PUBLIC OF TANZANIA   KINGDOM OF THE NETHERLANDS

STRY OF   MINISTRY OF

WATER DEVELOPMENT AND POWER   FOREIGN AFFAIRS

SHINYANGA WATER

SUPPLY SURVEY

WATER MASTER-PLAN STUDY FOR SHINYANGA REGION

TECHNICAL ANNEX D

SOCIOLOGY

FINAL REPORT

OCTOBER 1974

International Reference Centre
for Community Water Supply
and Sanitation
P.O. Box 5500
2280 HM RIJSWIJK

t.a.v. : C. Dietvorst

betreft : Shinyanga Water Supply Survey

datum : 21 september 1983

dossiernr.: 3.2140.53.05

uw ref. : 31.408/IS/Die
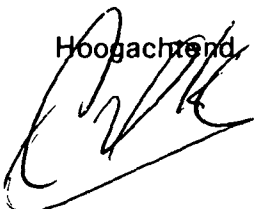
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bijlage(n) : Technical annex D van final report van bovengenoemd project

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☐ ter kennisneming
☐ met vriendelijke dank voor de inzage
☐ met verzoek ons uw oordeel kenbaar te willen maken
☐ met verzoek om terugzending, na inzage
☐

Hoogachtend,

BLIC OF TANZANIA

STRY OF

WATER DEVELOPMENT AND POWER

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LAKE VICTORIA

SPEKE GULF

SERENGETI NATIONAL PARK

BARIADI DISTRICT

SHINYANGA DISTRICT

MASWA DISTRICT

KAHAMA DISTRICT

MWANZA

SHINYANGA

KAHAMA

BARIADI

NZEGA

SITUATION OF SHINYANGA REGION IN TANZANIA
SCALE 1:20.000.000

Lake Victoria
MWANZA
SHINYANGA
TABORA
DODOMA
ZANZIBAR
DAR es SALAAM
MOMBASA
Lake Tanganyika
MBEYA
Lake Nyasa
LINDI
MTWARA

SHINYANGA REGION

0   20km

—1200— contours, elevation in metres

—4000— approximate contours, elevation in feet

gazetted areas

SEE MAP 3.14.04.01-04 FOR COMPLETE LEGEND

Chapter I INTRODUCTION

In August 1971, following an administrative arrangement concluded between the Governments of Tanzania and the Netherlands, the Directorate of International Technical Assistance of the Netherlands charged the Netherlands Engineering Consultants "Nedeco" with the execution of a water supply survey in the Shinyanga Region.
The Tanzanian Government has appointed the Ministry of Water Development and Power as executive authority for the implementation of the project.

The water supply survey started on 15 August, 1971 and the actual fieldwork was terminated in September 1973.
Progress Reports on the activities carried out were prepared in November 1971, August 1972 and October 1973. In addition, an Interim Report was submitted in December 1972, containing a first review of available and collected data, their interpretation, and the preliminary approach to a regional water master-plan.
Discussions concerning the contents of the Interim Report with the authorities concerned, their reactions and recommendations (which Nedeco has found very useful) and of course the further collection and elaboration of data and information, have led to the regional water master-plan as presented in this final report.

The final report consists of two volumes:
Volume I   : Main report and drawings
Volume II   : Technical Annex A - Hydrology
              Technical Annex B - Hydrological data
              Technical Annex C - Hydrogeology
              Technical Annex D - Sociology
              Technical Annex E - Agriculture
              Technical Annex F - Water quality
              Technical Annex G - Civil engineering
              Technical Annex H - Economy and general aspects

The Terms of Reference stipulate that the tasks of the survey should include the collection and examination of all existing demographic, agronomic, livestock and socio-economic features of the Region. Where necessary the existing records and data should be expanded so that a comprehensive evaluation can be made of the water resources.

The objectives of this survey and the studies involved were to provide the Government of Tanzania with firm recommendations (master-plan) for the immediate and longterm development of the surface and groundwater resources of the Shinyanga Region with particular reference to the supply of water to the rural areas for human and livestock use.
The Tanzanian Government has decided that the implementation of water supply projects in rural areas should be finished by 1991

which year has been taken as the termination of the master-plan
period. For Shinyanga Region this means that by that time about
2 million people have to be provided with an improved water
supply. At present improved supply schemes are estimated to
serve only some 60,000 people in the Region.

The role of the sociological studies was especially to
determine the necessary demographic data and projections over
the plan period, to study water consumption and general
attitudes towards water and to propose a basis for a priority
ranking of projects to be implemented.

Chapter II   SUMMARY

II.1.   <u>Demography</u>

The population Census of 1967 (ref. 21) has been used as a
basis. Additional information has been gathered by:
-    interviews held at Ward headquarters covering all villages
     in the Region;
-    more detailed interviews in 416 villages, approximately 25
     per cent of the regional total.

The definition "concentrated settlements" in this report
applies to villages with a partly or mainly concentrated
settlement pattern and a probable population of 400 people or
more in 1972. "Scattered settlements" are all other villages.
The survey has covered all concentrated settlements existing in
1972 in detailed interviews.

In 1967, 3 per cent of the Region's population of 899,500 lived
in towns, 20 per cent in concentrated settlements and 77 per
cent scattered.
People dependent for their livelihood on the agricultural
sector constituted an estimated 95.6 per cent of the total
population. This group is referred to as "farmers".

Agriculture will remain predominant in the regional economy.
Only a slight decrease in the proportional size of this group
is anticipated during the implementation of the master-plan up
to 1991. Annual growth of the category "farmers" is estimated
at 2.7 per cent versus an overall population growth of 3.0 per
cent for the Region. On this basis, "farmers" would constitute
89 per cent of the total population of 1.83 million by 1991.

It is assumed that concentrated settlements existing in 1972
grow by 3 - 5 per cent per year, depending on the population
size.
For the District capitals (Bariadi, Nyalikungu and Kahama) the
rate is taken to be 5 per cent, and for Shinyanga-town 8 - 9
per cent. In view of the decreasing importance of the Mwadui
Diamond mine its population is assumed to remain constant over
the plan period.

An active programme to stimulate migration and villagization
(see section II.4) may be assumed to come into effect by 1976.
The new concentrated settlements to be built under this
programme would then help to reduce the proportion of the
scattered population to 55 - 60 per cent of the total in 1991.
Less than 5 per cent would then live in towns in 1991, 21 per
cent in concentrated settlements existing in 1972, and 19 per
cent in new concentrated settlements established between 1976 -
  1991.

As little is known about population and cattle movements into
or out of the Region, and data similar to that elaborated on by
the survey could not readily be found in the adjacent areas,
Nedeco was necessarily forced to consider Shinyanga Region as a
single entity.

II.2. Water consumption

Most people in the Region prefer to use a water source within
500 - 800 m of their house. It is clearly felt as a hardship if
the source is further than 15 minutes walking-distance.
Economic activity (farmer or non-farmer), household size and
distance proved to be the factors influencing the water
consumption at public taps. Education, the type of supply, and
storage facilities proved to have an insignificant influence.
Although water is drawn throughout the day two peak periods
have been noticed in the demand of the rural household group,
one in the early morning from 7 - 9 a.m., the other one late in
the afternoon (5 - 6 p.m.).

In many villages it appears that there is no well-based opinion
on the quality of the water consumed. Treatment by the consumer
is seldom practised.
Water drawn from a public tap in a piped supply scheme is
generally regarded as completely safe.

It is recommended that the design of water supplies be based on
a net human water consumption of 20 l/caput for drawers at
public taps (referred to as domestic points) and on a gradually
increasing consumption for consumers served by private house
connections, from 100 l/day.caput at present to 150 l in 1991.
The design of water supplies to trading centres should include
an additional demand equivalent to 20 per cent of the domestic
consumption of the centre's population.
Unless specific data are available the water consumption of
health centres or dispensaries with a clinic may be taken at
2 m3/day, schools at 5 l/day per student with a minimum of
1.5 m3/day, bars and hotels and (other) unmetered private
connections at 1 m3/day. Separate evaluations are necessary for
hospitals or small industries, for which reference is made to
Technical Annex E (which also deals with the water provision to
cattle) and Technical Annex G.

It is recommended to promote understanding of the importance of
adequate water supply, especially as far as quality is
concerned, among the rural population. The population's
involvement in the construction of improved sources, and in
particular in their maintenance, should be stimulated. In the
long run this might lead to institutionalization at village
level of social structures which could share responsibility for
the village water supply with the authorities concerned.

II.3. Priority ranking of projects

The duration of the master-plan, the large number of supplies
to be constructed, and the limited available resources in terms
of manpower, technical facilities, funds etc. make it indispen-
sable to develop a system by which the implementation sequence
of various possible schemes can be weighed. In this report a
system is proposed to judge the preliminary water development
priority of projects on the basis of a set of objective factors
relating to "water need" and "development potential", the
latter comprising infrastructural and demographic significance
and agricultural development potential. The final priority
ranking, which is derived from the preliminary ranking
mentioned above by comparison with economic, financial,
technical and organizational criteria, is set out in Technical
Annex H.

The information gathered on 416 villages interviewed in detail
has been used to draw up a preliminary water development priority
ranking for individual projects. Bariadi District has the
largest proportion of high scoring villages; Kahama District
has the smallest, due to a low water requirement at present and
rather favourable opportunities to exploit shallow groundwater.
One should, however, be very careful in extrapolating the
results of this ranking over areas as the villages were not
chosen at random. An extrapolation should only be used for
comparing two individual schemes.

A simplified system has been made to weigh the priority of
whole areas the 95 Wards of the Region being used as units. In
this case, Kahama has the largest proportion of high scoring
Wards followed by Maswa, Shinyanga and Bariadi Districts being
approximately equal.
This system is recommended if the priority of the water
provision to whole areas is in question.

II.4. Regional development and the planning of water

supplies

Optimum yield from the investment to be made in water supply
will only be achieved if the water master-plan is considered
not on its own, but as an integral part of a regional develop-
ment plan in which the provision of water, together with other
necessary facilities and utilities, is used to stimulate socio-
economic development.
In the absence of a regional development plan Nedeco has
outlined the possibilities as far as these are relevant to
water master-planning, the drawing up to a complete plan being
clearly beyond the scope of the survey.

National policy is aimed at self-reliance in labour and gives
priority to agricultural development. In addition, almost the
entire population of the Region depends on agriculture and this

situation is expected to change only slightly in the master-
plan period. In this framework the major aim of a regional
development plan is the optimalization of the average income
derived from this sector by the rural household or a co-
operative group of households. Technical Annex E deals with
this aspect. It is concluded that migration of part of the
rural population from areas already (too) densely populated to
new development areas should be stimulated.
Annex E discusses several alternatives. In the present report
the implications of the population distribution over the
master-plan period are considered for the two alternatives
which appear most attractive. The conditions to be fulfilled to
optimalize the agricultural sector would have to include both
further modernization of agricultural methods and reduction of
the livestock herds in order to free land for more profitable
crop production and to prevent to erosion resulting from
(heavy) overgrazing which is already noticeable in several
parts of the Region.

The introduction of new methods, optimal use of extension
services, communical grazing land etc. will be much easier if a
settlement pattern with concentrated villages is realized. The
provision to these settlements of water and other facilities
required will be much facilitated by a concentrated settlement
pattern. It is therefore assumed that the opening up of new
development areas will be based on a settlement structure
characterized by centres of various importance, ranging from
agricultural villages to local centres, areal centres and
district or divisional centres with corresponding levels of
demographic and infrastructural significance.

The alternative migration models considered in this report both
assume that from 1976-1991 a total of 228,000 farmers will
actually resettle in new concentrated villages in development
areas. Inclusive of natural growth and a category of non-
farmers these villages will be inhabited by 330,000 people in
1991.
The alternative models differ in the selection of areas where
emigration should be stimulated. A special problem in this
respect is formed by the southern parts of the divisions of
Negezi, Kishapu and Meatu (agronomic zone 6, see Annex E
fig. V.1 for indication of zones), where livestock keeping is
recommended with food crop cultivation for own consumption
only, whereas in other zones livestock keeping is only
recommended as a marginal activity. This calls for a decrease
of the population of zone 6 in relation to other areas.
Therefore in the first alternative dealt with it is assumed
that priority will be given to restructuring of agriculture in
and stimulation of emigration from the densely populated
division outside zone 6, which itself is tackled in a later
phase after the end of the master-plan period (1991). In the
second alternative, zone 6 is dealt with in the preliminary
phase of the implementation of a regional development plan,
from 1976 onwards.

Emigrants are supposed to come from the category of the scattered living population, from areas ranked in order of declining population density. On the basis of these assumptions the population distribution is calculated over the plan period at target years with intervals of 5 years differentiated according to type of settlement as required for the planning of water supplies (see Technical Annex G).

The calculations, performed on the basis of enumeration areas of the 1967 Census, have been totalized and presented on a divisional basis in line with the accuracy of the data used and the various underlying assumptions.

The resultant picture of the population distribution, which is further used in Technical Annex G to plan the water supplies required, consists of:
- Towns, locations known and population estimated over the plan period (87,000 in 1991).
- Concentrated settlements existing in 1972, a total of 199, of which the locations are known and the population has been estimated over the plan period (375,000 in 1991).
- New concentrated settlements built in development areas. The location are not known in detail, only the general water characteristics of the area can be evaluated. By 1991 a total of 34 areal centres, 79 local centres and 323 agricultural villages are assumed to accommodate 330,000 people.
- Scattered population. This category has been differentiated on a divisional basis over the plan period according to those living in:
  (i) low density areas where for reasons of economy the application of a maximum distance of 1.5 km to a source cannot be maintained as design criterion;
  (ii) medium density areas where the design criteria can be applied without modification;
  (iii) high density areas where the plannning of water supplies must take into account that emigration from these areas should be stimulated either in the master-plan period itself or shortly thereafter, say up to the year 2000.

It should be stressed that the above results do not pretend to be derived from detailing a regional development plan but rather serve the purpose of providing a reasonable basis for water master-planning. Similarly the outlines of a regional development plan given in this report should not be used for the direct implementation.
Other fields of regional development - which have received less attention here because of their irrelevance for the water master plan - will need to be investigated to arrive at a balanced plan and detail surveys will be required to select suitable development areas.

The stimulation of development in certain areas within the context of a regional development plan implies that in the water master-plan priority should be given to the construction of water supplies for the new concentrated settlements to be established in these areas, prior to actual settlement taking place. The same holds of course for other facilities required such as medical centres, schools etc.

Chapter III   APPROACH OF THE STUDY

III.1   Available data and general approach

A clear idea of the setting in which the fieldwork was to take
place became available through two BRALUP publications "Agro-
Economic Zones of Sukumaland" and "Preliminary Report of the
Sukumaland Interdisciplinary Research Project" (ref. 19 and
20).
The available maps showed only the largest settlements. The
Regional and District Offices provided most of the recorded
data on medical, educational, agricultural, and livestock
facilities as well as information on Ujamaa villages and
existing water supplies. Nevertheless it turned out to be
necessary to obtain almost all demographic material, informa-
tion on settlement patterns, infrastructure, communications,
and existing water situation during the fieldwork itself. A
regional coverage had to be achieved by interviewing a
stratified sample.
The 1967 Population Census provided data on enumeration areas
and their population, age composition, economic activity,
household sizes etc.
Accurate topographical maps with detailed information had to
be drawn up by the survey from available 1 : 50,000 maps
covering only part of the Region, supplemented by aerial
photomosaics and photos, older geological maps, and extensive
field surveys.

The exhaustive study by White, Bradley and White on rural water
supplies in East Africa provided information on design criteria
(ref. 23). Water consumption, according to this source, is 10-
20 l/day per head for people living near a standpipe and 4-20
l/day per head for areas without a piped supply system.
The authors recommend as design principles a daily requirement
of 20-30 l/head, and a maximum distance to the source of not
more than one mile. A standpipe should not serve more than 200
people and a ringwell not more than 500 people.

In 1972 Shinyanga Region comprised three districts (Kahama,
Shinyanga and Maswa) which number later increased to four,
Maswa District being split up to form in addition Bariadi
District.
Each District is made up of a varying number of divisions which
in turn consist of Wards totalling 95 for the Region as a
whole.
The district and regional capitals have separate status.
Based on the results of a first orientation it was decided to
use the Ward as the main unit of the Sociological Survey.
Interviews at Ward and village level have been executed to gain
information on the following aspects:

-    demographical situation
-    socio-economic resources
-    water supply situation

- human water consumption and factors affecting consumption
- water quality and perception

III.2   Field-study

The actual fieldwork started in February 1972 and continued
until May 1973.
The field-study consisted of the following four parts:
1. the gathering of data on a large variety of topics
    including demography, socio-economic structure, agricul-
    ture, livestock, water-availability and topography,
    executed on an extensive scale;
2. two studies more limited in time, space and variety, which
    dealt with water consumption, the factors which influence
    the consumption, and the various ways in which water is
    perceived by the villagers;
3. the mapping of the village interviewed to obtain the
    above information (1);
4. census of Shinyanga town.
Most of the information was gathered by means of a series of
questionnaires and observations (see appendices 1 to 6).

In the first part of the study a three-stage approach was
followed. After the District Authorities had told the Wards
what the purpose of the survey was, an interviewer visited each
Ward Executive Officer or Ward Branch Chairman and, as a rule,
the Diwani, asking for permission to investigate a number of
villages. The Ward Authorities were then asked to list the
number and names of the villages in the area in question (see
app.1). With the aid of separate questionnaires (app. 2 and 3)
data was collected on the most important facilities of each
village, as well as some basic information on the situation
regarding water. In addition, the Ward Officials were
requested to mention the villages in which the greatest water-
need existed as well as the villages where demographic growth
was most noticeable. Villages fitting into these categories and
showing a potential for social and economic development, as
well as a selected number of Ujamaa localities, were chosen for
interviewing.

In a second stage these villages were visited by the inter-
viewer together with the Ward Representative, and a village
spokesman, usually a hundred-cell-leader.
The questions that proved to be cumbersome to answer, for
instance those referring to population numbers, migration and
use of agricultural inputs, were read out and the interviewee
was asked to prepare the answers. In a third stage the final
interview was held and in the majority of villages a water
sample was taken from the most important source. These samples
were analysed in Nedeco's laboratory in Shinyanga. The lengthy
procedure followed certainly had serious drawbacks in terms of
transportation required and man hours spent. On the other hand,
the positive effect from an introduction by and to local

leadership, the general absence of much basic information and
the need to cover a large number of villages in a relatively
short time rendered this approach unavoidable.
In total 416 villages were interviewed out of an estimated
total of some 1200.

The first water consumption study could be executed in a more
direct way because the interviews were held in villages
previously covered. Fourteen villages were selected according
to the following criteria:
- different types of relevant water supplies, viz. taps,
  ringwells, water-holes and springs as well as one charco
  supply;
- the presence or absence of a trading centre.
By means of 675 interviews information was gathered during a
period of three weeks in August 1972 on average amounts of
water used per head, lengths of journeys to fetch it, and
various ways in which water as a commodity was perceived as
well as some of the variables that persumably led to variations
among these.
In the second water consumption study one of the largest water
supply schemes serving two major trading centres and a number
of smaller villages and several facilities (schools, health
centre etc.) was investigated over the period from January to
May 1973. Water meters installed at 10 points in the scheme,
local censuses, observations at the source and interviews of a
more limited size provided further data on water consumption
and people's attitude towards water.

