Ngando	450	1301	Kiwala	Lugali	Ngando	800
2	Ngando Disp.	Ngando	Ngando	766	1302	Ngando	Ngando	Ngando	550
3	Kitagobwa S.S.S	Kasozi	Ngando	427	1303	Kanzira	Ssabaddu	Ngando	400
11	Kitagobwa T/C	Kasozi	Ngando	600					
4	Bwebyaba P/S	Kasozi	Ngando	475	1305	Bwebyaba	Kasozi	Ngando	475
5	Lugali Village	Sugali	Ngando	699	1306	Lugali	Lugali	Ngando	700
6	Kisoba	Sugali	Ngando	624	1307	Ndibulungi	Lugali	Ngando	1000
7	Butende P/S	Butende	Ngando	591	1308	Butende	Sabawali	Ngando	700
9	Bukesa CAU	Bukesa	Ngando	648	1309	Bukesa	Bukesa	Ngando	300
10	Tufube Village	Sugali	Ngando	523	1310	Tufube	Lugali	Ngando	400
12	Bugobango T/C	Bukesa	Ngando	1066	1311	Bugobango	Lwamasaka	Ngando	426
1	Kyengeza P/S	Kyengeza	Kiziba	603	1401	Kyengeza	Mutuba IA	Masulita/Kiziba	500
2	Wablyinja	Bwemwedde	Kiziba	494	1402	Wablyinja	Sabaddu A	Masulita/Kiziba	750
3	Nakikungube	Nakikungube	Kiziba	588	1403	Nakikungube	Nakikungube	Masulita/Kiziba	249
4	Masulita	Masulita	Masulita	879	1404	Masulita A	Mumyuka A	Masulita/Kiziba	250
5	Kyanuna T/C	Kyanuna	Namayumba	738	1405	Kyanuna	Ssabagabo	Namayumba	1300
6	Kyampisi	Kyampisi	Namayumba	456	1406	Kyampisi	Ssabagabo B	Namayumba	500
7	Manangala P/S	Musaale B	Namayumba	563	1407	Malangaala	Musaale A	Namayumba	420
8	Bugimba P/S	Kanziro	Namayumba	700	1408	Bugimba	Musaale A	Namayumba	526
9	Muguluka P/S	Bukondo	Namayumba	506	1409	Muguluka	Bukkondo	Namayumba	600
10	Gamba T/C	Mutuba I A	Namayumba	920	1410	Buso	Mutuba I B	Namayumba	250
11	Kyasa P/S	Kyasa	Namayumba	652	1411	Kyasa	Kyasa	Namayumba	630
12	Semba T/C	Bbemba	Namayumba	981	1412	Bembe	Bembe	Namayumba	500
13	Namayumba S/C Hqrs	Munyuka A	Namayumba	713	1413	Namayumba	Luguzi	Namayumba	500
14	Busaka	Nsituse	Namayumba	782	1414	Busaku	Lutisi	Namayumba	800
15	Buwambo P/S	Kitayita	Namayumba	331	1415	Buwembo	Sabawali	Namayumba	250
16	Kasengejje P/S	Kasengejje	Wakiso	583	1416	Kasengejje	Kasengejje	Wakiso	960
17	Mende UMEA S.S.S	Mende	Wakiso	698	1417	Mende Central	Mende	Wakiso	1000
18	Bukasa T/C	Bukasa	Wakiso	1334	1418	Bukasa T/C	Bukasa	Wakiso	600
19	Wakiso T/C	Kisimbiri	Wakiso	2000	1419	Wakiso TC/Kisimbiri	Kisimbiri	Wakiso	3000
1	Kituntu T/C	Kituntu	Kituntu	945	1501	Kituntu T/C	Kituntu	Kituntu	630
2	Mpigi UMEA P/S	Town Council	Mpigi	500	1502	Mpigi	Town Council	Mpigi Township	8191
3	Nabusanke E/P/S	Nabusanke	Nkozi	858	1503	Kikomazi	Nabusanke	Nkozi	650

APPENDIX COMPARISON TABLE OF COMMUNITIES BETWEEN ORIGINAL LIST AND INVENTORY LIST

MUBENDE DISTRICT (1/2)

ORIGINAL LIST					INVENTORY DATA				
NO.	PLACE	PARISH	SUB-COUNTY	POPTN.	COMM. NO.	COMMUNITY NAME	PARISH	SUB-COUNTY	POPTN.
1	Kisambwa		Kitenga		2101	Busooba/Kisombwa	Kayebe	Kitenga	250
2	Kilangwa		Kitenga		2102	Kilangwa	Kagoma	Kitenga	327
3	Kyengeza		Kitenga		2103	Kyengeza	Kalonga	Kitenga	595
4	Budibaga		Kitenga		2104	Budigaba	Kalonga	Kitenga	602
5	Bwakaggo		Kitenga		2105	Bwakaggo	Kalonga	Kitenga	400
1	Kalingo		Bageza		2106	Kalonga	Kalonga	Bageza	600
2	Mugungulu		Bageza		2107	Mugungulu	Nabikaka'a	Bageza	700
3	Busa'e P/S		Bageza		2108	Kisingizi	Busaa'e	Bageza	800
4	Kyamukona		Bageza		2109	Kyamukona	Nabikaakala	Bageza	700
5	Kyegululuso		Bageza		2110	Kyegululuso	Kisenkende	Bageza	400
6	Bakijulufa		Bageza		2111	Bakijulira	Busa	Bageza	325
8	Kabowa		Bageza		2112	Kabowa	Kabowa	Bageza	350
9	Kababu		Bageza		2113	Kababu	Kabowa	Bageza	400
1	Kabbo		Kasambya		2114	Kamusongola	Kabbo	Kasambya	1750
2	Nakawala		Kasambya		2115	Nakawala/Lwegula	Kabbo	Kasambya	700
3	Lwegula		Kasambya						
5	Kisongola		Kasambya		2117	Part of Kamusongola (2114)			
4	Nakasaga		Kasambya		2118	Nakasaga	Sabaddu	Kasambya	500
6	Kasambya T/C		Kasambya	1500	2119	Kasambya T/C	Kasambya	Kasambya	800
1	Kikoma P/S		Madudu		2120	Kikoma	Kikoma	Madudu	575
2	Madudu T/C		Madudu		2121	Ngabano	Kakanzi	Madudu	700
1	Katoma P/S		Kiyuuni		2122	Katoma	Kayinja	Kiyuni	400
1	Kassanda T/C		Kassanda	1800	2201	Kassanda T/C	Kitongo	Kassanda	700
2	Namabale		Kassanda		2202	Namabaale	Sabawaali	Kassanda	350
3	Kyabalanzi		Kassanda		2203	Kyabalanzi	Kikandwa	Kassanda	280
4	Kamuli P/S		Kassanda		2204	Kamuli	Bweyongedde	Kassanda	300
5	Ageyongedde		Kassanda		2205	Bweyongedde	Bweyongedde	Kassanda	362
6	Kalwana		Kassanda		2206	Kasazi A	Mumyuka B	Kassanda	700