For the third part of the fieldwork, the mapping of each of the
villages, all localities in the study were revisited in a
period of about one month by one of the sociologists who
registered them on a map, and where necessary checked some of
the information previously obtained.

The fourth part of the fieldwork, the Shinyanga Town Census was
executed during a period of three days from 13-15th June 1972.

III.3   Evaluation of data

Population distribution and growth were determined and
estimated from demographic data, available from the 1967 census
and gathered by the survey. Population density maps of each
District were drawn up (maps 3.14.04-06-01 to 03).
For estimates of population growth the existing population is
distinguished in relation to the size of settlements, this
factor being of importance for the determination of the future
water demand. Moreover, the parts of the Region's population
engaged in agricultural and non-agricultural activities are
approximated.

The preliminary analysis of the interviews taken at Ward headquarters ("General questionnaire", app. 2 and "Ujamaa questionnaire", app. 3) and at village level ("Village questionnaire", app. 4) was made in Shinyanga. Detailed processing was done in the Netherlands by computer.
Results of the "General" and "Ujamaa" questionnaires have been presented cartographically, see the Ward Infrastructural Maps no. 3.14.04-06-04 to 06. Coded results of all 416 villages interviewed in detail are given in app. 7. A number of cross relations have been investigated. If they yielded significant information in either positive or negative sense these results are mentioned in this report or in Technical Annex E, Agriculture in which all data relevant to crop production and livestock keeping are presented.

A priority system has been formulated to determine a preliminary ranking order for water supply projects based on factors pertaining to both existing water need and development potential of the location or area concerned. By comparison with economic, financial, technical and organizational aspects this will be used to decide on the final water development priority ranking (see Technical Annex H).
The data of the village questionnaire was used to draw up the preliminary ranking order for individual supplies, being the 416 villages interviewed. It should however be kept in mind that this is only a sample. The results should not be regarded as representative for the entire Region.
A simplified system is proposed for the ranking of whole areas for which Wards have been chosen. In this case the general questionnaires yielded information to compose a representative picture.

The data gathered in the water consumption surveys has been used to propose design criteria for the planning of water supplies, relating the human water consumption in a scheme to the means of distribution of the water (public taps or private house connections) and the type of settlement.

Finally, water supply is considered against the perspective of regional development, which had not been formulated at the time of the survey either as a plan or as more or less clear guiding principles; this was preferred to a mere extrapolation of the existing situation from the results of the above sociological studies.

The drawing up of a regional development plan is of course beyond the scope of this study. It seems however reasonable to assume that, in keeping with the national policy of self reliance in labour and the priority towards agricultural development, and in view of the fact that almost the entire population of the Region is engaged in agriculture and animal husbandry, such a regional plan would be aimed at the

optimalization of the average income derived from these
sectors, either per family or per group of families co-
operating for instance in an Ujamaa village. Therefore Nedeco
has studied the possible development of agriculture and animal
husbandry over the period of the master-plan in outline (see
Technical Annex E, "Agriculture"). The conditions which will
have to be fulfilled to achieve such development and the
consequences which this may have on the master-plan are
considered.

The studies result in a picture of the ideal population
distribution over the Region to be realized to reach the aim of
the development plan.

A comparison with the present population pattern indicated the
areas already densely populated with little development
potential, which in future should hold a smaller proportion of
the Region's rural population.
It shows also the more promising parts of the Region, at
present less densely populated and with good development
possibilities, to which migration of part of the rural
population will become necessary. Due to the limited scope of
the studies the smallest areas considered are divisions.
The stimulation of development in certain areas within the
context of a regional development plan implies for the water
master-plan that priority should be given to the construction
of water supplies in these areas. In the system described above
to determine the preliminary water development priority
ranking, more emphasis should then be put on the factor
development potential, taking both the available and the
planned facilities as indicators.
The population of the Region, its size and distribution (as
derived on the assumption that the above changes occur),
further differentiated according to type of settlement, is
estimated at several target years over the course of the plan
period (up to 1991). These estimates are used as the basis for
the water master-plan in Technical Annex G, "Civil engineering".
Only if the provision of water is an integrated part of a
development plan can it contribute to and stimulate overall
development leading to an optimum use of the investments made
in water supply out of the various resources for implementation.

As little is known about population and cattle movements into
or out of the Region and data similar to that elaborated on by
the survey could not readily be found in the adjacent areas,
Nedeco was necessarily forced to consider Shinyanga Region as
a universe.

III.4   Personnel and equipment

Since no counterpart personnel could be made available to
Nedeco's sociological staff, it was necessary to recruit and
select interviewers on the spot.

After a two weeks' period of theoretical instruction and
another of training in the field, five interviewers remained
attached to the survey for the duration of the fieldwork. Three
of them were Form 4 leavers; the fourth, with five years'
experience as interviewer and teacher of interviewing techni-
ques, had a Standard VIII educational background. All spoke
Kiswahili and the local languages Kisukuma and Kinyamwezi, in
which the interviews were conducted.
Mention must be made of the 20 pupils of Buluba Secondary
School who in three afternoons and evenings participated in the
Nedeco census of Shinyanga Town and the adjoining urban areas
in Kizumbi Ward in a door-to-door survey.

For the fieldwork three Landrovers were used throughout the
survey. When camping was inpracticable the team was very kindly
given accomodation by local government officials and Ujamaa
villages.
Detailed processing of the data of the sociological survey was
done in the Netherlands, using a IBM computer.

III.5   References

1.   The working of Tanzania's Regional Development Fund: Its
     implications for policy-making, planning and local
     administration for development. Paul Collins. Institute of
     Development Studies at the University of Sussex, U.K.
     Comparative Administration in East Africa Conference,
     Arusha, Tanzania, 25-28 September 1971.

2.   Tanzania Second Five-Year 1 July 1969-1974.

3.   Attempts at measuring cattle water consumption at Mkata
     Morogoro. Em. K. Kwelukilwa and Symon K.P. Bandio. October
     1971. Bureau of Resource Assessment and Land Use Planning,
     University of Dar es Salaam.

4.   The economics of rural water supply in Tanzania. Dennis
     Warner, Economic Research Bureau University of Dar es
     Salaam. E.R.B. Paper 70.19.

5.   North East Nzega Planning Project, Final report. Bureau
     of Resource Assessment and Land Use Planning. University
     of Dar es Salaam. Research Report 6/10 November 1970.

6.   The extension of the Kisitwi Rubeho Pipeline: a planning
     study. S. Kajula, S. Buberwa, P.N. Mdemu, C.F. Claeson and
     L. Berry. December 1970.
     Research report no. 15 (with asking-list)

7.   A preliminary assessment of the impact of rural water
     supply upon households and villages. Dennis Warner.
     Ec. Research Bureau, University College Dar es Salaam.
     E.R.B. paper 70.12. April 1970.

21

8. Annual and forward plans 1971-1972, 1972-1973. Shinyanga
    Region. By James W. Tomecke. Regional Economic Secretary,
    Shinyanga Region.

9. Anthropological Quarterly, vol. 35. Problems of social and
    economic in Sukumaland.
    Tanganyika, Gottfried O. Martha B. Lang, April 1962.

10. Norman Nees Miller: Village-leadership and modernization
    in Tanzania; rural politics among the Nyamwezi people.
    1967. Yerox Cie, Ann Arbor, Michigan, U.S.A.

11. Water development Tanzania. A critical review of
    research.
    Research paper no. 12. Bureau of Resource Assessment and
    Land Use Planning. University of Dar es Salaam.

12. Variation in income among farming areas in Sukumaland and
    related policy implications. Dr. Arne Larsen. Inter-
    disciplinary rural research project. University College
    Dar es Salaam. East African Agriculture Economics Society
    Conference, April 1970.

13. Choice of sampling population in rural Sukumaland:
    Cooperative membership lists versus ten-cell units.
    Dr. Arne Larsen. Interdisciplinary Rural Research Project,
    University College, Dar es Salaam. East African Agricul-
    tural Economics Society Conference, April 1970.

14. Evaluation of a method of field survey: Survey by random
    sample and line-transect methods in North Pare, Tanzania.
    I.D. Thomas, Department of Geography, University College,
    Dar es Salaam, East African Agricultural Economic Society
    Conference, Dar es Salaam 1970.

15. Dennis Warner: Formulating guidelines for rural water
    investment: the case of Tanzania.
    In: East African Journal of Rural Development. Vol. 3, no.
    1. 1970.

16. Socialism and rural development. Jul. K. Nyerere.

17. A preliminary assessment of the impact of rural water
    supply upon households and villages. Dennis Warner,
    Economic Research Bureau, University College Dar es
    Salaam. East African Agricultural Economics Society
    Conference. Dar es Salaam, 1970.

18. Movement to towns in Tanzania tables and comments.
    Research notes no. 11. April 1971. Bureau of Resource
    Assessment and Land Use Planning. University of Dar es
    Salaam.
    Claes-Fredrik Claeson and Bertil Egero.

19. Preliminary report of the Sukumaland interdisciplinary research project. June 1971. Bureau of Resource Assessment and Land Use Planning. Research report no. 40. Ton Hankins, Mr. Arne Larsen, J.R. Finucane and R.H. Hills.

20. Agro-economic zones of Sukumaland. Research report no. 16. Bureau of Resource Assessment and Land Use Planning. University of Dar es Salaam, November 1970.

21. Population census 1967.

22. Impact studies of rural water supply, J.D. Heynen and D. Conyers, Bralup 1971.

23. Drawers of water, domestic water use in East Africa, G.F. White, D.J. Bradley and A.W. White University of Chicago press, 1972.

24. Impact and economics of community water supply. Agr. Dev. studies report No. 6, 1973. I.D. Carruthers.

Chapter IV   DESCRIPTION OF THE REGION

IV.1   General description

The Shinyanga Region is situated in north-west Tanzania,
between 2° and 5° southern latitude and 31° - 35° eastern
longitude. It resembles a giant butterfly on its way to Lake
Victoria. With a wingspan of some 450 kilometres and a length
of 60 - 200 kilometres it covers roughly five million
hectares.
The western and southern boundaries mainly follow rivers and
lakes. The eastern boundary runs through the Serengeti National
Park. In the north the distance between the regional boundary
and the shore line of Lake Victoria varies from 20 - 100 kilo-
metres.
The Region is divided into four Districts, Kahama, Shinyanga,
Maswa and Bariadi with district capitals of the same names.
Actually, the present Bariadi District formed part of Maswa
District until 1973. The Serengeti National Park, comprising
game and forest reserves, covers about 35 per cent of the
Region's total area of some 50,100 km2 (see table IV.1, Tech-
nical Annex E for detailed figures).
The total population of Shinyanga Region in 1972 was estimated
at about 1 million people.

Taking into account the characteristics of rainfall and
temperature, the Region has a semi-arid tropical climate. The
distinction between seasons is based only on differences in
rainfall, other climatological parameters being fairly constant
throughout the year. The wet season is usually from November to
the beginning of May. Average yearly rainfall is about 700 mm.

The monthly average of the maximum daily temperature is fairly
constant throughout the year. Its value ranges from 29° C
(March-June) to 32°C (October). The minimum daily temperature
varies from 15° C in June-July to 19° C in the last three
months of the year.

The elevations in the Region are between 1500 metres above sea
level near the border of the Serengeti Park in eastern Maswa
District and 1100 metres where the Sibiti, Isanga and Moyowasi
rivers leave the Region.

With reference to the infrastructure of the area it can be said
that the Region lacks bitumenized roads, with the exception of
a few in Shinyanga town and in the Mwadui mines, although a
number of all-weather roads exist connecting the main centres
with Mwanza, Tabora and Dar es Salaam. Projects to bitumenize
the Mwanza-Shinyanga road and/or to incorporate part of
it in a new road from Mwanza to Arusha are still being
considered. The realization of the latter project will
certainly stimulate the development of the Region.
The Region is served by the Mwanza-Tabora railway, which has

nine stations in the four Districts. Airstrips are located near
the district capitals of Kahama, Maswa and Shinyanga and there
is one larger airfield serving the Mwadui mines. Apart from
diamond mining at Mwadui and cotton ginning the Region's
economic activities consist of agriculture, with cotton as the
predominant cash-crop, trading and the administrative services.
The latter are mainly concentrated in the regional and district
capitals; medical and educational facilities are dispersed over
the Region and as a result of their frequent mission origin are
often as isolated as the homes of most of the population.
There are three government and one voluntary agency hospitals
in the Region with a total of some 470 beds, about 0.5 beds per
1,000 inhabitants, one of the lowest ratios in the country.
When the nine rural health centres supervising a total of 106
dispensaries are taken into account, the ratio appears more
favourable. However, lack of personnel with the necessary
educational attainment, poor hygienic conditions and inadequate
water provisions make an ungrading of the services provided
urgently necessary.
Shinyanga Region has the lowest school enrolment ration in the
country. According to the 1967 Population Census about 31 per
cent of the children in the standard I age-group then attended
school here as compared to the national average of 45 per cent.
One is inclined to attribute this state of affairs to the
relative isolation from missionary and central government
activities of much of Sukumaland until the end of the second
world war. On the other hand is has been and still is noticeable
that the Sukuma are not very anxious to get formal education
for their children, whose labour is needed on the family farms.
There are 175 government primary schools in the Region of which
115 are lower, 39 extended primary and 21 upper primary. In
addition there are three secondary schools, one of which is
private, while a Teacher Training College is to be opened at
Old Shinyanga in the near future. The Mwadui mines operate a
private agricultural training school.

IV.2.   Socio-economic areas

Although there are no strongly contrasting variations within
the Region and boundaries between areas are not clearly
defined, it is possible to distinguish areas that differ from
each other in social and economic content. As is generally the
case with environments where the subsistence sector is of
importance, these differences are to a large extent still
determined by natural factors such as topography, climate,
availability of productive land, and so on. It is likely that
these variations will even out, shift locations or become more
accentuated as a result of the Region's increased material
development, which tends to overcome natural limitations.

The picture presented in the following sub-sections (ref. 20)
therefore merely claims to represent temporarily the actual
state of affairs. For more detailed descriptions on hydrology,

geology or the state of agriculture and animal husbandry, reference is made to the relevant sections of the Technical Annexes A, C and E.

IV.2.1.   Area 1, central Shinyanga, west Maswa and south-
           ----
           west Bariadi Districts

The area runs like a broad strip of land diagonally from the south-west to the north-east of Shinyanga, continuing the northwards through Maswa and Bariadi Districts up to the Dutwa ward in Ntuzu division. It roughly coincides with the Itwangi, Samuye and Mjini divisions, the western part of the Negezi and Kishapu divisions and the eastern part of the Mondo division and further includes Nunghu, Sengerema, Itilima and the south-western part of the Ntuzu divisions (see fig. IV.1).

It is a flat to undulating zone broken up by granite outcrops, and river valleys. Most of what must have been woodland has been stripped while erosion has caused considerable damage in places.
The population is mainly Sukuma who account for the earliest settlements in the Region in west central Maswa/Bariadi, in the central part of Shinyanga District, in the Samuye, Itwangi and Mjini divisions.

The majority of the Shinyanga Region population is concentrated in this area. Apart from local exceptions most of the productive land has already been put into use or lies fallow for periods that can last to twenty years. The area has experienced the greatest material change in comparison to other parts of the Region.

The economy is based on agriculture, trading, mining, industry, the services and animal husbandry. Numerous trading posts traditionally run by Arabs and Somali dot the countryside, selling general merchandise and frequently forming the nuclei of larger settlements. The presence of the Williamson Diamonds mine at Mwadui, of which the employees and their families number some 7,000 people, has been and still is of considerable direct and indirect influence on the economy.
Three cotton ginneries seasonally employ a further thousand people.

The largest towns of the Region lie within the area including the administrative centres of Shinyanga town and Nyalikungu (Maswa-town). The former Sukuma Federation capital of Malya, though just outside Shinyanga Region, actually belongs to this area.
The predominance of livestock is both a blessing, in the sense

Fig. IV.1   Socio-economic areas (divisional names in capital letters)

NTUZU

Serengeti
national park

3

ITILIMA

KANADI

● Bariadi

SENGEREMA

NUNG'HU

● Nyalikungu
(Maswa)

MWAGALA

6

MONDO

NINDO

1

5

MSALALA

MJINI
● Shinyanga

4

SILOKA

KISHAPU

MEATU

Lake Eyasi

7

Kahama ●
KAHAMA

SAMUYE

NEGEZI

Kigosi
game
reserve

2

ITWANGI

manonga river

Lake
Kitangiri

DAKAMA

MWELI

26
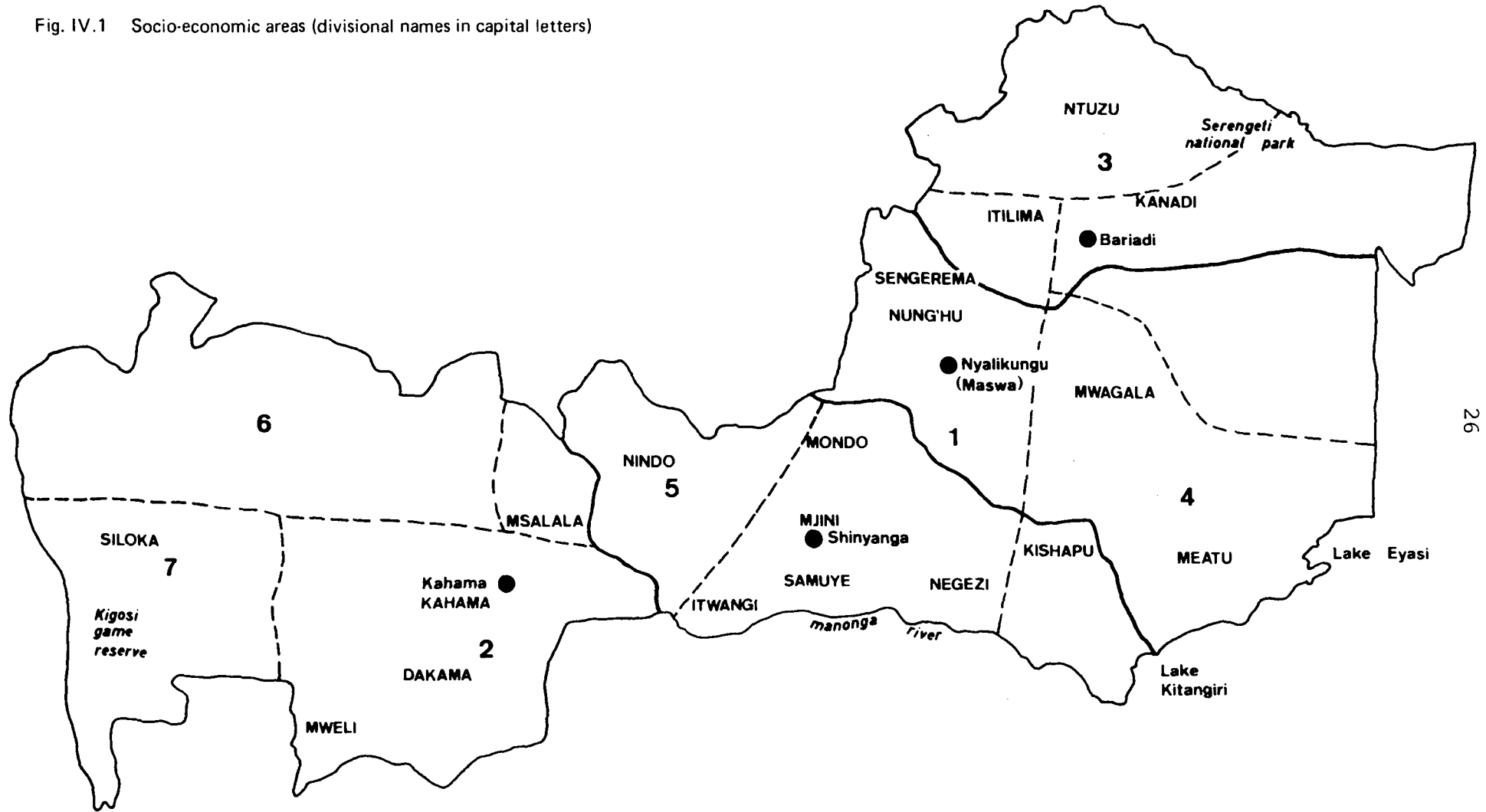
that it represents wealth and security, and an increasing
nuisance in that land suffers from heavy overgrazing.
In addition the railroad and several all-weather roads which
run through the greater portion of the area are undoubtedly
both cause and consequence of the relatively greater development
vis à vis the rest of the Region.

IV.2.2.   Area 2, south-east Kahama District

The area comprises the Kahama and Dakama divisions, the eastern
part of the Mweli and the southern part of the Msalala
divisions.
Topographically it shows a strong resemblance to the previous
area, with less granite outcropping, more low bush and some
forest. The population is mainly of Nyamwezi origin with an
important Sukuma component; the density is lower than in the
first area. The main sources of livelihood are agriculture
carried out with less use of agricultural inputs, and animal
husbandry with a lower overall stock density than in the first
area, although large herds occur.

On account of its more recent, often Sukuma settlement, much
bushland has still not been taken into production, while the
farm soil is not as depleted as in the previously described
zone.
Apart from the district capital Kahama-town, no large settle-
ments are to be found in the area. Material development has not
reached the levels previously depicted; the area seems to be
open for increased development.

IV.2.3.   Area 3, north Bariadi District

The area includes the northern part of the Ntuzu and the north-
eastern part of the Kanadi divisions, bordered by the Serengeti
National Park in the eastern Bariadi District.

This is a flat open plain with wide shallow river valleys with
higher rainfall in the most western part and less than the re-
gional average in the eastern part, and with very little erosion.
On account of its proximity to the Serengeti plains with their
tsetse and wild animal hazards, the area has only recently
attracted meaningful numbers of settlers, so that new land is
still available and farms tend to be of larger size than in the
previous two zones.
The population density is low, inhabitants are of Sukuma
extraction with a number of Luo in the north-east.

Livelihood depends entirely on agriculture and on livestock,
with herds decreasing in size towards the east.
Land is not depleted nor heavily grazed; whatever settlements
are to be found are small in population size, homesteads tend
to be very dispersed. Although little investment has been made
in the area in regard to communications and services, its low
population density and suitable soils offer possibilities for
further development.

IV.2.4.   Area 4, south-east Shinyanga and east Maswa

           Districts

The area roughly overlaps the Mwagala and Meatu divisions in
Maswa District as well as the south-eastern part of the Kanadi
division in Bariadi District and the southern parts of the
Negezi and Kishapu divisions in Shinyanga District. Its
physical make-up is more heterogeneous than those of the zones
previously described. The eastern part of the area bordering
Serengeti has a hilly, bushcovered profile with fairly well
defined streams. In the west this gives way to slighty
undulating countryside broken up by granite outcrops and wide,
shallow river valleys.
In the south towards the Eyasi and Kitangiri lakes the large
open mbuga-plain is predominant, extensively used for grazing
purposes but with few permanent habitations. Average rainfall
decreases in the southern part where rainless spells of some
months occur more frequently even in the wet season.

The western parts have a population density resembling that of
area 1 (see sub-section IV.2.1.); people from Sukuma stock are
predominant. The population pressure is much lower in the
eastern part towards the Maswa game reserve where tsetse and
wild animals discourage settlement.
The population in the south is restricted to Luo and Chagga
fishermen on the lakes and Sukuma, Taturu and Masai herds on
the mbugas.
Cotton and cattle dominate the economy of the west, where as a
result of heavy grazing and scarcity of fertile land large
tracts have been reduced to waste. Together with the south
where very little farming is undertaken, these parts have the
highest cattle to man ratio of the Region with herds probably
averaging over a hundred head.

The eastern part has a very low population and cattle density.
Small subsistance plots and tsetse resistant small livestock
are the main sources of livelihood.
Apart from the west where cotton has brought relative wealth,
the area is poor in infrastructure of any kind.

IV.2.5. Area 5, north-west Shinyanga and east Kahama Districts

The fifth identifiable area consists of the western part of the Mondo and Nindo divisions and the north-western part of the Msalala division across the Isanga river in Kahama District. As was the case in area 3, this area is best described as a flat, open, grassy plain occasionally interrupted by bushland, stone outcrops in the north and swamps bordering the Isanga river.

The majority of the inhabitants in the area are Sukuma, most of whom live in the main settlements connected to each other by an all-weather road running from Old Shinyanga into Geita District (Mwanza Region). The area outside this strip is very sparsely populated. However, its north seems to attract increasing numbers of settlers from the Geita and Shinyanga Districts.

The economy is based on agriculture and animal husbandry, neither of which is hampered by land shortage or erosion. Cotton is the important cash crop and the number of livestock per head of population is high.
In view of its low population density the area seems to have a potential for further development.
The grassy plain of the Nindo and Msalala divisions, however, has not as yet attracted any permanent habitation, on account of its heavy, poorly drained soils, which render cultivation difficult, and its type of vegetation, which discourages cattle grazing.

IV.2.6. Area 6, north Kahama District

The north-western Msalala and the northern Siloka divisions form a sixth entity. It is undulating forest and low bushland in which relatively small and widely scattered parts have been cleared for habitation. The population is mainly of Sumbwa stock whose numbers decrease towards the west, where Nyamwezi become predominant. Sukuma settlers are moving in from Geita District.

The economy is based on a subsistence type of slash and burn cultivation, on honey collection and small livestock. Agriculture is entirely conducted without the aid of modern innovations.
Modern infrastructure hardly exists, there are very few roads.

IV.2.7.   Area 7, south-western Kahama District

The remaining part of the Siloka division in the Kahama District forms the last area. It consists almost entirely of the Nikonga River Forest and the Kigosi Game Reserves, a flat forest, covered with an almost zero human population due to the presence of tsetse and dangerous fauna.

The very few Sumbwa settlements are small in size and widely scattered.

The economy consists of a subsistence type of agriculture, hunting and honey collection. Apart from some small stock, animal husbandry is negligible.

IV.3.   Demography

Most countries in Africa have high rates of population growth. Recently published figures covering the period 1960 - 1969 show that 23 out of 54 countries surpass the rate of 2.5% per annum. Only a few countries in Africa, with a total population of approximately 15,000,000, have a growth rate of less than 2.0% per annum.
This strong population growth complicates the attempts of the African governments to achieve improvement in the living conditions of the population (education, health). Such complications are to a large extent caused by the limited opportunities for domestic saving, which are a direct result of the low income levels prevailing in large segments of the population.
The IBRD (World Bank) estimates that the population growth in Tanzania has averaged 2.5% per annum over the last decade.
For the Shinyanga Region, Nedeco assumes an annual growth of 3 percent over the entire master-plan period.
Based on the figures of the 1967 Census the total population of the Region may be estimated to be over 1 million (1,043,000) in 1972.
This has put the Shinyanga Region, with an average population density of 20 per square kilometre (against a country-wide average of 14/km2), among the four most heavily populated of the 18 Regions in Tanzania in 1967.
However, figures vary sharply within the Districts, with Shinyanga featuring among the most densely populated areas of Tanzania and Kahama among the least. At sub-district level even greater variations are found. The socio-economic area 7 in the extreme western part of the Region and the eastern part of area 3 both have a zero density.
The socio-economic areas 6,5, with the exception of Salawe Ward in the south, and the eastern and most southern parts of area 4 are sparsely populated.
The western part of areas 3 and 4 have a moderate density. Most people in the Region are concentrated in a broad strip in area 1.

Most sources agree that the Bantu speaking people of whom the Sukuma-Nyamwezi form part entered the area south of Lake Victoria from Bukoba on the west of the lake, settled themselves in Mwanza and more recently in Kwimba and Geita Districts. The earliest Sukuma settlements in the Shinyanga Region are to be found in west Bariadi (Itilima division) and in the central and south-west parts of the Shinyanga District, socio-economic area 1.

Shortage of land is now causing population movements into north-eastern and south-eastern Kahama (Msalala, Mweli and Kahama Divisions), into north-eastern Bariadi and the south Maswa Districts (Kanadi, Ntuzu and Meatu divisions) and in particular across the Manonga river, the southern border of Shinyanga District into the Nzega District of the Tabora Region (fig. IV.2).

The design criteria proposed for rural water supplies in Technical Annex G recommend the construction during the master plan of piped supply systems with public taps in existing concentrated settlements with a population of more than 400 people in 1972.
Therefore a significant part of the demographic analysis in this report deals with a differentiation in type of settlement. The demographic data and calculations in this report are based on the following sources:
-    The population Census of 1967, of which the results have been used to compose the population density maps 3.14.04-06-01 to 03.
-    Nedeco's sociological surveys, which provided the necessary information on types and sizes of settlement in 1972.
-    The Nedeco census of Shinyanga town of June 1972.
On the district maps 3.14.04-01-01 to 03 all settlements interviewed by the sociological team have been geographically located. They have been categorized as either "concentrated" or "scattered settlements", which terms will be further used throughout this report, defined as follows:
-    concentrated settlements are villages which show a partly or mainly concentrated pattern and had a probable population of 400 or more people at the time of the survey in 1972;
-    scattered settlements are all other villages;
All "concentrated settlements" in the Region have been interviewed and indicated on the maps. The coverage of "scattered settlements" is about 25%. Appendix 9 gives the number of concentrated settlements per division broken down in two sizes: 400-800 and more than 800.Table IV.1 gives a summary of these data with further differentation of sizes.

The sixth column of this table lists the towns of which the population of Kahama and Nyalikungu (Maswa) was not actually determined, but estimated from the 1967 figure (See appendix 11) by applying a yearly growth rate of approximately 5%. Two towns

Fig. IV.2   Migration patterns

NTUZU

Serengeti national park

KANADI

ITILIMA

● Bariadi

SENGEREMA

NUNG'HU

● Nyalikungu
(Maswa)   MWAGALA

MONDO

NINDO

MSALALA

SILOKA

MJINI
● Shinyanga

KISHAPU

Kigosi game reserve

MEATU

Lake   Eyasi

Kahama ●
KAHAMA

ITWANGI   SAMUYE   NEGEZI

manonga   river

Lake
Kitangiri

DAKAMA

MWELI

32
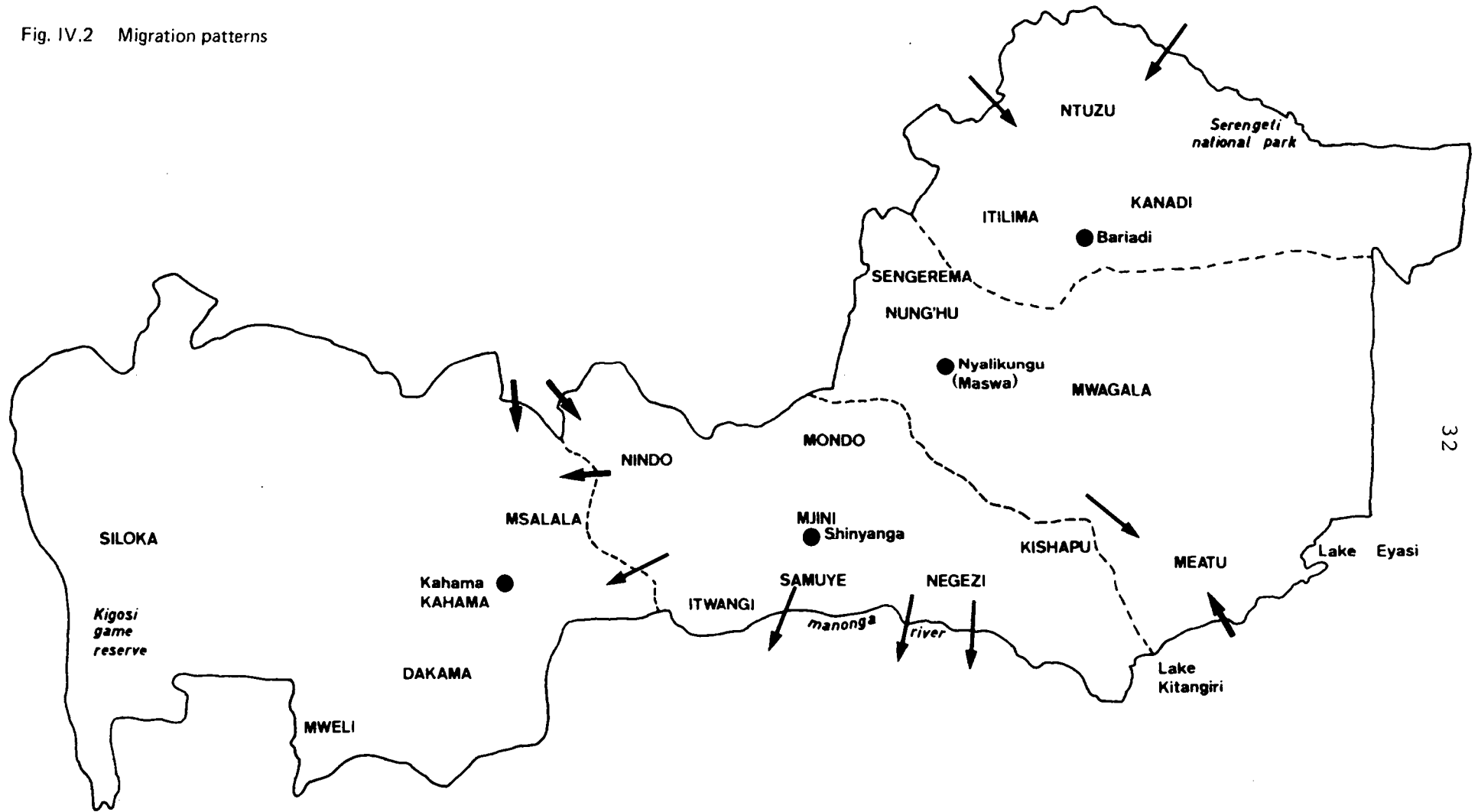
in the Bariadi and Maswa Districts, Bariadi and Malampaka, were covered by the survey.

Table IV.1   Summary of the number, size and population of concentrated settlements in 1972

District	concentrated settlements in rural areas								towns		total
	400-1,000		1,000-2,000		2,000-4,000		4,000				
	number	popul.	number	popul.	number	popul.	number	popul.	number	popul.	population
Kahama	27	16,500	2	2,200	—	—	—	—	1	4,100	22,800
Bariadi	16	11,700	15	20,800	4	14,300	2	11,200	1	1,300	59,300
Maswa	24	15,500	13	17,400*	4	10,600	—	—	1	6,000	49,500
Shinyanga	71	45,900	17	21,400	4	11,700	—	—	2	19,500	98,500
Region	138	89,600	47	61,800	12	36,600	2	11,200	5	30,900	230,100

* inclusive Malampaka township

The results of the Nedeco census of June 1972 were used for the demograpic data of Shinyanga town (See appendix 10).
Finally Mwadui was estimated on the basis of the 1967 figure (7,383) at some 8,000 in 1972 and it has been assumed that this number will remain constant during the master-plan period.
The total number of concentrated settlements with more than 400 people is 204, the category 400-1,000 and 1,000-2,000 being particularly meaningful; 95% of the concentrated settlements belongs to the category of 400-2,000 inhabitants.
The table shows that 3% of the population lives in towns, whereas only 20% of the total population is located in concentrated settlements.

The data on concentrated settlements gathered by the Nedeco team in 1972 have been used to determine the population distribution for 1967, according to type and size of settlement, by the following procedure:
- the total population of an area is known from the population Census of 1967;
- the population of district capitals (Bariadi included) and Mwadui is also based on the data of the 1967 Census;
- the differences between the above figures for each area constitute the rural population in 1967, divided into population of concentrated settlements in rural areas and scattered population;
- the population of concentrated settlements in rural areas in 1967 is assumed to be in proportion to the population of those settlements in 1972 by a factor 1 : $(1.03)^5$. For further use of these figures the town of Malampaka is included in this group. The growth rate of 3% per annum over the period 1967-1972 has been applied to all villages, as this figure equals the assumed overall growth of the Region's population, and is considered in line with the growth rate for settlements of 400-2,000 people (see section VII.3.);

- the balance of the rural population in 1967 is the
  scattered population (which includes partly or mainly
  concentrated villages with less than 400 people in 1972,
  according to the definition given before).

The resulting 1967 population distribution is given per
division in appendix 11 and summarized in table IV.2.

Table IV.2   Summary of the 1967 population distribution according to type of settlement

District	Total population (source: Census 1967)	population district capitals and Mwadui (source: Census 1967)	total rural population (rounded)	population concentrated settlements rural areas (rounded)	scattered population (rounded)
Kahama	147,628	3,211	144,400	16,200	128,200
Bariadi	206,304	1,095	205,200	50,100	155,100
Maswa	224,612	4,726	219,900	37,500	182,400
Shinyanga	320,924	12,518	308,400	68,100	240,300
Region	899,468	21,550	877,900	171,900	706,000

note: in actual fact Bariadi District was only formed in 1973, having previously belonged to Maswa District

The Population Census of 1967 allows a further analysis accor-
ding to the type of economic activity. A summary of the data
for Shinyanga Region is given in table IV.3.

Table IV.3   Summary of results of 1967 Population Census on employment of population in Shinyanga Region

economic group	sector	number of people	sector total	total population (stated)
I employed[+]	total stated	473,634	-	53.5
	professional, administrative, executive, managerial and clerical workers	4,323	0.9	0.5
	agriculture, livestock etc.	452,885	95.6	51.2
	mining and industries	6,927	1.5	0.8
	shopkeepers/salesmen	3,047	0.6	0.3
	others	6,452	1.4	0.7
II unemployed	total stated	411,058	-	46.5
	children 0 - 9 years	321,222	78.1	36.3
	adults over 60 years	24,476	6.0	2.8
	others	65,360	15.9	7.4
total stated (I+II)		884,692		
non-stated		14,776		
total population		899,468		

"people engaged in per cent of" spans sector total and total population columns.