7	Kalama		Kassanda		2207	Kalama	Namabale	Kassanda	360
8	Kikandwa Disp.		Kassanda		2208	Kikandwa	Mumyuka A	Kassanda	200
1	Buyamagunju		Nyanzi		2209	Buyamagunju A	Kampiri	Myanzi	560
2	Kampiri		Nyanzi		2210	Makata	Kampiri	Myanzi	700
3	Milembe		Nyanzi		2211	Mirembe	Kyakatebe	Myanzi	390
4	Kalama		Nyanzi		2212	Kalama	Myanzi	Myanzi	450
5	Kyakasengula		Nyanzi		2213	Kyakasengula	Musale	Myanzi	420
6	Kibanyi-Kabagala		Nyanzi		2214	Kibanyi	Nalutuntu	Myanzi	532
7	Wamala/Bukoba		Nyanzi		2215	Bukoba	Nalutuntu	Myanzi	265
8	Kamboja		Nyanzi		2216	Lukira'	Kampiri	Myanzi	910
9	Kyawatuba/Gambwa		Nyanzi		2217	Kyawatuba	Kampiri	Myanzi	630
10	Kasana		Nyanzi		2218	Kasana	Kasana	Myanzi	450
1	Kalagi		Kiganda		2219	Kalagi	Kigalama	Kiganda	500
2	Kamusenene		Kiganda		2220	Kamusenene	Kamusenene	Kiganda	600
3	Manyogaseka		Kiganda		2221	Manyogaseka	Manyogaseka	Kiganda	740
4	Kasawo		Kiganda		2222	Kasawo	Kinoni	Kiganda	300
5	Lwenyange		Kiganda		2223	Lwenyanga	Lutunku	Kiganda	470
6	Mbale		Kiganda		2224	Mbale	Nsozinga	Kiganda	300
1	Mabubi		Bukuya		2225	Mabuubi	Ncwamazzi	Bukuya	200
2	Kalongo		Bukuya		2226	Kalongo	Kijuna	Bukuya	400
3	Kitumbi		Bukuya		2227	Kitumbi	Mundada	Bukuya	300
4	Kanoga		Bukuya		2228	Kanoga	Makokoto	Bukuya	200

APPENDIX COMPARISON TABLE OF COMMUNITIES BETWEEN ORIGINAL LIST AND INVENTORY LIST

MUBENDE DISTRICT (2/2)

ORIGINAL LIST					INVENTORY DATA				
NO.	PLACE	PARISH	SUB-COUNTY	POPTN.	COMM. NO.	COMMUNITY NAME	PARISH	SUB-COUNTY	POPTN.
1	Kikumbi		Busimbi		2301	Kikumbi-Kaba	Katakala	Busimbi	360
2	Nakaseta		Busimbi		2302	Nakaseta	Nakaseta	Busimbi	1200