+   according to the definition used in the Census "employed" refers to anyone who is gainfully occupied (see vol IV, ref. 21)

It appears that 95.6% of the economically active population was engaged in agriculture and livestock-keeping in 1967.
In view of the composition of the non-active segment of the population, it has been assumed that a simular proportion of this group depends for their living on people engaged in the agricultural and animal husbandry sector. The Region's population in 1967 can consequently be divided into two groups:
- "farmers", all people engaged in agriculture
  and livestock keeping, and their dependents   859,891
- "non-farmers", all others   39,577

total population   899,468

The development of the agricultural sector foreseen during the master-plan period (see Technical Annex E) would involve migration of the farming population from areas where a shortage of land would occur. In order to assess the implications of such a policy for the water master-plan, some assumptions have been made to determine the 1967 distribution of farmers and non-farmers according to type of settlement:
- the population of the district capitals, including Bariadi which actually became so in 1973, and of the Mwadui mines consists entirely of non-farmers;
- the population of scattered settlements, a group which according to the definition in the previous sub-section includes partly or mainly concentrated villages with a population of less than 400 people in 1972, is formed entirely by farmers;
- farmers and non-farmers constitute together the population of concentrated settlements. The ratio which can be determined for the Region as a whole is assumed to apply to the separate divisions as well.

On the basis of the above assumptions, the 1967 rural population has been broken down per division in appendix 11. A summary of the rounded results is given in table IV.4.

Table IV.4   Summary of 1967 distribution of rural population according to economic activity and type of settlement

District	total rural population	population of concentrated settlements in rural areas			population of scattered settlements (farmers)	total farmers
		total	non-farmers	farmers		
Kahama	144,400	16,200	1,700	14,500	128,200	142,700
Bariadi	205,200	50,100	5,300	44,800	155,100	199,900
Maswa	219,900	37,500	3,900	33,600	182,400	216,000
Shinyanga	308,400	68,100	7,100	61,000	240,300	301,300
Region	877,900	171,900	18,000	153,900	706,000	859,900

Whereas the above-mentioned demographic data is based on the situation in 1967 and 1972, it will be important for the future water-supply to dispose of a detailed prognosis for the Region. The evolution of the population distribution according to settlement pattern and economic activity will be discussed in the chapter VII.

IV.4. Social structure of the Region

IV.4.1. Administrative and political organization

In this country of 945,000 square kilometres with poor communications, scarcity of trained manpower and geographic and cultural diversity, but bent on a rapid increase in rural standards of living, the core of development is the Regional Administration which is closely linked with the only political party, the Tanganyika National African Union (TANU).
In 1972 a new Regional Administration in which greater powers were vested than in the previous administrative set-up, was established as the consequence of a national policy to decentralize its decision-making machinery.
The Regional Commissioner (RC) continues to combine the highest political function with a secretaryship of the Regional Branch of TANU. Enjoying the status of a cabinet-minister, he is responsible to the President, has an ex-officio seat in Parliament and a vote in the National Executive Committee of TANU in Dar es Salaam.
A Regional Development Director (RDD) is nominated as head of the Administration. He is assisted by three Staff Officers, (a Regional Planning Officer, a Regional Finance Officer and a Regional Personnel Officer).
All heads of government departments are now responsible to the RDD whereas previously they addressed themselves to Dar es Salaam.

At the regional level there is also the Regional Development Committee, chaired by the RC with the RDD as secretary, a legislative council dealing with matters of development nature and composed of Area Commissioners, Heads of Departments, members of Parliament and senior TANU personnel. This committee decides on the projects to be accepted for implementation and the budgets to be allocated. On the party side there is the regional TANU Branch.

A similar structure exists at district level.
The Area Commissioner (AC), the highest political official, is District TANU Secretary. A District Development Director (DDD) is in charge of administrative affairs, assisted by the District Planning, the District Personnel and the District Finance Officers.

Moreover the AC is chairman of the District Development
Committee, which is composed of Divisional Secretaries, Heads
of Departments, TANU Branch Chairmen, and Ward Representatives
(Diwanis), and of which the DDD is secretary.

Three levels operate under the District. On the Divisional
level a Divisional Secretary combines the highest administrative
position and the Divisional TANU Branch Secretaryship in an
area that coincides with one or more former chiefdoms. On the
party side there is the Divisional TANU Branch.

The Ward has replaced the former Sub-Division or part of it,
and is administratively headed by the Ward Executive Officer
who again is secretary of the Ward Development Committee, which
is chaired by the Ward Branch Chairman and composed of the
villages' hundred-cell-leaders. Additionally, in each Ward
there is the post of Diwani who is delegated to the District
Development Committee as ward representative.
The lowest level is composed of the villages headed by one or
more TANU hundred-cell-leaders, each representing ten-cell-
leaders, who in turn represent ten households. Hundred-cell and
ten-cell leaders form a Village Development Committee, where
village matters are discussed and requests for assistance are
formulated, passed on to the previously described committees
for comment, and finally approved or turned down by the
Regional Development Committee. The structure is summarized in
the following scheme:

- Regional development   (R.C., R.D.D., A.C.'s)
  committee   Head of Departmens,
                             M.P.'s TANU officials)

- District development   (A.C., D.D.D., Divisional
  committee   Secretaries, Heads of
                             Departments, TANU Branch
                             Chairman, Diwanis)

- Ward development   (Ward Executive Officer,
  committee   TANU Branch Chairman,
                             Hundred-cell Leaders,
                             Diwani)

- Village development   (Hundred-cell Leaders,
  committee   Ten-cell Leaders)

IV.4.2.   Ethnic differentiation

The Region is inhabited by members of at least 70 tribes but
with a heavy emphasis on the culturally closely related Sukuma
and Nyamwezi and the Sumbwa in the western part of the area.
The Sukuma account for 90% of the total Maswa and Bariadi
population as well as for 80% of the inhabitants of Shinyanga

District. At least one half of the Kahama population is of
Nyamwezi and one fourth of Sumbwa origin.
Material development is most advanced among the Sukuma and
least among the Sumbwa.
People of Iramba extraction are settled in the areas bordering
Lake Kitangiri, and the largely pastoral Taturu of Nilo Hamitic
stock share the south eastern part of Maswa near Lake Eyasi
with Sukuma, Iramba and some Luo fishermen.
A number of Asians are to be found in the towns.
Arabs and Somali have settled in rural trading centres as
shopkeepers and general merchants.

IV.4.3.   Settlement patterns

Most of the rural population live in dispersed homesteads, the
remainder having gathered in towns, trading centres and concen-
trated settlements of which the largest are found in south-
eastern Shinyanga District. Each of the homesteads is as a rule
separated from its neighbours by a few hundred metres to a
kilometre of land enabling the farmer, who has little to fear
from outside menace, to live in his home close to his fields.
These homesteads (of Kayas) consist of up to half a dozen huts,
grouped together and often surrounded by a sisal or thornbush
fence within which livestock is herded for the night.
This arrangement reflects the traditional polygamous family
structure in which a man lives with his various wives, each of
whom inhabits a separate hut with her children, and in which
other close relatives may be occasionally included.
The material from which these huts are made depends on what is
available.
The majority of them are rectangular and made of mudbrick,
covered by a grassroof laid out on a frame of wooden poles.
Arab influence is supposedly associated with the predominance
of flat roofed (tembe type) houses in certain parts of the
Region. Roofs are covered by corrugated iron sheets, whenever
the owner can afford them. In the forested areas of Kahama,
Bariadi and Maswa, wooden huts are general; they are made out
of branches filled up with tussocks of grass and often covered
with turf.

Up to a hundred of these homesteads loosely grouped together
form a Kibanda, (pl. Vibanda), a social unit characterized by
the observance of traditional relationships. These Vibanda,
where family ties are frequently strong and where certain tasks
pertaining to agriculture and house building are carried out on
the basis of mutual help, have served as models for the Ujamaa
villages favoured and encouraged by the government.
The prevailing settlement pattern in the Region is therefore a
widely scattered one; houses dot the countryside like the
Baobab trees.

Villages in the sense of concentrated settlements are still exceptional. This survey has found that only a small number of the administrative units that carry the name village (or Gunguli) and consist of several Vibanda have a mainly concentrated pattern. The remainder were either partly concentrated with some of the population living in one or two nuclei, often around a number of shops, and the rest dispersed over a larger area (some 25%), or showed a totally scattered pattern of settlement (65%).

By far the majority of Ujamaa villages, or rather Ujamaa sites, coincide with or are part of longer established villages or of Vibanda and consequently do not vary in lay-out from the ones described above.
The more recently built Ujamaa sites have followed a concentrated pattern. Their population is small, often less than 100 people.

No accurate information was obtainable concerning surface areas of villages. It has been observed, however, that these vary considerably. A village survey conducted in 1948 by N.V. Rounce (ref. 22) and including a number of villages that lie within the present Shinyanga Region mentions surface areas from 0.4 to 41.9 square miles. It is obvious that the provision of facilities such as adequate water supplies to these largely scattered populations will involve a proportionally large investment per head, bearing in mind that people generally fetch water from the nearest source, either traditional or modern.

IV.5   Infrastructure and facilities

For communication purposes within the Region neither the Mwanza-Tabora railway, the small airstrips near Shinyanga, Kahama and Nyalikungu, nor the private airfield of the Mwadui mines are of any importance. Inter-regional transport and traffic take place predominantly by road. More or less regularly scheduled bus services are available in most parts of Shinyanga Region, but their operation in the wet season is hampered by road conditions.
The only main roads, a definition which is understood to apply to roads which are passable throughout the year, have a minimum width of some 5 metres and a surfacing of (layers of) granular material, are those connecting Shinyanga town with the other District capitals and with the adjacent Tabora and Mwanza Regions. As maintenance is apparently restricted to infrequent grading, and refilling and redistributing the granular material is only done incidentally, the surface has deteriorated rapidly. Bituminized roads are not found outsite Shinyanga town and the compound of the Mwadui mines.
A further distinction can be made between all-weather roads, dry weather roads and tracks. The last term is used when the alignment is apparently not the result of a technical study,

design or construction job but has rather developed by motor
vehicles using existing paths, cattle tracks etc. The difference
between all-weather and dry-weather roads is not so much the
general appearance of either as the fact that dry weather roads
contain sections where the road simply passes through flat
undrained areas with a heavy clay (mbuga) soil which remain
water-logged for some days after a fairly heavy shower.
Construction of both types of roads consists of clearing,
grading and the excavation of drains alongside. It seems that
(sub)soil improvement, stabilization and surfacing usually
receive insufficient attention. Local terrain conditions, both
the topography and the type of soil, determine the final
accessability of the road in most cases.
The classification of roads as indicated on the various maps
was made during approximately 20 months of intensive field
surveys a period which included two wet seasons.
The infrastructure is most developed in socio-economic area 1
(see sub-section IV.2.1). On a district basis this holds for
Shinyanga District.

The sociological survey executed at Ward-level (see app. 1) has
yielded information on the presence of some basic facilities
such as hospitals, health centres, dispensaries (with or
without clinics), governmental or private primary schools,
secondary schools, trading centres, private and public water
supplies, and further on the number of Ujamaa settlements, the
total number of all administrative village of the Ward, and the
existence of mission posts. This data is presented on the Ward
Infrastructural Maps (3.14.04-06-04 to 06).
An approximation of the Ward population according to the 1967
Census (ref. 21) has been made to enable evaluation of the
actual state of development of a certain area by relating the
available facilities to the population served. Lack of any
accurate information on the geographical Ward boundaries
necessitated the following approach, which has probably
introduced a fair margin of error.
Former sub-divisional boundaries indicated on the enumeration
area maps of the 1967 Population Census (ref. 21) were adopted
as starting data for the Ward boundaries. The locations which
had been determined in the course of the survey for all
villages interviewed were used to check the assumed boundaries,
as it was known to which Ward each village belonged admini-
stratively. Where alterations appeared necessary new boundaries
were chosen to coincide with the border lines of the most
obvious enumeration areas.
Furthermore the 1967 Ward population figures were compiled from
the Census data per enumeration area. The resulting figures,
presented on the maps 3.14.04-06-04 to 06, were rounded to the
nearest 1,000 for an estimated total population of less than
6,000 people, and to the nearest multiple of 2,000 for higher
numbers. The Ward boundaries themselves have only been given in
a stylized version which suits the administrative arrangements
but does not pretend to geographical reality.

In only one instance do the Ward boundaries established according to the above procedure appear to be in conflict with another and better defined boundary. Along its eastern part the boundary between the Itilima and Ntuzu divisions of Bariadi District locally does not agree with the administrative boundaries of the Wards Nkoma, Mwamapalala and Bunamhala (see map 3.14.04-06-06).

For a review of the agricultural services available throughout the Region reference is made to Technical Annex E, Agriculture. Maps 3.14.04-07-03 to 05 show the locations of primary societies, cotton ginneries, cattle dips, veterinary centres, etc. found to be present in 1972-73.

IV.6.   Planning and socio-economic change

The recent history of the Shinyanga Region is one marked by the occurrence of rapid change, particularily in the material spheres of life.
It is a matter of speculation which institutions have lagged behind the developments that have been stimulated in the economic and administrative sectors. But it is certain that some of the changes induced by the administrations in the recent history of Sukumaland have had different impacts on various aspects of the Sukuma society, explaining some of the inconsistencies that have hampered the implementation of policies.

Living in widely scattered human colonies that had little communication with each other, the Sukuma had a subsistence economy based on extensive agriculture and livestock keeping. Land was relatively abundant and once exhausted was merely left bare while the owner either cleared some more virgin land in his vicinity or moved away.

Seen from a Tanganyikan perspective, the Sukuma with their mixed economy, their land availability and diverse soils were better off than the purely pastoral Masai to the east, or the sedentary Gogo from the Central Plateau of the country, but less endowed with natural resources than the agricultural Haya around Bukoba or the Chagga near the Kilimanjaro.
Cotton was introduced into this economy by the Germans and greatly encouraged by the British between the two wars.
With the Arabs setting up in trading centres, the arrival of the Asian civil servants and merchants and the discovery of diamonds, the transformation into a cash economy has reached a stage where money is at present used in almost every household.

Development received its greatest impetus in the years following the second world war, when Tanganyika became a United Nations Trust Territory with prospects of independence. Sukumaland, a relatively neglected part of the country, was

selected as a prime experimental area for the implementation of
the Government's new programme.

In order to enlist the support of the people for policies
related to the rehabilitation and development of Sukumaland,
the pan-tribal Sukumaland Federal Council came into being with
a coherent hierarchy of local representative councils from
village to federation. Numerous regulations were passed
requiring farmers to plant a certain minimum of cotton and in
general to rationalize their agricultural and livestock
breeding methods.
The Sukumaland Development Scheme launched in the fifties to
increase the productivity of the land by a redistribution of
people and livestock was noteworthy. But as a result of the
unpopularity among the farmers, whose own motivations had never
been seriously considered, of the measures taken the Federal
Council disappeared and the Development Scheme was abandoned in
the late fifties.
Meanwhile on purely African initiative a co-operative movement
arose out of widely felt discontent with the existing cotton
marketing system. The result was that in 1955 in the former
provinces around Lake Victoria the Victoria Federation of Co-
operative Unions was the largest African owned and operated co-
operative organization on the continent, and virtually all
producers sold their cotton through it, see ref. 23.
Independence set a new train of events into motion. A rapid
Africanization of posts took place, traditional authorities
were disposed of and a new administration again placed a heavy
emphasis on development through the primary sector, this time
with less use of compulsion.
The results of this effort are a mixed nature and were negative
due to factors both within and outside the responsibilities of
the planning and policy agencies.
In the spirit of the Arusha Declaration and Ujamaa policy a
programme was launched with the aim of transforming the
Tanzanian society into a socialist state with the aid of
existing traditional elements.
In 1972 approximately 150 villages or parts of villages were
registered in the Region as Ujamaa units in various stages of
advancement.

It is unfortunately too early to pass valid judgement on the
efficacy of this programme as its implications are of an
overwhelmingly complicated nature, involving drastic changes in
the cultural values of a population whose traditional forms of
cooperation were restricted to the family and were even then
limited in scope.
Therefore planning and its subsequent implementation, though
relatively recent, are not new phenomena in the Region.
The fact that some of the goals were never fully reached, as in
the case of the agricultural measures taken, is due to their
attainment not being seen as a sufficient improvement to the
existing situation, or often being proved outright not to be so
from the individual point of view.

As an example, when farmers were obliged to sell off part of their cattle they were left with no security in times of crop failure, with the result that these measures created strong resentment, were rejected and finally abandoned as a policy of the Region.

Looking over the development of the last 50 years in retrospect, one can draw the conclusion that the economic and administrative sectors have undergone the most visible changes, since these were acceptable to the larger strata of the Sukuma society. Alterations in social aspects of Sukuma life (that are not of a direct conditional nature to the material or political spheres) like education, nutritional habits, family organization and settlement pattern have been less remarkable. One is inclined to believe, on the basis of the experiences described above, that an important precondition for the adoption of mutations in these value systems is their existing or prearranged desirability in the culture of the inhabitants of the Shinyanga Region.

Chapter V   WATER PROVISION IN THE REGION

The Region offers a large variety of water sources,
ranging from the highly sophisticated warm and cold water
tap in some of the urban houses to the turbid dry season
pool where both man and livestock drink for lack of
alternative. For reasons of expediency these sources have
been divided into two categories, traditional and modern,
reflecting the distinction between waterpoints of a type
dating from before the arrival of Arab and European
influences and those of a kind requiring more advanced
techniques of construction. A detailed description of the
existing water supply situation is given in Technical Annex
G, "Civil engineering".

V.1. Traditional sources

The large majority of inhabitants use water from rivers,
streams, ponds, natural or hand-dug waterholes, unlined
wells, natural springs and paddy fields.
Since settlement among the Sukuma is traditionally
strongly determined by the locality of farmland, in the
sense that farmers as a rule place a high value on living
on or very close to their plots, the distance of habi-
tations to water sources is highly variable. As a
consequence water for drinking, cooking and dishwashing is
usually carried home or hauled on bicycle or donkey, while
there is a tendency to bathe and wash clothes at the
waterpoint itself.
During the wet season, the only period that the numerous
streams have a run-off, water is collected directly from
the rivers or from pools that have formed in depressions
immediately after rainshowers. Whether consumers will turn
to whatever type of source is made available depends
mainly on distance and only in the second place on the
water quality.
During the dry season when there is no flowing water,
inhabitants rely increasingly on ponds, natural springs and
waterholes, often in the then dry riverbeds.
Manmade wells seldom reach a depth of more than a few
metres and are usually unlined. Waterholes are preferably
dug into riverbeds where the watertable is relatively easy
to reach.
The general appearance that these waterpoints offer, in
particular towards the end of the dry season, is one that
invites concern. In the case of ponds or larger waterholes
one is more often than not confronted with shallow mud
pools, heavily polluted by both man, livestock and
insects, while the hygienic of smaller waterholes depend
to some extent on the adequacy of provisions to limit
access to humans.