3	Namyeso/Kabuwambo		Busimbi		2303	Namyeso	Namyeso	Busimbi	300
4	Bugabo/Kabuwambo		Busimbi		2304	Bugabo	Kabuwambo	Busimbi	500
5	Katakala P/S		Busimbi		2305	Katakala	Mumyuka	Busimbi	600
6	Magongola		Busimbi		2306	Magongolo	Katakala	Busimbi	700
7	Nakibanga		Busimbi		2307	Nakibanga-Nyanzi	Nakibanga	Busimbi	300
1	Busimbi S/C Hqtrs	Mityana Town C.	Busimbi		2308	Mityana/Busimbi	Mityana T. Council	Busimbi	700
2	Works Camp Old M.Rd.	Mityana Town C.	Busimbi		2309	Mityana/Mityana A	Mityana T. Council	Busimbi	250
3	Forestry Office	Mityana Town C.	Busimbi						
1	Kalangalo T/C		Bufera		2311	Kalangalo	Mutuba - 6	Bufera	520
2	Buyambi SSS		Bufera		2312	Lwogero B	Mutuba I	Bufera	690
3	Namutamba TTC		Bufera		2313	Kiwanda	Namutamba	Bufera	350
4	Namutamba Disp.		Bufera		2314	Lweyo	Butumbizi	Bufera	800
1	Kasikombe P/S		Sekanyonyi		2315	Kasikombe	Magala	Sekanyonyi	700
2	Katungulu		Sekanyonyi		2316	Katungulu	Kagelekamu	Sekanyonyi	450
3	Budimbo		Sekanyonyi		2317	Budimbo	Magala	Sekanyonyi	1000
4	Kisamba		Sekanyonyi		2318	Kisamba	Magala	Sekanyonyi	450
5	Kawolongojjo P/S		Sekanyonyi		2319	Kawolongojjo	Kisaana	Sekanyonyi	680
6	Namungo H/Centre		Sekanyonyi		2320	Namungo	Namungo	Sekanyonyi	650
7	Sekanyonyi H/Centre		Sekanyonyi		2321	Sekanyonyi	Sekanyonyi	Sekanyonyi	600
1	Nakwaya Parish-Bombo		Kikandwa		2322	Bombo	Nakwaya	Kikandwa	250
2	*Kabutamuliro P/S*		Kikandwa		2323	*Kabutamuliro*	*Nakwaya*	*Kikandwa*	430
3	Bambuta		kikandwa		2324	Bambuta	Bambuta	kikandwa	620
1	Seninya		Maanyi		2401	Sserinnya	Kasota	Maanyi	600
2	Nabale		Maanyi		2402	Nabale	Maawa	Maanyi	600
3	Maanyi S/C Hqrs		Maanyi		2403	Maanyi	Kimuli-Mutuba I	Maanyi	600
4	Mpongo		Maanyi		2404	Mpongo	Sabawali	Maanyi	200
5	Misimba		Maanyi		2405	Misimba	Mpogo-Sabawali	Maanyi	400
6	Kimuli		Maanyi		2406	Kimuli	Kimuli	Maanyi	400
7	Kabeele		Maanyi		2407	Kabeele	Mpongo	Maanyi	400
8	Buwala		Maanyi		2408	Buwala	Banda	Maanyi	500
1	Bekina P/S		Butayunja		2409	Bekina	Ngandwa	Butayunja	800
2	Kkande P/S		Butayunja		2410	Kkande	Kitongo	Butayunja	240
3	Kitongo S/Disp.		Butayunja		2411	Kitongo	kitongo	Butayunja	400
4	Nakaziba P/S		Butayunja		2412	Nakaziba	Nakaziba	Butayunja	400
5	Kitebere P/S		Butayunja		2413	Kitebere	Kitebere	Butayunja	1000
6	Watuba		*Butayunja*		2414	Watuba	*Ngandwe*	*Butayunja*	650
1	Nabwiri		Kakindu		2415	Nabwiri	Vvumbe	Kakindu	1000
2	Bukunduguiu		Kakindu		2416	Bukunduguiu	Vvumbe	Kakindu	365
3	Bananze		Kakindu		2417	Bananze	Mwera	Kakindu	1200
4	Kalama		Kakindu		2418	Kalama	Nsambya	Kakindu	460
5	Nguguio		Kakindu		2419	Nguguio	Nguguio	Kakindu	280
6	Mwera		Kakindu		2420	Mwera	Mwera	Kakindu	780
7	Kakindu P/S		Kakindu		2421	Kakindu	Mawanda	Kakindu	1000
8	Mawanda P/S		Kakindu		2422	Mawanda	Vvumbe	Kakindu	330
1	Kiwawu Town		Malangala		2423	Kiwawu	Kiwawu-Sabagabo	Malangala	600
2	Magonga P/S		Malangala		2424	Magonga	Magonga	Malangala	370
3	Lulumbu		Malangala		2425	Lulumbu	Kanyanya	Malangala	700
4	Kasalaga		Malangala		2426	Kasalaga	Zigoti	Malangala	500

APPENDIX COMPARISON TABLE OF COMMUNITIES BETWEEN ORIGINAL LIST AND INVENTORY LIST

KIBOGA DISTRICT (1/2)

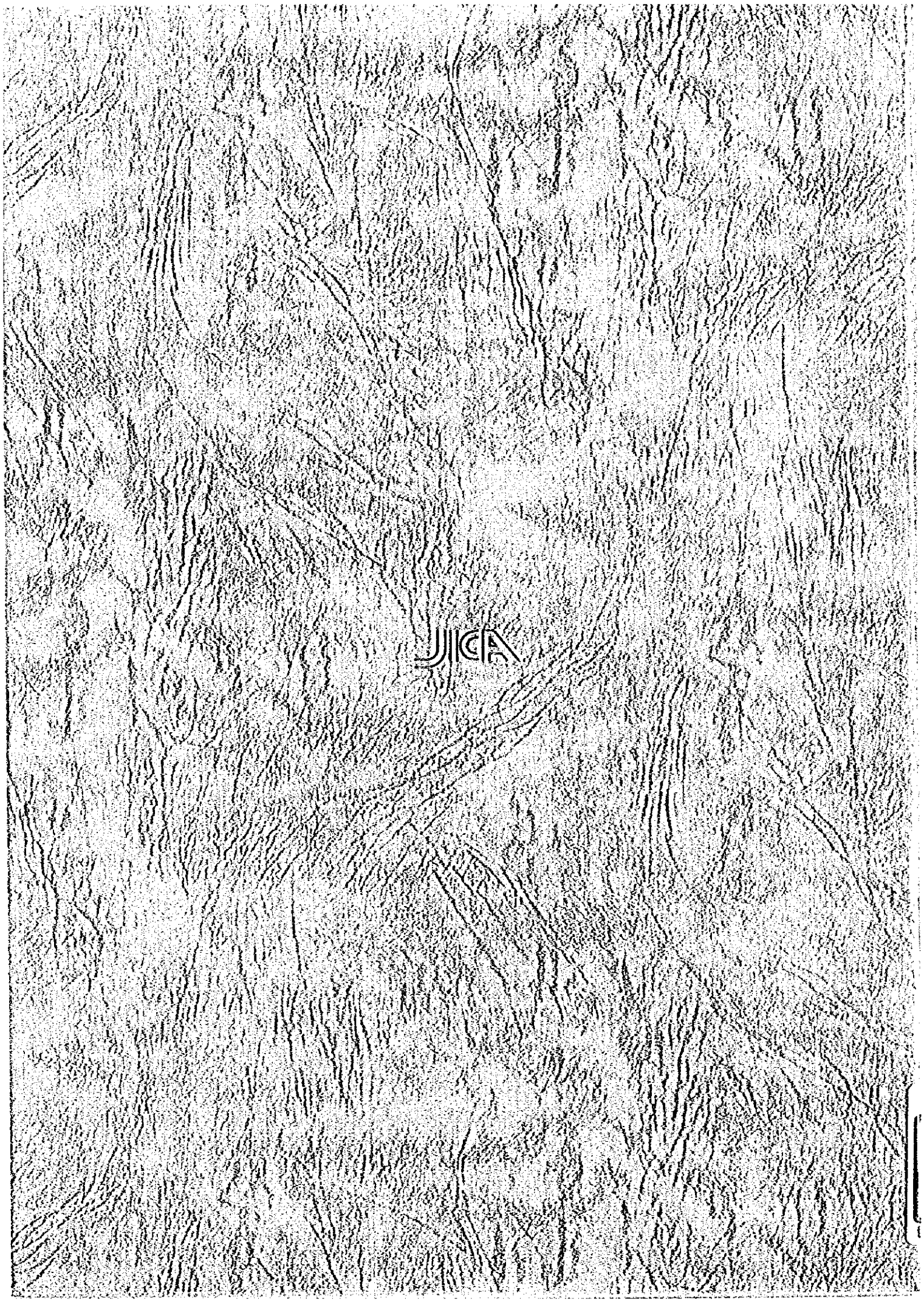
ORIGINAL LIST					INVENTORY DATA				
NO.	PLACE	PARISH	SUB-COUNTY	POPTN.	COMM. NO.	COMMUNITY NAME	PARISH	SUB-COUNTY	POPTN.