V.2. Modern sources

Involvement with the conditions of rural water supplies
led to the introduction of several types of modern
provisions. Some of these, like the shallow wells, are
probably just as much the result of Arab as of European
influence; rainstorage facilities (hand)pumps, charcos,
artificial lakes with dams, windmill powered piped
supplies and boreholes were introduced by the missions,
the Williamson diamond mine and the colonial government,
which took a greater interest in the Region during the
years following the second world war. The dams at Malya
and Nyalikungu are a few of many examples of this
interest, maintained by the Tanzanian Authorities after
Independence. During the time of the survey construction
of yet another dam across the Ningwa river near Old-
Shinyanga was started.
At present only a small number of families, benefit by
these modern supplies. In Technical Annex G, "Civil
engineering", it is estimated that only 8 per cent of the
total population of the Region has access to "safe and
adequate" sources, a description applying almost exclu-
sively to modern sources.
Most rural water supply schemes consist solely of a
source, or have a very simple distribution system where
water is drawn from public taps and carried home in a
variety of containers. In fact, the consumption pattern at
both traditional and modern sources is the same. It has
often been observed, and research in other parts of
Tanzania confirms this finding, that distance is the
important factor in the decision from which source water
should be obtained. To this it may be added that habit
plays a major role. When traditional supplies are
preferred to open reservoirs formed by dams, or lakes,
quality plays an important role.
Dams are ideally suited for cattle waterpoints with the
result that the water they contain is often of such poor
quality that people would prefer to use an alternate source.

V.3. Water consumption

V.3.1.   Introduction

The rural supplies which serve the average villager range
from natural sources to piped supply schemes with
distribution by private taps. In fact, according to the
definition used in Tanzania rural supply applies to any
scheme in which no consumers are charged for the use of
water, in the sense that the scheme does not incorporate
private house connections equipped with integrating meters.
This implies that even the supplies which serve large concen-
trated villages and some of the largest integrated schemes such

as the Usia dam scheme (serving the villages of Tinde and Didia and several smaller ones in the same area) belong to the group of rural supplies in distinction to urban supplies.

Two surveys were made to study the water consumption in rural supplies.
The first study carried out in August-September 1972 was aimed at determining the domestic use of the rural population (see sub-section V.3.2.).
A second survey conducted in the beginning of 1973 was directed investigating the overall consumption in schemes which do not only provide water to the rural household groups, but also to schools, health centres, etc.
The results of this second survey are reported in sub-section V.3.3.
Data on urban supplies are evaluated in sub-section V.3.4.
Finally design criteria for human water consumption are proposed in sub-section V.3.5.

V.3.2.   Domestic water consumption of the rural household
          ----
          group

Fourteen villages were selected representing the spectrum of water supplies from traditional sources to schemes with pipes distribution facilities. The water consumption at public taps (also referred to as domestic points) was studied by
-    interviewing households on the number of times they draw water per day, the amounts used expressed in containers like buckets or debes, the composition of the household group, and factors influencing the water use;
-    observations at the source to confirm the above data, study the fluctuation of the water demand over the day, and obtain information on reasons underlying the choice of the source.

Investigation of the selected villages was rather intensive: 20 to 25 per cent of the households were interviewed.

The averages for the per capita consumption, which have been calculated over large totals, can be expected to reflect the norm, provided that two caveats are taken into consideration.
Firstly - except for standard containers such as big buckets and debes, which represented the great majority of containers used - the interviewers had to estimate the contents of the pots, calabashes and small buckets in which water was drawn. As those types of containers were small in number and the estimation of the interviewers, when checked, appeared to be rather accurate the error incurred in this way is considered acceptable.
Secondly, the interviewers were instructed to give extra

attention to shopkeepers and in general to other occu-
pations than farmers. Consequently in some villages this
category is somewhat overrepresented, leading to slightly
higher per head consumption in those sites. This error
however is eliminated when only the farmers in the sample
are taken into consideration.

All questionnaires taken together, representing 657 house-
holds, consisting of 4069 household members yielded an
average consumption per head of 12.7 litres per day.
Broken down over villages the average values range from 8
to 17 litres (see table V.1)

Table V. 1 **Average per head consumption for 14 villages**
          (August 1972)

Villages	Total of liters drawn	Total number of persons of interviewed households	Average per head consumption in litres/day
Mbulu	4606	264	17
Shagihilu	3396	211	16
Iboja	6399	400	16
Nyang'hwale	4229	286	15
Bulyanyemu	3822	270	14
Nhumbi	4486	359	12
Mwamadulu	7295	589	12
Chembeli	3885	347	11
Mipa	2594	235	11
Mwamagembe	3205	292	11
Bugoro	2064	202	10
Igologoto	1385	141	10
Mwamkanga	2189	240	9
Uzogore	1963	233	8

To sum up, the average per head use for the whole sample
can safely be put between 12 and 13 litres per day.

In the analysis of the factors which may influence the
water consumption different categories were contrasted.
One of the most striking differences was found between
farmers and non-farmers, the first category averaging 12.4
litres per day, the second 18.4 or about 50% more.
Household size proved to be another important variable. It
may be assumed that in large household groups a lower per
capita consumption will be found, an assumption that was
confirmed in the research. Farmers with medium to large

households (five people or over) had an average daily
consumption of 11.6 litres, while farmers with families of
four people or less consumed an average of 16.5 litres.
This difference is not found among the category of non-
farmers, but in this case the sample is too small to draw
reliable conclusions.
Also the distance between source and homestead showed a
significant effect on use of water. To prevent distortion
of the results by the occupation variable (it might be
assumed that more shopkeepers live near the source) only
the largest group of the sample, being farmers with big
families, was used in the analysis. In this group farmers
living at five minutes' walking distance from the water
source or less had a per capita average of 14.1 litres.
Those living more than five minutes away use 11.6 litres a
day.
Concerning the level of education there is some influence
in consumption. People with standard V or over averaged
14.7 litres against the others 12.5 However this dif-
ference is not very significant.
A comparison of villages on infrastructural importance in
relation to water use did not result in significant
differences. Contrasting high and low scores of the
preliminary water development priority ranking (see
chapter VI), based on a combination of factors concerning
water need and infrastructural importance, did not produce
clear differences.
Villages possessing a public tap showed a slightly higher (10%)
average water consumption than villages without.
As will be shown in section V.4 quality perception is
somewhat defective, to say the least, and actual water
quality consequently does not influence the consumption.
Available storage facilities do not seem to influence the
water consumption either. Almost every villager stores
water in big brown earthware pots which are locally made
and inexpensive so that their number can easily be
adjusted to the need.

Water is drawn throughout the day. To assess the daily
fluctuation of the demand people were asked to list the
time(s) at which they go and fetch water. The results
obtained from the questionnaires are shown in the graph of
fig.V.1 and were confirmed by observations at the source.
It shows that a large proportion of the consumers draw
water between 7 and 9 a.m., whereas another peak period,
though smaller, occurs around 5-6 p.m. The period from 10-
16 hours is particularly slack.
Long waiting periods were observed at many sources.
Fetching water is ordinarily the task of women and girls
and the majority of the water drawers were women. Still,
men came to fetch water fairly often (30%), especially if
the distance from the source necessitated the use of a
vehicle. Children were occasionally sent to draw water,

mostly with small buckets or gourds. Adults almost without
exception used big buckets or debes. If a vehicle was used
to fetch water, this was mostly a bicycle, on the rear-
carrier of which two debes could be strapped. Only in
Mwamadulu, where the distance was very great, tractors or
oxen carts and even cars were used, as well as one group of
donkeys. Shopkeepers fairly regularly employ people to
draw water for them or buy it at Shs 0.25 a debe. In
difficult situations, however, not only does the price
go up to Shs 1.00 (Mwamadulu) or over (it is said that
prices in Maganzo reach Shs 1.50 to Shs 2.00), but even
farmers use their scarce cash to buy water.
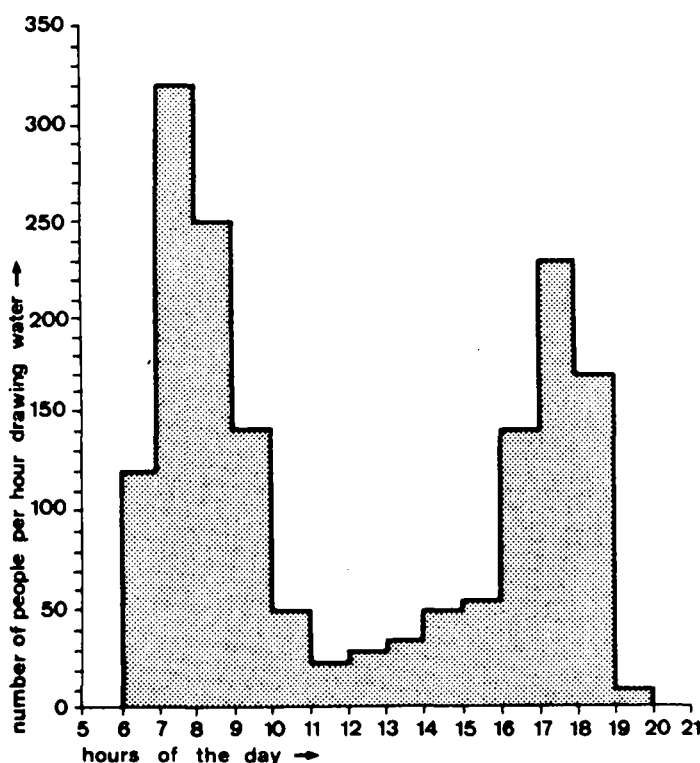
Fig. V.1   Fluctuation of water demand over the day

The majority of the consumers at water sources which were
observed by the sociological team, came from a distance of
approximately 500 to 800 metres. There were also some
extreme cases however, as for example Mwamadulu, where
people walk 13 kilometres to the water source. White,
Bradley and White calculated that under those circum-
stances people spent 75% of the daily caloric intake
solely by drawing water (ref. 23).

The question whether water drawing uses up valuable time that might have been spent in other pursuits is not easy to answer.
During the interviews the question was asked whether any people normally drawing water did not do so during the period of harvesting and land preperation.
An affirmative answer was received from only 17 per cent of the farmers, whereas in addition one third of this proportion lives at a distance of less than 5 minutes walking from the source.
Obviously water drawing does not interfere with agricultural activities at present.
From a study of nine Tanzanian villages Warner reports that agricultural work occupies the largest share of the time of a majority of women (ref. 19). Water carrying was ranked second. When asked what they would do if they had more time available more than 50 per cent showed a preference to spend more time on domestic duties. The rest indicated increased agricultural work. The above report concludes that an improved water supply would not free much additional labour for crop production activities in most of Sukumaland. It is clear that improved water supplies would result in labour savings especially in the dry season, but there is no evidence that the labour freed from water carrying would be put directly to productive use. However it can be stated that any time saved has social and economic benefits at the present stage of development, since at least the energy saved will make it easier to maintain the often precarious balance between health and disease.

The most prominent reason for using a source proved to be the distance. From a population of 370 respondents 18 per cent had no choice due to the fact that only one source was available in the area. Fifty per cent of the respondents in the remaining group said that distance was the main factor for their choice among available supplies. The next consideration proved to be the quality of the water (32%). Avoidance of crowding around the source was not a main concern and the same could be said of the technical convenience of the source.
These results prove that the consumers' choice is not completely bound to the traditional group valuation. There is a sensitivity for the choices that are offered and there is also some judging according to a simple set of individual perceptions.

In the survey female respondents were asked what uses they thought accounted for the largest amount of water consumed in their household during the wet and dry season.
In both periods drinking and cooking were said to be the most important items, followed by washing of utensils and

finally washing of clothes. Bathing of adults appeared
unimportant. Bathing and the washing of clothes are often
done at the water source itself.

Improving the water situation in the villages, is an
almost universal wish. Even in the villages where the
supply is rather modern (taps) and looks amply sufficient
for the consumers - Shagihilu and Bulyanyemu - fifty per
cent or over of all respondents stated that the village
water supply should be improved, as against 90 per cent in
less well-endowed villages. When asked if a simple ring-
well without a pump would do to that end, the response was
quite negatieve. Less than 25 per cent considered this a
good solution.

V.3.3.   Consumption in integrated rural water supplies
           _____

A total of 10 water meters were installed in the Usia-dam
scheme near Tinde and Didia in Itwanji division (Shinyanga
District) in January 1973 with the kind co-operation of the
Regional Water Engineer. A schematical lay-out of the project
and the locations of the meters is given in fig. V.2.
Average daily water consumption as registered at the measuring
points has been calculated over monthly periods (see app. 14).
From these figures, the average daily consumption of service
areas over February to May has been estimated and summarized in
table V.2.

Surveys were made at the distribution points themselves and in
some service areas to determine the number of domestic
consumers and further to gather additional information on water
use habits already studied in the first survey (see sub-section
V.3.2.). A total of 317 people representing 1658 household
members were interviewed at all domestic points. In the larger
settlements door-to-door censuses were held to determine the
actual number of domestic consumers. It is concluded from the
results of the census-figures that the people interviewed
account for 60-65(=63) per cent of the total number of people
who rely on the Usia-scheme for domestic water consumption.
Table V.3 gives the results and estimated domestic consumers
per service area. No information has been gathered on consump-
tion aspects within the Bugisi mission.

In view of the consumers not covered by the figures of table
V.3 the total population served by the Usia dam scheme is
estimated at some 3,500 to 4,000 people with a daily consump-
tion of some 75 m3.
A comparative analysis of the consumption data of table V.2
with the estimated number of consumers (table V.3) should take

Table V.2   Average daily consumption of service areas of Usia-dam water supply

Main area			Consumption of service areas		Distribution facilities	Remarks
description	registered consumption (1) m³/day	service areas covered	registered (2) m³/day	calculated from (1)-(2) m³/day		
Branche-line from Usia-dam to Tinde	32.3*	Tinde	25.5		6 domestic points (one out of order) and 13 private connections	service area includes primary school (enrollment 280 children), health centre, trading centre, hotel, bar
		cattle trough near Kisumani	2.1*		cattle trough	
		Kituli upper primary school	1.5		elavated storage tank, some public taps	enrollment estimated at 150-200, houses for staff included in service area
		Ngangamala, Kisumani, Nyandekwa. Isegalaja and Usia vilages		3.2	5 domestic points	domestic consumption only
Branche-line from Usia-dam to Itwangi pumping station and Didia village	no pertinent data available	Kadati village and domestic points along the main near line of Imenya, pumping station, primary court (Itwangi), and Itwangi junction			5 domestic points	domestic consumption only
		Imenya and Igomelo villages	4.3		1 domestic points	domestic consumption only
		Uwela	1.5		1 domestic point	domestic consumption only
		Didia and Lohumbo	24.5		9 domestic points	service area includes primary school (enrollment estimated at 200 children), trading centre, hotel, bar
		Bugisi	5.7		not surveyed	mission compound

* figures based on observations over two months only.

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into account that water is not drawn exclusively for domestic use of the rural household group in the larger settlements of Tinde and Didia.
For Tinde, the following estimates have been made regarding the additional consumption of:
- the health centre: 2 m3/day (private connection)
- the primary school: 1.5 m3/day
- 12 private connections (including hotel and bar) : 1 m3/day each (see also sub-section V.3.4.)

Table V.3   Estimated numbers of domestic consumers of water for Usia-dam water supply

Service area or village (1)	domestic consumers as determined from door-to-door census (2)	results of interviews at tap points			estimated total number of domestic consumers [= (2) or $\frac{100}{63} \cdot$ (4)] (6)
		number of interviews (3)	domestic consumers covered by interv. (4)	(4) as proportion of (2) (5)	
Tinde	401	59	271	67%	401
Ngangamala		10	52		
Kisumani		8	39		
Nyandekwa	146	12	76	52%	146+324 = 470
Isegalaja		11	51		
Usia		12	63		
Kadati		9	46		75
Imenya	112	12	66	59%	185
Igomelo		11	50		
Uwela		10	46		75
Primary court (Itwangi)		12	43		190
Itwangi junction	119	17	75	63%	
Didia and Lohumbo	881	134	552	63%	881
Total (rounded)					2,280

For Didia, where no actual private connections exist, the school is assumed to draw 1.5 m3/day, whereas the consumption of the hotel and bar is taken at 1 m3/day each, as in the case of Tinde.
It has further been assumed that the trading centre function of both Tinde and Didia leads to additional water use in proportion to the domestic consumption. Although the survey has not
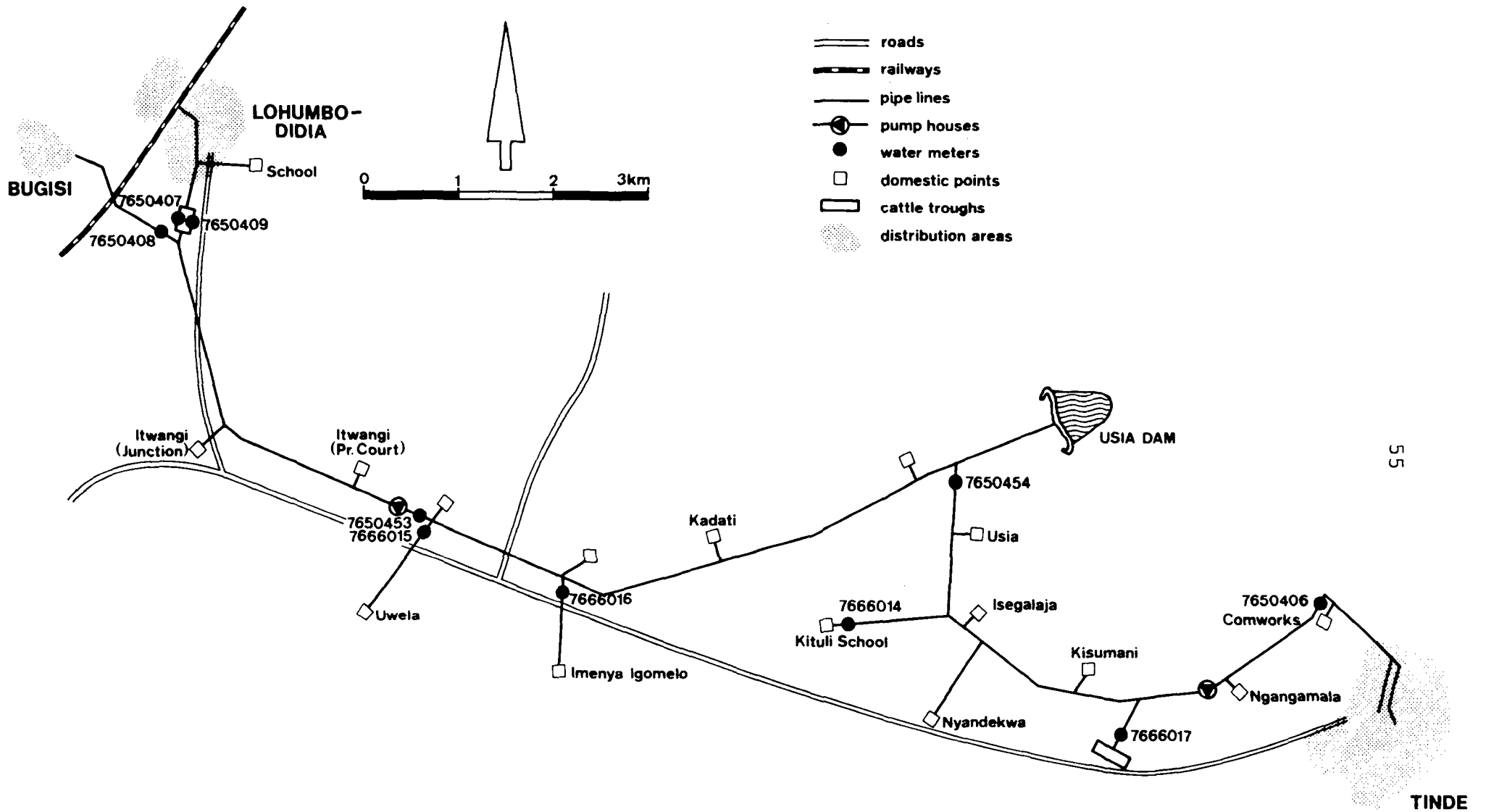
Fig. V.2   Location of the water meters in the Usia dam scheme

yielded sufficient information to come forward with a conclusive
figure, the assumption of a 20 per cent increase of the
domestic consumption in villages which have a trading centre
function seems justified, as is shown below.
Taking into account the various estimates and assumptions
rendered above, the domestic consumption at public taps in
Tinde and Didia can be calculated and compared with figures for
villages served by the scheme where water is used for domestic
consumption only. The results are listed in table V.4.
Generally they seem to indicate a slightly higher consumption
than the results presented in sub-section V.3.2., and to
confirm the plausibility of the assumptions made regarding the
sources and quantities of additional water use in Tinde and
Didia.

Table V.4 Estimate of per capita domestic consumption at public
taps in Usia-dam water supply

Service area or village	estimated daily, water consumption in m3				per capita domestic consumption at public taps in 1/day
	total see table V.2	private connections and other facilities	total consumption of public taps	domestic consumption of public taps	
Tinde	25.5	15.5	10.0	8.3*	21
Ngangamala,) Kisumani,) Nyandekwa) Isegalaja,) and Usia)	3.2			3.2	7
Imenya and Igomelo	4.3			4.3	23
Uwela	1.5			1.5	20
Didia and Lohumbo	24.5	3.5	21.0	17.5*	20

* $\frac{100}{120}$ times total consumption of public taps

The slightly higher per capita consumption estimated for the
larger villages of Tinde, Didia and Imenya may at least partly
be explained by the fact that practically all respondents said
that they came from within 5 minutes, walking distance.

Moreover the figures include losses due to leakage and spilling in contrast to those of sub-section V.3.2.
The survey revealed that practically the entire population of Didia relies on the Usia-dam scheme for water supply, but that in Tinde a considerable proportion, some 60 per cent, uses other, traditional sources.

The fluctuation in the water demand over the day has been determined for Tinde and Didia from 1119 observations at tap points during 14 days from 7 a.m. to 7 p.m. The results are presented in fig. V.3. and compared with those of sub-section V.3.2. (see fig. V.1) over the same daily period. Although the consumptive pattern is generally the same, the extreme values of peak and slack demand are less pronounced in the case of Tinde and Didia. The relatively large consumption additional to the domestic use of the rural households themselves is the obvious reason for this phenomenon. In order to be on the safe side, maximum storage capacity to be provided in rural water supplies to even out fluctuations in the demand over the day should be determined from fig. V.1 (see Technical Annex G, Civil engineering).

Finally, the observations at the source showed that only 37 out of 311 people observed (or 12 per cent) cleaned the water containers at the tap before drawing this domestic water. The average time spent on cleaning was 20 seconds.

_ _ _ _ _ water consumption according to fig. V.1

_____ water consumption Tinde and Didia
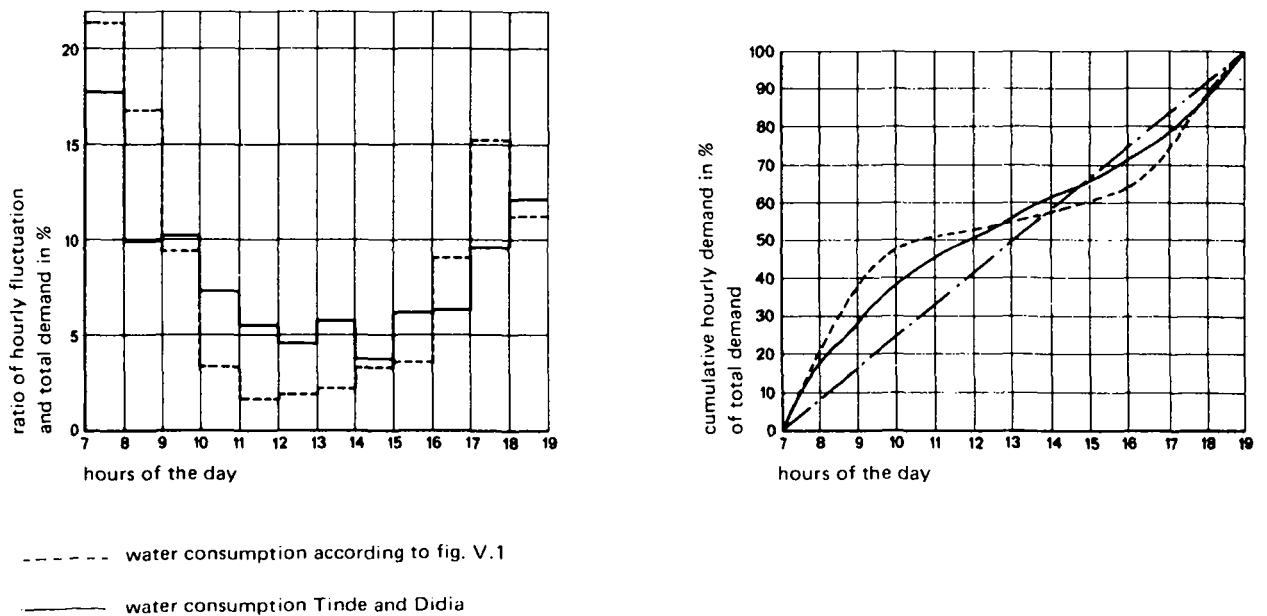
Fig. V.3   Comparison of the fluctuation of water demand from 7—19 hrs

V.3.4.   Urban water supplies
_____

The strict application of the definition used in Tanzania
to distinguish between rural and urban supplies (see
subsection V.3.1.) limits the latter group to the water
supply systems of the four district capitals Shinyanga,
Kahama, Nyalikungu (Maswa) and Bariadi, and of the
township of Malampaka.
With the exception of Bariadi, the survey has been able to
collect information on the population served in these
towns both by private connections and public taps, and the
consumption at both types of supply. The towns have piped
supplies with a relatively large number of private house
connections and some public taps.
The data are summarized in the following table.

Table V.5.   **Summary of daily water consumption in townships**

township	population (rounded)	part of the popula-tion served by		average daily consumption	
		private * connec-tions %	public taps %	private connec-tions l/head	public taps l/head
Kahama	4000	33	32	65	20
Malampaka	1300	38	15	90	23
Maswa	4000	30	25	150	23
Shinyanga	10000	54	26	100	21

*) based on an average of 7 people per private connection.

V.3.5.   Design criteria
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The results of the foregoing sub-sections have led to the
recommendations of the following design criteria for human
water consumption to be applied for the design of rural water
supplies:

-    human consumption at public taps is 20 l per day per head
     of the design population, which is the maximum number of
     people estimated to be served by the scheme over the
     period of its economic lifetime;

- water supplies of trading centres should be designed taking into account a 20 per cent increase of the domestic demand of the design population;

- consumption of unmetered private connections for domestic use should be taken at 1 m3/day;

- consumption of bars and hotels should be taken at 1 m3/day each regardless of whether they are actually provided with a private connection or not;

- consumption of health centres and dispensaries with clinics should be taken at 2 m3/day; for hospitals individual estimates should be made;

- daily consumption of schools should be taken at 5 l per head of the total enrolment with a minimum of 1.5 m3/day and augmented by the domestic demand of staff houses, if present.

The above criteria are further dealt with in Technical Annex G, Civil engineering, in which "design population" is specified and additional technical criteria (c.q. to account for losses due to leakage and spilling) are presented.

For urban water supplies the same criteria can be used except that private connections for domestic use will be equipped with integrating meters. It is assumed that human consumption through private connections will increase from 100 l/head at present to 150 l/head by 1991.

Estimates of water demands for cattle and agriculture are discussed in Technical Annex E, Agriculture. Industrial use should be evaluated separately, of course, case by case.

V.4. Water perception

Data reported in this section have been derived from the survey conducted in August-September, 1972.
It is clear that water is not a commodity that arouses strong feelings in the villagers of the Region, unless the circumstances under which it is to be obtained become too severe. The distance to the watersource is the most decisive circumstance. As a rule the villager will get his water at the closest source, and convenience of use or quality is not a main concern.
In general he will avoid travelling a longer distance than 15 minutes. It is only in situations where this is not possible that he perceives his situation as a hardship.
The lack of inclination to travel too far or too often is also the reason that water for drinking is always drawn at the same source as the water for other household purposes.

The most common complaint concerning the quality of the
water was that it was dirty. The survey showed that in the
wet season 60 per cent of the people complained about
dirty water, a percentage that decreased to 50 in the dry
season. Next to "dirty" the qualification "salty" is used
in particular in the wet season. Due to the obvious
contradiction between the answers for wet and dry season,
the results were not considered reliable. It was concluded
that in many villages no clear insight exists concerning
water quality. Fairly unanimous opinions are only found at
the top and bottom of the quality scale, and these
opinions do not correspond well with results of laboratory
analyses of water samples. In one village many people
complain about the salinity of water that tests prove to
be well under any limit that one might put for noticeable
saltiness. At another site splendid spring water is hardly
rated half way up the quality scale, while in a third case
water that contains enough nitrogen to give it at least an
unpleasent taste is rated as very good.
As high contents of fluoride are not perceptible to the
consumer, water is frequently used that is fact is
detrimental to health (see Technical Annex F, "Waterquality").
Water was only evaluated as diseased or contaminated in a
minority of cases. Users of unimproved water sources
ordinarily attempt to prevent pollution by washing and
bathing outside the water hole and by using other sources
for livestock. Only in some instances and mostly under
circumstances of urgent need, a distinction between
sources for human use and those for livestock is not
maintained.

Concerning tap water the villagers generally have the idea
that a tap removes all danger which is in itself a potent-
ially dangerous misconception.
Fourteen per cent of the villagers in the sample popu-
lation treated their water before use. A few villages
showed a proportion between 30 and 50 per cent. The level
of education of the consumer proved to be of influence on
the decision to process water before drinking. Of the
respondents without any education only 10 per cent gave
some treatment to the water, while this figure was 20 per
cent for those who had had schooling for a period of 1 to
4 years. Forty per cent of the respondents with an
educational level exceeding four years treated their
drinking water.

The actual treatment may vary. In most cases the water was
boiled.
However, some people filter it through a cloth or simply
allow the water to settle before using it.

V.5. Water quality

In this section, general information only is given on the
water quality to complete a rough description of the
existing state of water provision to the Region's
population. The subject of water quality is dealt with
extensively in Technical Annex F.
The quality of the water in the Region depends on the type
of source, as well as on the type of supply.

Surface water can be drawn from rivers only during the wet
season. The physical properties of this water, such as
colour and turbidity, are bad.
However, these factors are not relevant to the health of
the consumer but only to his appreciation of the water.
Some bacteriological and organic pollution is likely. As
far as chemical substances which may affect health are
concerned, the water usually meets the W.H.O. standards
for drinking water.
After the wet season, the rivers dry up and surface water
is drawn from reservoirs, charcos and hafirs. The quality
of surface water stored during the dry season gradually
deteriorates.
Bacteriological and organic pollution can become very
serious.
The chemical quality worsens, mainly due to evaporation.
The lack of adequate supply facilities outside the storage
area often contributes to pollution. There is a danger of
bilharzia in the reservoirs.

Where people collect groundwater from a large number of
unlined shallow wells and hand-dug waterholes in riverbeds
during the dry season, bacteriological and organic
pollution is again serious.
The same applies to most open wells and to those lined
wells which are not sufficiently protected to prevent
infiltration of polluted water into the well.

High fluoride and salt contents are the main hazards to
the potability of the groundwater in the Shinyanga and
Maswa Districts.
These factors have an influence on the health of the
consumer. In particular, the boreholes and wells in the
Shinyanga township area, the Manonga depression and some
parts of Maswa show high fluoride contents of 5 - 10 ppm
or even more, whereas elsewhere in the Region this figure
is usually below 5 ppm. In the areas already mentioned the
groundwater is locally salty at shallow depth. The
conductivity of deep groundwater generally suggests salt
contents exceeding 1500 ppm total dry solids.
Speaking in general terms the water consumed in the Region
very often does not even meet the "maximum allowable
"limits" set by the W.H.O. for physico-chemical quality.

Whereas its very poor bacteriological quality certainly
forms a major hazard to public health.

V.6. Water supply and social organizations

Since very little or no effort needs to be put into the
construction of traditional sources and their upkeep does
not seem to require much labour or other energy, no
intricate cultural arrangements with regards to water
accessibility have ever evolved among the inhabitants of
the Region and use of water is almost without restriction.
Everyone seems to be free to fetch water at any particular
traditional water-supply regardless of whether he has
contributed in its construction or upkeep.
In fact the only limitation noticed during the period of
study was that livestock is barred from certain waterholes
by means of thornbush to avoid excessive pollution and
from cattle watering places which the livestock owner did
not help to dig.
At first sight this appears to be a rather favourable phe-
nomenon, particularly in the type of society that Tanzania
is striving to realize. In this society exclusive water-
rights might easily form an additional impediment in the
process of water improvement.
However, the absence of individuals or groups who
traditionally enjoy rights as a consequence of their
involvement in the construction and or maintenance of
waterpoints and who could charge others for their use of
them has the negative side effect that there are no
identifiable groups to carry responsibility for their up-
keep at the village level.

The problem here, paradoxical as this may sound, is that
seen from the perspective of the consumer, water is to a
large extent a free commodity, and the need for high
quality water is not yet felt at a level on which personal
sacrifices are made for its acquisition.
This, and the absence of specialized know-how, account to
a great measure for the prevalence of poor waterpoints
throughout the Region.

The Ministry of Water and Power has taken responsibility
for the construction and maintenance of improved supplies,
a task that on the whole is carried out by, or under the
auspices of the Regional Water Engineer.
Up to now, this office has- in line with the Ministry's
policy-concentrated on schemes with piped distribution
facilities which serve consumers who live in more or less
concentrated villages. So far less effort has been spent
on the provision of water to the many times larger group
of people living dispersed, for whom in most cases an
improved or modern source on its own (without distribution

system) is the feasible solution,or on the upkeep of such sources once provided. Some years ago, the Regional Water Development Committee was established with the specific task of looking after watersupply to the scattered population by the construction of shallow wells, of which a limited number have been completed. A more complete picture of the regional water organization is given in section IV.6 of Technical Annex G, "Civil engineering".

It is possible to foresee that the tendency toward neglect of maintenance will continue unless a greater involvement of the rural population in the construction and especially the maintenance of water sources is encouraged and achieved. It seems highly recommendable that simultaneous to further water-resource developments a concerted effort is undertaken to render the rural population aware of the undesirability of polluted water. And once the need for safe water is felt at the individual level of the village farmer it should be easier to institutionalize social structures at the village level which would share the responsibility for the upkeep of water provisions with the regional and national authorities.

CHAPTER VI   WATER DEVELOPMENT PRIORITY RANKING

VI.1.   Introduction

The realization of a programme to provide the entire rural
population of the Region with adequate water supplies will take
many years. To make best use of the available resources of
manpower, technical facilities and funds it is indispensable to
develop a system for comparing the various possible schemes in
order to arrive at a water development priority ranking, taking
into account the guiding principles of the Tanzanian Govern-
ment.
The main purpose of the appraisal of water demand from data
gathered during the sociological survey is to provide
information for a priority ranking to be based on variables
concerning:
1.   the existing water need, which is determined by the
      presence or absence of a supply and the quantity and
      quality of the water provided;
2.   the development potential of the area or project
      concerned.
Before discussing the ranking order in detail it is useful to
state clearly the advantages of a priority ranking system for a
water supply programme.
-     A standardized system of priority ranking allows a
      consistent water-supply policy to be maintained for a
      number of years, limiting subjective considerations in the
      introduction of new improvements.
-     A fixed ranking system offers a standardized instrument
      for the urgency ranking of sites and areas and can be used
      at all levels of the decision-making structure.
      It may also be applicable when sites not previously
      considered have to be integrated into a water supply
      programme.
-     The variables used in the ranking order can easily be
      adapted to new circumstances or changed lines of planning
      without disturbing the system itself.

The ranking order based on the factors water need and
development potential is still a provisional one. Its results
have to be checked with the practical and technical possibili-
ties and the desirability of implementing water supplies in the
order indicated. This point which is dealt with in extenso in
Technical Annex H, "Economy and general aspects", can best be
illustrated here by two examples.
The type of water supply may range from a simple source e.g. a
shallow well, to sources which are more difficult to build such
as a borehole or a charco, or even to a larger integrated
scheme serving serveral communities with a piped distribution
system. The construction requirements for each type of water
supply differ to various degrees. For example, equipment and
skilled manpower necessary for drilling boreholes is specializ-
ed and cannot effectively be used for other purposes.

Thus, a certain balance will have to be maintained between the different types of water supplies to be implemented each year. Secondly, the technical aspects of providing an area with water supply may require an integrated approach. This can vary from the combined supply to two or more villages to the more or less simultaneous construction of a sufficient number of charcos to serve a whole area. Failure to build these charcos at the same time would result in an excessive number of consumers at the beginning of the dry season so that the source would be dried-up before its end.
Resuming, a final water development priority ranking must be derived from the results of the provisional one, which has been based on sociological and socio-economic factors (water need and development potential) by comparison with technical, economic and organizational criteria.

This chapter is concerned solely with the preliminary water development priority ranking. The final ranking with recommendations for implementation programmes for the water master-plan is contained in Technical Annex H.

Section VI.2 deals with a ranking system which can be applied to individual villages. A total of thirteen indicators are used to determine the scores, for which information from the "village questionaire" (app. 3) provided the necessary information. The villages interviewed in such detail (see section III.3) have been chosen selectively. For this reason the information on water need and development potential of the individual villages should not be regarded as a representative picture of the situation in larger areas.
A simplified form of the ranking system is therefore introduced in section VI.3 in which a preliminary priority ranking of the Wards is obtained from the results of the "general questionaire" (app. 2) which covers all villages in the Region.

VI.2 Preliminary water development priority ranking for individual villages

VI.2.1. The scoring system

The basic assumption underlying the ranking order is the idea that both the development potential of the site or area and the quantity and quality of existing water supplies should be taken into consideration in any decision concerning water supply improvement. Studies on the relationship between improved water supply and rural development have shown that new water supplies do not quarentee social and economic development. Only when priority is given to the construction of water supplies in areas or villages with a promising development potential, can such supplies contribute to and stimulate economic and social growth.

The individual ranking order can be applied to the 416 villages
in the Region covered by the sociological survey on village
level. These villages were selected in first instance after
consultation of the Ward Executive Officer, who was asked to
list the villages in which the greatest water need existed, as
well as those with a significant demographic growth and those
with the most developed infrastructure. Villages which fall
into one or more of these categories were interviewed. At a
later stage the survey was extended to cover all concentrated
settlements, in the sense of the definition given in section
IV.3.