1	Kateera-Bikira		Bukomero	337	3101	Kateera	Musaale	Bukomero	504
6	Kalangala		Bukomero	102	3102	Kalagala A	Kateera	Bukomero	900
4	Masinba		Bukomero	357	3104	Masinba	Kikooba	Bukomero	300
2	Katwe	Katwe	Bukomero	356	3105	Katwe	Kalokola	Bukomero	470
10	Muyenje		Bukomero	338	3106	Muyenje	Lwankonge	Bukomero	690
3	Kayunga C/U		Bukomero	295	3107	Kayunga	Kyomya	Bukomero	800
5/43	Kabamba	Mwezi	Bukomero	56	3108	Kabamba West	Kyooma	Bukomero	280
					3108.1	Kabamba East	Kyomya	Bukomero	320
12	Bukomero T/C	Bukomero	Bukomero	3000	3109	Bukomero T/C	Kateera	Bukomero	806
13	Muboma		Bukomero	83	3110	Namukoko	Kalokola	Bukomero	750
15	Kagogo	Kagogo	Bukomero	206	3111	Kagogo	Kagogo	Bukomero	350
18	Mwezi	Mwezi	Bukomero	274	3112	Mwezi B	Mwezi	Bukomero	480
					3113				
44	Kambuzi		Ntwetwe	175	3114	Kyambizi	Butwagwe	Ntwetwe	175
50	Ndibata	Ntwetwe	Ntwetwe	217	3115	Ndibata	Ndibata	Ntwetwe	1320
51	Bugomolwa	Ntwetwe	Ntwetwe	250	3116	Bugomolwa	Nbiba	Ntwetwe	450
87	Ntwetwe T/C		Nsambya?	2000	3117	Ntwetwe T/C	Ntwetwe	Ntwetwe	524
88	Ntwetwe/Gayaza Rd towards Kanangalo		Ntwetwe	200		covered by Ntwetwe T/C (3117), Luwuna (3198) and Kyerere East (3200)			
53	Kitemeera P/S		Ntwetwe	95	3118	Kitemeera/Lubuga	Nakitembe	Ntwetwe	288
55	Lubuga P/S		Ntwetwe	140					
57	Bulagwe		Ntwetwe	353	3120	Bulagwe	Bulagwe	Ntwetwe	222
60	Nkandwa Moslem		Ntwetwe	272	3121	Nkandwa B	Nkwandwa	Ntwetwe	500
61	Nakalama St. Kizito		Ntwetwe	69	3122	Nakalama St. Kizito	Nbba	Ntwetwe	200
63	Kiryamukoko		Ntwetwe	179	3123	Ntuuti	Ntwetwe	Ntwetwe	540
62	Kikajjo	Nsambya	Ntwetwe	104	3124	Kikajjo	Kisolozza	Ntwetwe	200
69	Lwanjalo		Ntwetwe	300	3125	Lwanjalo	Nbba	Ntwetwe	450
31	Kasega	Kasega	Kibiga	207	3126	Kasega	Kasega	Kibiga	380
100	Kirinda	Kirinda	Kibiga	450	3127	Kirinda	Kasega	Kibiga	600
34	Kyekumbya	Kyekumbya	Kibiga	300	3128	Kizinga	Kizinga	Kibiga	500
67	Nyamiringa	Namiringa	Kibiga	39	3129	Nyamiringa	Kyalinba	Kibiga	210
36	Kagobe	Kagobe	Kibiga	77	3130	Kagobe	Kagobe	Kibiga	330