A large number of variables pertaining to either "water need"
or "development potential" were determined for each village.

Three criteria were applied for the assessment of waterneed:
a.   Insufficient water supply in dry and wet season.
b.   An official request for improvement submitted.
c.   Distance to the most commonly used dry season source.
Originally water quality was also considered a potentially
important variable in the ranking order model. However no
correlation appeared to exist between the villagers opinion of
the quality of the water and the results of laboratory
analyses. Consequently local opinion could not be used as a
valid measure for the water quality of the sources. On the
other hand it was not possible to include the laboratory
analyses in the ranking order, because a systematic sampling of
all the sources in the interviewed villages proved to be
unfeasible.

The development potential was dicided by factors which can be
divided into five groups of indicators:
a.   Infrastructural characteristics
b.   Demographic structure
c.   Settlement pattern
d.   State of agriculture
e.   Agricultural potential
To assess the infrastructural significance of a village, the
questionnaire (see app. 3 and 4) listed 32 different facilities,
a number of which were selected as being relevant to the
calculation of the ranking order. One of the underlying
guidelines in the allocation of weight has been the considera-
tion that provision of both medical and educational facilities
enjoys a high priority in national planning. Therefore
substantial scores were given to hospitals, health centres,
dispensaries and schools.
The demographic structure has been split into two items: popu-
lation size and the net migration surplus over a period of two
years. The scoring is based on the consideration that large
settlements have a higher priority than small ones and
similarly growing villages a higher one than villages with a
static or diminishing population.

Settlement pattern is a third criterion of the development potential. Relative weight was given according to the degree of concentration of dwellings and buildings and the ease of accessibility to the settlement. The provision of an adequate water supply to a largely scattered population is - considering the large investment per head - difficult to realize. Furthermore, bringing water to where people live clashes with the governmental policy objective of villagization. Therefore a higher priority has been given to settlements with some concentration of dwellings and buildings in the belief that improved water supplies can stimulate further concentration. Access, mostly by road, is another indicator linked to the rate of concentration and offering ample opportunities for social and economic development.

The following factor in the priority ranking system is the agricultural situation. Three indicators are used in evaluating this. Modernization of agriculture is the main criterion underlying the scoring. Methods of cultivation, use of manure and regular selling of cattle are relevant items in this respect. It is assumed that priority will be given to areas and sites where agricultural modernization is under way. Finally "quality of the soil" and "availability of land" are indicators for future expansion of the area.

Table VI.1 gives in detail the scores assigned to the indicators of the priority factors with reference to relevant information from the sociological survey of which the results are presented in app. 7.

Table VI.1   Indicators and scores for the preliminary water development priority ranking.

Indicators and (no.) of question in questionnaire (see app. 4)	Information according to results sociological survey (see app. 7)		Priority scores	
	position (print column ; line)	code*	per code*	maximum per indicator
WATER NEED				
1. Supply (59)				20
— sufficient supply	31 ; 1 and 31 ; 2	1	0	
— insufficient supply in dry season only	31 ; 2 (and not 31 ; 1)	2	8	
— insufficient supply in wet and dry season	31 ; 1 and 31 ; 2	2	20	
2. Official request (64, 65)				5
— no request/not known	34 ; 1	0,2 or 9	0	
— official request for improvement of supply sent to district/regional authorities and no construction under way	34 ; 2	2 , 3 , 4 , 6 or 7	5	
3. Distance to water source (57)				15
— less than 1 mile	30 ; 2	1	0	
— 1–3 miles	30 ; 2	2	3	
— 3–5 miles	30 ; 2	3	7	
— 5–7 miles	30 ; 2	4	11	
— more than 7 miles	30 ; 2	5	15	

Table VI.1   continued

Indicators and (no.) of question in questionnaire (see app. 4)	Information according to results sociological survey (see app. 7)		Priority scores	
	position (print column ; line)	code*	per code*	maximum per indicator
DEVELOPMENT POTENTIAL				
4. Infrastructural significance (4)				20
— hospital, health centre or dispensary	5 ; 2 , 6 ; 2 , 7 ; 2 or 8 ; 2	1	non-recurrent : 10	
— government school of the other school	3 ; 2 or 4 ; 2	1	non-recurrent : 3	
shops (information from app. 2)				
o more than 15	26 ; 2	3	4	
o 6 to 15	26 ; 2	2	2	
o 1 to 5	26 ; 2	1	1	
— flour mill	24 ; 2	1	1	
— tractors	13 ; 1	1 , 2 , 3 , 4, 5 , 6 , 7 or 8	1	
— other facilities	9 to 23 ; 2 , 25 ; 2 or 27 ; 2	1	if code occurs twice or more : 1	
5. Population size (3)				5
— 0–400	5 ; 1	1	0	
— 401–800	5 ; 1	2	3	
— more than 800	5 ; 1	3	5	
6. Migration surplus (3, 9, 12)				5
— emigration surplus 2% or more	36 ; 2	2 to 98	0	
— emigration surplus 0–1.9%	36 ; 2	1	1	
— no surplus	36 ; 1 and/or 2	0	2	
— immigration surplus 0–1.9%	36 ; 1	1	3	
— immigration surplus 2–3.9%	36 ; 1	2 or 3	4	
— immigration surplus 4% or more	36 ; 1	4 to 98	5	
7. Type of settlement (7)				5
— dispersed or not known	8 ; 1	0 or 1	0	
— some concentration	8 ; 1	2	3	
— mainly concentrated	8 ; 1	3	5	
8. Location (5)				5
— situated on dry-water roads, tracks etc.	7 ; 1	0 or 3	0	
— situated on all-weather road and/or railroad	7 ; 1	1 , 2 , 4 or 5	5	
9. Type of cultivation (17)				7
— hoe	12 ; 1	1	0	
— ox and plough	12 ; 1	2	1	
— tractor and plough	12 ; 1	3	7	
10. Use of manure (22)				7
— no use of manure	14 ; 1	1	0	
— by few farmers	14 ; 1	2	2	
— by majority of farmers	14 ; 1	3	7	
11. Selling of cattle (52)				4
— no selling of cattle	24 ; 1	3	0	
— by some people only	24 ; 1	2	1	
— by most people	24 ; 1	1	4	
12. Farmers opinion of soil quality (39)				1
— medium or bad	17 ; 1	2 or 3	0	
— good	17 ; 1	1	1	
13. Availability of land (38)				1
— just enough or insufficient	16 ; 1	1 or 2	0	
— abundant	16 ; 1	3	1	
Maximum obtainable score for all indicators				100

* codes possible according to app. 7 but not listed in this table have been assigned a score of 0 points.

Out of a total maximum score of 100, the indicators for "water need" account for a possible 40 points, while the development criteria may come to 60, weighting the ranking order slightly in favour of the "development potential". However, a village with a strong score for insufficient water supply can easily achieve a high priority ranking if only a small number of variables for the development potential are positive.
Obviously the maximum of 100 points is purely theoretical. Scores between 50 and 70 points are already a strong indication for high priority.

VI.2.2.   Results

For the 416 villages interviewed separately by the survey, the scores to be assigned to the various indicators of table VI.1 can be determined from the information contained in app. 7.A computer printout from the priority scores is given in app. 12. Table VI.2 summarizes the results.

The figures of app. 12 allow a detailed comparison of the four Districts with regard to the contribution of the several indicators to the final priority score. The frequency distribution of priority indicators and scores is given in table VI.3, broken down per District for the Region as a whole. The water need indicators are important for Maswa, Bariadi and Shinyanga, where more than two thirds of the villages interviewed show an insufficient supply in the dry season. Kahama on the other hand is in a relatively favourable position: 42 per cent of the villages interviewed in this District are not short of water.
The majority of the settlements in the Region (66%) have sent an official request for an improvement of the water supply to the authorities. Again it is found that in Kahama the percentage is less than elsewhere.
Distance to the water source shows a strong correlation with the water supply indicators. Approximately 30 per cent of the villages in Shinyanga, Maswa and Bariadi have water sources at a distance of more than 3 miles from the village, while in Kahama 93 per cent of the settlements find the water within a range of 3 miles.
The frequency distribution for the water need clearly shows that in particular for Maswa, Bariadi and Shinyanga a significant part of the total priority score is determined by the water need factor in the ranking order.

The infrastructural significance score for development potential is high for Bariadi and Maswa. In both Districts a substantial number of the villages interviewed - respectively 42 and 35 per cent - has a score of from 10 to 20 points. The same can be said of population size and the migration surplus, indicating that in these two Districts a large part of the villages interviewed belong to the larger settlements.

Table VI.2   Summary of the results of the preliminary water development
priority ranking for individual villages

SHINYANGA DISTRICT

village	priority score	village	priority score
NYASHIMET	69	LYABUKANDE	43
MAGATI?	66	KAMYODY	43
MILIAMA	62	ISELA	43
ISEMEL	61	IDUTA	42
MWAMADULU	59	GIMGI	42
BUNAMBIYU	59	TOTIKITI TA	42
BUSOLE	59	MALWA	41
MWAMALYELYE	57	MWANGITHI	41
SINGITA	57	SHAMASWI	41
MWAMADULU-UJAMAA	56	KILILIHI	41
NGOFILE	56		
KASINGILI	56		
BUBIKI	56	ITUMBULU	40
WISHITELUJA	56	NDEWA	40
SESEKO	55	IGAGA	40
KASHISHI	54	UKINIGORO	40
TINDE	53	MWAKITALYU	40
MWALUKWA	52	BUHELI-KAGILA	39
IBADAKULI	51	ILUMILO	39
IDUKIHO	51	MWANGHUGU	39
NDOLELOJI	51	BULYANZOFE	38
		LOHUMBO-SIDIA	38
		BUGOIHI	38
SEKE	50	JIMKNILWEHTEMI	38
MWABENDA	50	GADI	38
IDUBULA	50	KIZUMBI	38
SELEMI	50	MANHIGANA	38
MWAMAHOTA	49	MWAKITLIGULA	38
MIPA	49	ISAGALA	37
NSAYU	49	NSAYU	37
OLD-SHINYANGA	49	KAZAHOHE	37
MASENGWA	49	KILOLELI	37
ITWANGI	48	IBINGO	37
ITUNGUITALE	47	UZOGORE	36
KISHAPU	47	MWAMASHELE	36
PANDAGICHIZA	47	NZANZA	36
MAHEMBE	47	IGOPOLE	36
IMALABUPITA	46	MWAMADIHANHA	36
MHUNZE SINGIRY	46	SULWA	36
NEGEZI	45	NYASHIMSA	36
BUSANGWA	45	BURUNGWA	36
MASANGA	45	MWAMLA	35
MWAMASHIMBA	45	MWANGHUSULWA	35
KOLANDOTO	44	MWANDUTU	35
INOLELO	44	KIJINGI	34
KIGWANG'HOMA-UJAMAA	44	IGOLOGITO	34
ZOBOGO	44	BUGEKI	34
NYASANBA-UJAMAA	44	LYANDU	34
WELEZO	43	MISHEPO	34
UNYANYEMBE	43	MWAMKILANGA	34
NZIMA	43	CHEMILILI	33

Table VI.2   continued

SHINYANGA DISTRICT

village	priority score	village	priority score
MATINA	33	MANGU	25
ITUBANILI	33	MWANGILI	25
KAKILA	33	MHUGI	24
OLD MIRINZI	33	NGUNDANGALI	24
KABALE	33	IBILI	24
TUPENDANE	33	MWASINGU	24
MWAMALA	32	SHILILELI	23
ILINDILO	32	IMALANGUZU	23
ISHEGENYA	32	KAKULA	23
NSHISHINULU	32	BUSANGU	22
PAMBE	32	NDUGUTI	22
HILISHI	32	MWANGALANGA	22
MWAMAGEMBE	32	MWALATO	22
MHUGE	32	MALANDI	22
SHATIMBA	32	MUNGU	22
IKONDA	31	NZEGA	21
KALANGALE	31	SHASIHILU	21
IKOMBABUKI	31		
KITYELO	31		
MWABUNDALA	31	UKENYENGE	20
		BUGAYANJIGU	19
		MWAMAKUNI	18
USULE	30	ISHULULU	17
BUGANIKA	30	BUMUJYU	17
UBATE	30	MWANDEO	17
MHANGU	30	MWANGALALU	17
IDUKILO	30	MWATAGA	17
ITILIMA	29	SHIKWEMBE	16
IHALO	29	BUKUIGA	14
MWAMANONGA	29	BUYUGU	14
BUTONJA	29	IGALULA	13
ISOMBANKULA	28		
MASKATI	28		
NHUMBILI	28		
WIMATE	28		
MWABENDA	28		
SUSWA	28		
MWAMKANGA	27		
MENDO	27		
MWAMALASA	27		
MIZANZA	27		
NJINDO	27		
KIMANDAGULI	27		
MAWEMILU	27		
KAZIMA	27		
NHOBOLA	26		
BUTUMBA	26		
ZUNZULI	26		
MWASHINUNG'HELA	26		
GUNG'HUMA	26		
KITUNGO	26		

Table VI.2   continued

MASWA DISTRICT

village	priority score	village	priority score
KINANG'WIGULU	60	MWANYATE	34
MALAMPAKA	60	NYABUGITIZA-UJAMAA	34
IGWATA	59	MWAGALA TULU	34
ITINJE ITINGO	59	IWELINI	34
NGEGIMO	56	KABITIDO	33
MWABANHYA	53	MWANDETI	33
MWAMBITI	53	KULIMI	32
IMALAGEKO	52	LUBYIGA	32
KIDEMA	51	MBUSHI	32
MASANGA	51	MWAMASIGILI	31
		LUGURU	31
MWABAYANDA	50		
MWASITA	49	SANGA-MWALUGESHA	30
BADI	48	BULUBALO	29
BUDEKWA	48	SEMBA	29
BUDEKWA-UJAMAA	48	MWAMANTIGU	29
ZEBEYA	48	MWANYAHIDA	29
MWANDU	47	SENANI	29
MWABAYANDA	47	NYASIIMBA	28
MWALUKULIKO	45	NKOMA	28
IDAGO	45	MWALUBASA-UJAMAA	27
MALITA-UJAMAA	44	MWANASHIMBIKI	27
KULIMI	44	NG'WAMIGELE	26
KIZUNGU	43	MWAMIHANZA	21
MASELA	43		
SHISHIYU	43		
IGUNYA	43	USIULIZA	18
KISESA	43	MWANUNDI-UJAMAA	17
ILAMATA	42		
NGARA	41		
NGULIGULI	41		
MWANYOMBA	40		
MWANINDO	40		
MWABUSALU	39		
SHOKA SHOKA	39		
MASANWA	39		
LALAGO	39		
SAYU-SAYU	38		
LINGEKA	38		
MWAMALOLE	38		
MWANHUZI	37		
IPILILO	37		
MWAGWILA	36		
SHINYANGA	36		
LALI	35		
NG'WABULIMBU	35		
MWABUZO	35		
MWANDOYA	35		

Table VI.2   continued

KAHAMA DISTRICT

village	priority score	village	priority score
NTOBO	61	KINAMAPULA	27
MPUNZE	54	IGOMA	27
NGOGWA	51	BULUGALA	27
LUNGUYA	51	BUZINA	27
		MBOGWE	26
		MALINDI	25
KILAGO	47	BULIMGWA	25
NYANGWALE	47	BUKOMBE	25
SHILELA	47	KIBANHA	25
LUWA	46	ITUGUNHU	24
MASUMBWE	46	ILEMVE	24
NHUMBI	45	CHAMLO	24
ISAKA	45	ITULAMCHIKI	24
MBULU	45	MWANASI	23
BUGWAMA	45	KISUKE-UJAMAA	23
NTUNGULU	42	NYENYELA	23
IGUMDA	42	MHUNGOLO	22
IBANZA	42	SABA-SABINI	22
KABUHIMA	41	UYOVU	22
USHIROMBO	41	SEKE	21
		BUTOMBAGOO	21
		ULEWA	21
LUHALA	40	NYASATO	21
IBOYA	40		
IBUJA	39		
KILAGO-UJAMAA	39	INYANGA	20
MBIKA	39	IGUSA	20
BUTAMBALA	39	KANYENYE-UJAMAA	20
MWAMUA	38	KANIHA	20
KALUNDE	38	NGULU	20
NHIMEO	38	NGWAMANDI	19
ISAGEHE	37	BURUMBAGA	19
BUKWIMBA	37	HATALANGE	19
NUNDO	37	MWALO	16
NGAYA	37	NYAMSULA	16
KASHISHI	37	BUKWIMBA-UJAMAA	15
UYUGO	35	BUGOSHI	15
KINISHIHA	34	ITOGWANGOHOLO	14
KISUKE	33	SHUJU	14
ULOWA	33	IBOJA-UJAMAA	14
ULOWA-UJAMAA	33	MWALUGUFU	13
KINANHUNDU	32	WAME	13
		UBAGWE	13
		MWALO-UJAMAA	13
BUTIMBA	30	MSASA	12
NSANGO	29	KATUNGULU	12
CHONA	28		
MAHANGA-UJAMAA	28		
SANGILWA	27	TULOLE-UJAMAA	11
BUTOGOLO	27	MPERA	10
ZONGOMERA	27	ISUBALILU	10

Table VI.2   continued

KAHAMA DISTRICT

village	priority score
BUDUSHI	9
SONGAMBELE	9
HONGWA	7
NHALAMBO	7

BARIADI DISTRICT

village	priority score
MAHEMBE	68
SAPIWI	68
BARIADI	64
KASOLI	62
NKOLOLO	61
MWALUSHU	59
MWAMWITA	57
MALINONI	57
MWAMAPALALA	55
NYAKABINDI	55
LUGURU GINNERY	54
IGEGU	54
SAGATA	54
MWALUSHU-UJAMAA	53
NGEME	52
BARIADI-UJAMAA	52
LUGURU	51
ZANZUI	51
KINAMWELI	51
ISANGA	51
MATONGO	50
NHESHA	49
NKOLOLO-UJAMAA	48
NHOBOLA	47
KIDALATA	47
SAKWE	47
DASINA	45
DUTWA	45

BARIADI DISTRICT

village	priority score
MWALALAGI	45
MBITI	44
IKUNGULYABYSHASHI	43
KASILI	42
NHESA	42
ISANGA	42
KABALE	41
NG'WANG'WALI	41
MALIHOTI	41
GAMBASINGU	40
GASWA	40
MWAMHGESHA	39
INALU	38
SULULU	38
NG'WAMAGOKO	38
BUPAHOAGILA	38
NYABULEGI	38
MAGAHZO	37
MASEWA	37
SUNZULA	36
IHUSHI	36
NANGA	36
MHUIZE	36
NYAMLAMA	35
BAHEMI	35
BUKINGWAMINZI	34
NKOLOGOMA	34
NG'WAMOTO	33
NGULYATI	33
SEKENGE	30
HALAWA	30
BETA	30
ITARAMANDA	30
NDOLELEZI	30
SAMUDA	29
GAMBOSI	29
IKUNGULYAZA	29
SAKWE-UJAMAA	27
MWAMKUMBU	27
NANGA	21
NGULYATI-UJAMAA	21
MWABUKI-UJAMAA	21
NYAMIGUNGA	15
BUBALI	13

Table VI.3   Frequency distribution of priority scores for individual villages per indicator

INDICATOR	Score	frequency distribution in %				
		Kahama	Shinyanga	Maswa	Bariadi	Region
1. water need	0	42	15	12	14	20
	8	58	75	85	82	74
	20		10	3	4	6
2. official request	0	41	31	31	36	34
	5	59	69	69	64	66
3. distance to water source	0	65	29	30	32	38
	3	28	37	39	37	35
	7	4	15	17	15	13
	11	3	14	10	13	10
	15	0	5	4	3	4
4. infrastructural significance	0– 4	57	59	32	39	50
	5– 9	18	14	33	19	19
	10–14	6	12	10	14	11
	15–20	19	15	25	28	20
5. population size	0	50	17	15	17	24
	3	39	52	42	22	42
	5	11	31	43	61	34
6. migration surplus	0	33	22	21	12	23
	1	2	14	6	11	10
	2	19	15	12	21	16
	3	9	14	15	13	13
	4	7	13	10	8	10
	5	30	22	36	35	28
7. type of settlement	0	27	40	28	21	31
	3	41	8	13	17	18
	5	32	52	59	62	51
8. location	0	52	62	82	79	66
	5	48	38	18	21	34
9. type of cultivation	0	94	49	10	21	47
	1	6	45	64	11	34
	7	0	6	26	68	19
10. use of manure	0	59	70	88	95	75
	2	27	23	11	4	18
	7	14	7	1	1	7
11. selling of cattle	0	58	29	36	52	41
	1	29	55	42	47	45
	4	13	16	22	1	14
12. soil quality	0	31	37	19	15	29
	1	69	63	81	85	71
13. availability of land	0	28	41	51	37	39
	1	72	59	49	63	61

Shinyanga occupies a middle-range position while for Kahama the
majority of the villages have lower priority scores with
regard to infrastructural significance and population size.
The data for the degree of concentration and the location of
the village represent the settlement structure in the Region.
51 per cent of the villages interviewed are more or less
concentrated and 34 per cent are located along an all-weather
road.