99	Kiboga UWESO Sch		Kibiga	135	3131	Sseesa	Sseesa	Kibiga	300
37	Kambugu	Nkandwa	Kibiga	405	3132	Kambugu	Nkandwa	Kibiga	400
65	St. Kizito Nkandwa	Nkandwa	Kibiga	90	3133	Kambugu	Nkandwa	Kibiga	466
73	Nkandwa St. Joseph		Kibiga	90	3134	Kiyankozi	Nkandwa	Kibiga	350
38	Katoma	Katoma	Kibiga	165	3135	Katoma	Kajjera	Kibiga	200
39	Kibiga Sch.	Kibiga	Kibiga	284	3136	Kibiga	Kibiga	Kibiga	800
64	Gogonya		Kibiga	250	3137	Gogonya	Kibiga	Kibiga	500
42	Bukasa	Kibale	Kibiga	195	3138	Bukasa	Kibale	Kibiga	250
68	Kibooba		Kibiga	104	3138.1	Kalagala/Kibooba	Kajjera	Kibiga	400
32	Kiboga DAS	Kiboga Town	Kibiga	569	3139	Kiboga/Kwanguzi	Kiboga	Kiboga T. Council	210
66	Kiboga Islamic	Kiboga Town	Kibiga	354	3140	Kiboga/Bwizibwera B	Kiboga Town	Kiboga T. Council	500
74	Kiboga St. Paul	Kiboga Town	Kibiga	159					
41	Kiboga St. Andrew	Kiboga Town	Kibiga	312	3142	Kiboga/Lufula	Kilulumba	Kiboga T. Council	680
78	Kiboga Hospital	Kiboga Town	Kibiga	500	3143	Kiboga/Hosp.Village	Kiboga Town	Kiboga T. Council	390
79	Senior Quarters	Kiboga	Kibiga	100	3144	Kiboga/Bwizibwera A	Kiboga Town	Kiboga T. Council	930
17	Sinde	Lunya	Lwamata	226	3145	Ssinde	Sinde	Lwamata	280
45	Kawawa	Lwamata	Lwamata	312	3146	Kawazwa	Lwamata	Lwamata	320
76	Kitagenda		Lwamata	206	3147	Nkokonjeru	Kisweka	Lwamata	1400
46	Lukuli		Lukuli	190	3148	Kyanika	Kisagazi	Lwamata	300
47	Lunnya	Lunnya	Lwamata	202	3149	Lunnya	Lwamata	Lwamata	400
48	Bukoboobo	Nsala	Lwamata	192	3150	Nakaziba	Nsala	Lwamata	360
49	Kijumagwa	Kasejere	Lwamata	308	3151	Kijumagwa	Kasejere	Lwamata	280
58	Nsanje		Lwamata	220	3152	Nsanje	Buninga	Lwamata	350
71	Kiribodda		Lwamata	31	3153	Buyonga	Nsala	Lwamata	470
52	Kirinda	Kirinda	Lwamata	284		non-existent			
81	Kabutemba	Bamusuuta	Lwamata	200	3155	Kabutemba	Kayera	Lwamata	360

APPENDIX COMPARISON TABLE OF COMMUNITIES BETWEEN ORIGINAL LIST AND INVENTORY LIST

KIBOGA DISTRICT (2/2)

Sheet 6/6

ORIGINAL LIST					INVENTORY DATA				
NO.	PLACE	PARISH	SUB-COUNTY	POPTN.	COMM. NO.	COMMUNITY NAME	PARISH	SUB-COUNTY	POPTN.
20	Bisika		Butemba	202	3156	Kambugu	Nabitakuli	Butemba	235
97	Kayonza		Butemba	350	3157	Kayonza	Nabitakuli	Butemba	200
23	Kyankwanzi	Kyankwanzi	Butemba	249	3158	Kyarajoni	Nyarukonje	Butemba	515
26	Kyabajojo		Butemba	93	3159	Katanabiro	Bwebisiriza	Butemba	350
96	Kagalama		Butemba	310	3160	Kagalama	Lwebisiriza	Butemba	480
75	Byerima		Butemba	100	3161	Byerima B	Byerima	Butemba	380
19	Bikoma			259	3163	Bikoma A	Kikoma	Butemba	257
					3163.1	Bikoma B	Kikoma	Butemba	272
						Biiko	Biiko	Muwanga	500*
77	Bugulumа		Butemba	144	3164	Bugulumа	Katovu	Butemba	310
7	Nabwendo CAU	Nabwende	Muwanga	156	3165	Nabwendo	Nabwendo	Muwanga	600
8	Nabwendo RAC	Nabwende	Muwanga	261					
14	St. Kizito Ndiraweru		Muwanga	152	3167	Ndiraweru	Nabwendo	Muwanga	1100
9	Nakasozi Public	Nakasozi	Muwanga	302	3168	Nakasozi	Nakasozi	Muwanga	350
11	Nakasengere	Biko	Muwanga	178	3169	Nakasengere	Nakasengere	Muwanga	300
59	Magala Memorial			353	3170	Natyole/Magala Mem.	Ndibata	Ntwetwe	400
16	Muwanga	Muwanga	Muwanga	220	3171	Muwanga	Nabwendo	Muwanga	600
22	Kikonda	Kikonda	Nsambya	140	3172	Kikonda	Kikonda	Nsambya	140
82	Nakakabala		Nsambya	300	3173	Nakakabala	Masodde	Masodde	300
24	Kigando Public	Kigando	Nsambya	147	3174	Kyambogo	Kigando	Nsambya	580
98	Kigandi II		Butemba	225	3175	Kigando?/Buraza	Kigando	Nsambya	126
84	Mujunzá	Kigando	Nsambya	110	3176	Mujjunza	Bananywa	Nsambya	356
83	Kigande		Nsambya	250		non-existent			
					3177				
85	Bananywa	Bananywa	Nsambya	1439	3178	Bananywa	Bananywa	Nsambya	1439
66	Nsambya T/C	Sub-county Hqtrs	Nsambya	130	3179	Nsambya	Kyakabuga	Nsambya	195
27/56	Kyakabuga		Nsambya	107	3180	Kyakabuga	Kyakabuga	Nsambya	160
28	Bamusuuta	Bamusuuta	Masodde	291	3183	Bamusuuta	Bamusuuta	Masodde	850
21	Kayunga RAC			295	3184	Kayunga	Sabawali	Butemba	280
29	Masodde	Masodde	Masodde	414	3185	Masodde	Masodde	Masodde	900
30	Vvumba	Luwavu	Masodde	612	3186	Vvumba	Vvumba	Masodde	500
80	Kalagi Markets	Luwavu	Masodde	200	3187	Kalagi	Bamusuta	Masodde	350
33	Kiyombya	Wattuba	Masodde	216	3188	Kiyombya	Watuba	Masodde	500
40	Kiwanguzi	Kiwanguzi	Masodde	182	3189	Kiwanguzi	Kiwanguzi	Masodde	500
35	Mulagi	Kigando	Masodde	314	3190	Mulagi	Kigando	Masodde	350
70	Kigando Mixed		Nsambya	147	3191	Kigando	Masodde/Kigando	Masodde	700
25	St. Jude Kigando	Kigando	Masodde	125	3191.1	Kigando	Kigando	Masodde	500
54	Kyamutalama		Gayaza	168	3192	Bulyanziga	Kiyuni	Gayaza	450
90	Gayaza S/H/H/U	Gayaza	Gayaza	190	3193	Gayaza West	Gayaza	Gayaza	586
91	Kasambya Market	Kijungute	Gayaza	200	3194	Kasambya B	Kisoloza	Ntwetwe	350
95	Nkondo		Gayaza	460	3195	Nkondo	Gayaza	Gayaza	500
58	Butambuka		Gayaza	182	3196	Butambuka	Kinyajobyo	Gayaza	50
72	Kinyajobyo		Gayaza	102	3197	Kinyajobyo West	Luwuna	Gayaza	400
92	Luwuna	Luwuna	Gayaza	400	3198	Luwuna	Luwuna	Gayaza	300
93	Kisala	Luwuna	Gayaza	350	3199	Kisala	Luwuna	Gayaza	750
94	Kyerere	Kiyuni	Gayaza	1000	3200	Kyerere East	Kiyuni	Gayaza	600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