A comparison of the situation in the four Districts shows that:
the most concentrated settlements are found in Bariadi, Maswa
and Shinyanga. The category "some concentration" is dominant in
Kahama, while in Shinyanga the dispersed settlements are most
strongly represented (40%).

The indicators for the agricultural situation - type of culti-
vation, use of manure and selling of cattle - give grounds for
concluding that the degree of modernization in the Region is
limited. Only 19 per cent of the villages interviewed make use
of the tractor, while manure is restricted to 25 per cent of
the settlements. In 41 per cent of the cases no selling of
cattle takes place, whereas if we include those where this
occurs only very occasionally the figure rises to 45 per cent.
There are however significant differences between the
Districts.
Concerning the type of cultivation it is remarkable that in
Bariadi and Maswa the use of tractor and plough is more common
than elsewhere in the Region. 68 per cent of the villages in
Bariadi use a tractor and 26 per cent in Maswa.
All the Districts show a very limited use of manure with a
slightly higher percentage for Kahama (14%).
The majority of the farmers have a favourable opinion
concerning the quality of the soil in their settlements (71%
for the Region), in particular in Bariadi and Maswa, 85% and
81% respectively. The availability of land, giving ample
opportunities for new settlers, is considered highly favourable
in Kahama and Bariadi. For both indicators one point is alloted
to the ranking order.

In the total priority scores, which is a summation of the
scores for the respective indicators, five priority categories
have been differentiated. Table VI.4 gives the frequency
distribution for the Region and the four Districts.

The frequency distribution given in table VI.4 is also
presented in a diagram of fig. VI.1.

From the data it will be clear that the majority of the
villages with a high priority are found in Bariadi, Maswa and
Shinyanga. Kahama has a rather favourable picture with only 4
per cent of the villages in the highest priority group of 51
points or more.
The analysis of the frequency distribution for the several

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indicators in the ranking order proved that in Maswa and
Bariadi the high priority is mainly based - in addition to
water need - on the significant scores for infrastructural
facilities, population size, immigration surplus, type of
settlement and type of cultivation.
The development potential is less important for Shinyanga,
giving substantial scores only for infrastructural signifi-
cance, population size and location.
The contribution to the total score of the use of manure,
cattle selling and quality and availability of land is limited
and differences between the Districts appear less significant.

Table VI.4   Frequency distribution for 5 priority categories
              in Region and Districts.

| | Proportion of villages in % for 5 priority categories | | | | | number of villages |
	0-20 %	21-30 %	31-40 %	41-50 %	51 or more %	
Region	11	24	31	21	13	416
Kahama	29	31	21	15	4	96
Shinyanga	7	26	33	22	12	176
Maswa	2	17	39	28	14	72
Bariadi	2	18	28	24	28	72

The results of the preliminary water development priority
ranking have alse been indicated on the District maps no.
3.14.04-06-07 to 09 on which the five priority categories
mentioned above can be distinguished.

VI.3 Preliminary water development priority ranking
     for Wards

A simplified form of the priority ranking system described in
sub-section VI.2.1 has been used to assess the priority re-
lationship between larger areas. In keeping with the ad-
ministrative organization it appeared obvious to choose the 95
Wards of the Region as areal units for this exercise. The areas
around the four District capitals (Kahama, Shinyanga,Nyalikungu
and Bariadi) which have a separate status - as division or sub-
division - have not been included.
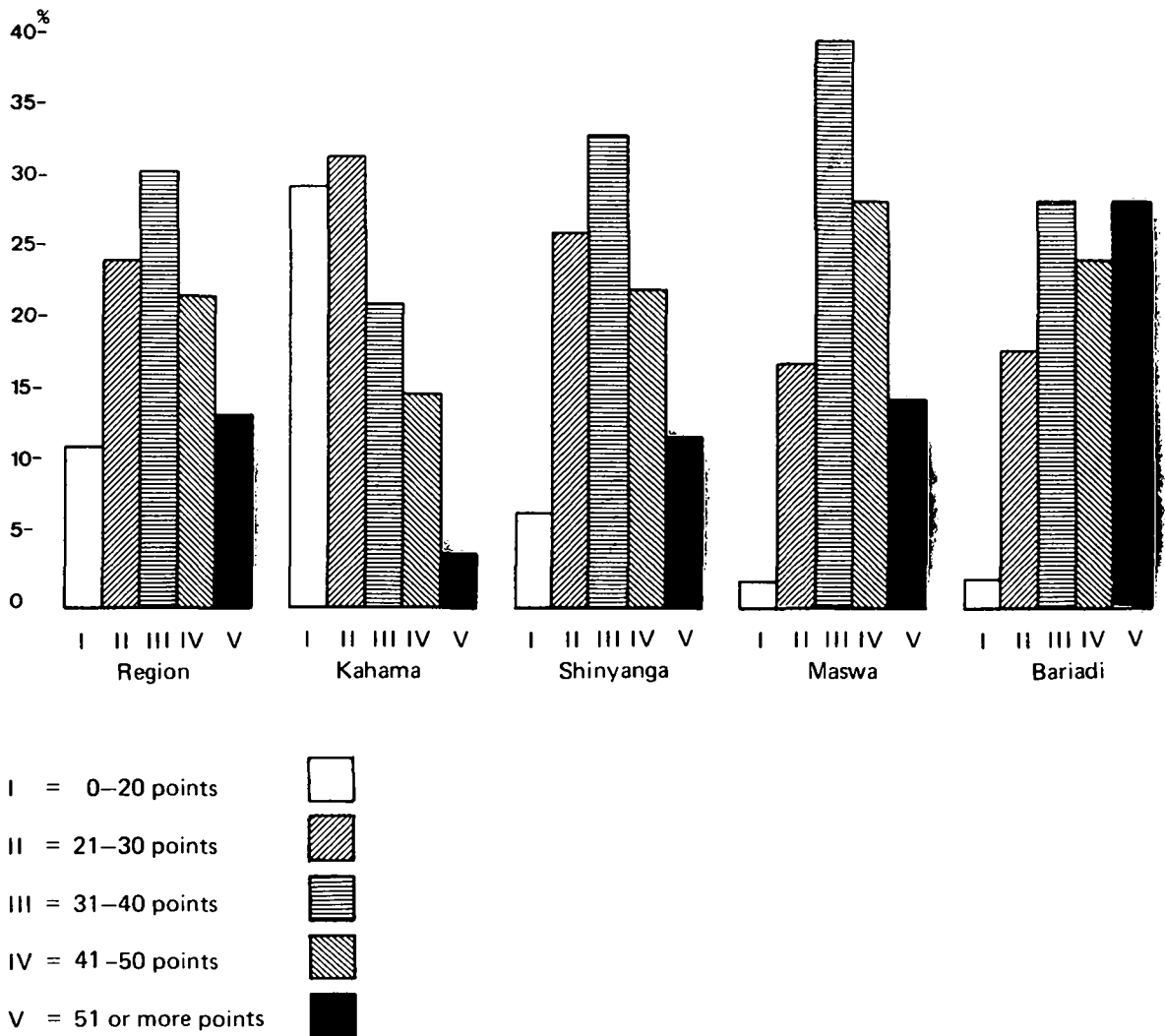
Fig. VI.1   Frequency distribution for 5 priority categories

The Ward ranking is applied in Technical Annex H, "Economy and general aspects", to determine the priority within the water master-plan of areas instead of individual villages for the implementation of:

a.   integrated supply systems in cases where individual supplies are not feasible from the technical or economic point of view;

b.   water supplies which though individual by nature can best be built as part of a construction programme. For practical reasons, such a programme should develop the provision of water to the (scattered) population in whole areas rather than on a village by village basis.

As one example of the above points the provision of water by means of charcos has already been mentioned in section VI.1.

Another example is a large scale construction programme for
shallow wells which is recommended as part of the water master-
plan (see vol.I Main Report and vol.II Technical Annex H).
Obviously the execution of such a programme, in which the
actual time spent on the construction of a well is short in
relation to the time spent for shifting of locations, transport
of materials, site surveys etc., can only be done effectively
if all wells necessary in a certain area are built at the same
time. This particular programme is further proposed to be
effected in a relatively short period of some six years only,
so that there is no need for a large differentiation. Pro-
visionnally three priority groups are considered sufficient.

As in the case of the ranking system for individual villages,
scores are allocated to factors related to "water need" and
"development potential". The information obtained at Ward
headquarters on all villages in the Ward ("general question-
naire", see app. 2) presented on the Ward Infrastructural maps
3.14.04-06-04 to 06 has been used.
The reliability of the data available at Ward level is lower
than that of the data used for the individual ranking order. On
the one hand, the information from Ward headquarters could not
be checked in detail. On the other hand some factors are
related to the Ward's population, so that reasonable approxima-
tions had to be made regarding the geographical position of the
Ward boundaries in relation to enumeration area borders used in
the Census. Obviously, the results are subject to a fair margin
of the error. Therefore, a dual scoring procedure is introduced:

-       first, the revelant indicators are distinguished for each
        factor and a score is assigned to each indicator as in the
        system described in section VI.2; the Ward scores are
        determined for one factor and the Wards are listed in
        order of decreasing scores;
-       secondly, the provisional ranking order per factor is
        divided into three equal parts and all Wards within one
        part receive the same final score for this factor. These
        parts or groups are further referred to as "categories".

The relative water need of the wards, the first factor of
priority ranking, is determined by relating the number and
types of existing modern water sources and supplies to the
1967 population of the Ward. Indicators used are:
a.   the number of the villages with (connection to) a piped
        water supply system (=A)
b.   the number of lined shallow wells and boreholes (=B);
c.   the number of other improved sources such as dams, and
        charcos (=C);
d.   the estimated 1967 population (=P).
Different importance is assigned to the various types of
supplies; the relative weight of group (B) is taken to be twice
that of group (C) and that of group (A) five times that of
group (B). The provisional ranking order of the Wards for the

factor water need follows now from the value of $\dfrac{P}{10\,A\ +\ 2\,B\ +\ C}$

Obviously, priority for water development should be given to the category of Wards where the above factor has the highest values. In keeping with the scoring system of sub-section VI.2.1. the category I scores 40 points. The categories II an III get 20 and 0 points respectively.

For the "development potential" two factors are taken into account being "facilities" and "infrastructure". Following the same reasoning as applied in section VI.2 priority should be given to the implementation of water supplies in the category of Wards which are relatively most developed in terms of facilities and infrastructure. Out of a maximum possible score of 60 points for "development potential" both factors are allotted 30, 15 and 0 points each for the categories I, II and III respectively. It was not possible to include at Ward level factors related to the state of agriculture or the agricultural potential.

The indicators used for the factor "facilities" are:
a. the number of medical facilities, being
    -   hospitals and health centres (=D); or
    -   dispensaries with or without clinic (=E) ;
b. the number of schools, distinguished as
    -   governmental or private primary schools (=F); or
    -   secondary schools (=G);
c. the number of trading centres in
    -   concentrated settlements (=H); or
    -   other settlements (=I), for definition see section IV.3;
d. the number of missions (=J).

Again following the scoring system for individual villages, different importance should be given to the above indicators. Moreover the total of (weighted) facilities should be related to the estimated population (=P) in order to compare different Wards and determine their relative priority. The Wards belonging to category I are those for which the factor
$\dfrac{10D\ +\ 5E\ +\ 3F\ +\ 6G\ +\ 4H\ +\ 2I\ +\ J}{P}$ has the highest values.
The relative weighting of the various indicators follows from the co-efficients in the above formula.
The values of the variables D to J can be read from the Ward Infrastructural maps no. 3.14.04-06-04 to 06.

The factor "infrastructure" is assessed for each Ward on the basis of:
(a) the total length of railroad and all-weather roads in km (=K);
(b) the total length of dry-weather roads in km (=L);
which indicators are related to:

(c) the total area of the Ward in km^2 (=W), exclusive of gazetted areas. In this case category I contains the Wards with the highest values of $\dfrac{2K + L}{W}$

App. 13 gives the scores per Ward of the three factors, and the category to which each Ward belongs in the preliminary water development priority ranking. The category with the highest priority comprises wards scoring 65 points or more, whereas the lowest priority is indicated by scores of 40 points or less. A summary of the preliminary ranking order is presented in table VI.5.

Table VI.5   Summary of preliminary water development priority ranking of wards

district	division	Wards		
		category I = highest priority	category II = medium priority	category III = lowest priority
Kahama	Dakama	Ukamba	Mpunze	Ukune
	Kahama		Isaka, Zongomera	Isagehe, Mhongolo
	Msalala	Busangi, Ngaya, Lunguya	Ngogwa	
	Mweli	Ulewe	Ushetu, Uyogo	
	Siloka	Mbogwe	Runzewe, Ushirombo	Masumbwe
Shinyanga	Itwangi	Usule	Didia, Isemela, Tinde	Ilola, Itwangi
	Kishapu	Mwakidoya	Uchunga, Kishapu	Shagihilu, Masanga, Mwamalasa, Somagedi
	Mondo	Bunambiyu, Bugoro, Songwa, Lohumbo	Bubiki, Mondo, Maganzo	
	Negezi	Talaga	Ibadakuli, Itilima, Ukenyenge, Mwamashele	Kiloleli, Lagana, Ngofila
	Nindo	Solwa	Iselemagazi, Nyang'ombe	Salawe, Mwantini, Lyabukande
	Samuye	Mwamala	Usanda/Singita, Samuye	
	Mjini		Kizumbi	Chibe
Bariadi	Itilima		Luguru, Mwamapalala	Zagayu, Nkoma, Mbita
	Kanadi		Lagangabilili, Bumera	Chinamili, Sagata
	Ntuzu	Somanda, Bunamhala, Mwabubingi, Gabu	Nkololo, Mhangu, Dutwa	Nyakabindi
Maswa	Meatu	Itinje, Imalaseko	Bukundi, Nkoma	Mwabuzo, Semu-Kimali, Kisesa
	Mwagala	Busilili, Dakama	Lalago, Sukuma	Mpindo, Ipililo
	Nung'hu	Masela	Buchambi	Isanga
	Sengerema	Badi	Malampaka, Nyabubunza	Kulimi, Shishiyu

Contrary to the results of the preliminary priority ranking of individual vilages, Kahama District has the largest proportion of Wards belonging to category I, the highest priority. Little difference is found between Shinyanga and Bariadi Districts, which have clearly lower proportions of high scoring Wards than Maswa District.
A summary of the frequency distribution of the scores per indicator (see table VI.6) shows that water need is very high in Maswa District, still considerable in Bariadi, whereas the situation in Kahama and Shinyanga District is rather favourable.

This reflects the good shallow groundwater potential of Kahama (see Technical Annex C, Hydrogeology) and the relatively large number of existing supplies in the Shinyanga District.
As regards the factor facilities Kahama scores very favourable because of the large number of facilities in relation to the population. This circumstance is not apparent in the ranking of individual villages (see sub-section VI.2.2) as the facilities are spread out and not concentrated in larger villages. The very low score for the Wards in Bariadi District points to the exact opposits.
Finally the results for the indicator infrastructure confirm the predominant position of Shinyanga District in this respect.

Table VI.6   Frequency distribution of priority scores for wards per indicator

INDICATOR	Score	frequency distribution in %				
		Kahama	Shinyanga	Maswa	Bariadi	Region
1. water need	0	39	49	19	12	33.6
	20	44	33	19	41	33.6
	40	17	18	62	47	32.8
2. facilities	0	17	33.3	38	41	32.8
	15	22	33.3	29	53	33.6
	30	61	33.3	33	6	33.6
3. infrastructure	0	22	23	57	35	32.8
	15	56	23	24	47	33.6
	30	22	54	19	18	33.6
Total score	0-40	22	33	38	35	33
	45-60	45	44	33	41	41
	65-100	33	23	29	24	26

The three priority categories are also indicated on a regional map, no. 3.14.04-06-10, which may serve to distinguish areas of priority for improvement of the water supply situation.

The preliminary priority ranking of Wards determined in this section is recommended in Technical Annex H as a guideline for the implementation of a crash programme for the construction of shallow wells to improve the water supply to the rural areas.

The suitability of this type of supply depends, however, on the hydro-geological conditions of the area, which constraining factor has to be applied to the preliminary water development priority ranking of Wards in order to arrive at the final one.

On map 3.14.04-06-10 the Wards have, therefore, been further classified in the following three groups:
- shallow wells generally feasible;
- shallow wells limitedly feasible;
- shallow wells generally infeasible.
This point is further dealt with in Technical Annex H, "Economy and general aspects".

Chapter VII   WATER SUPPLY AND REGIONAL DEVELOPMENT

VII.1.   Introduction

The commitment of Tanzania to provide adequate rural water
supplies and the general guidelines along which this commitment
will be fulfilled are concisely spelt out in the Second Five
Year Plan and were amply discussed in the Conference on Rural
Water Supplies in East Africa held in April 1971 in Dar es
Salaam. The plan mentions the various economic and social
benefits ensuing from improved water supplies, including that
of a more efficient settlement pattern. It points out, however,
that in the face of limited resources a fully satisfactory
solution cannot be reached in the near future, and as a
consequence gives the highest short-term priority in the short
term to low cost projects benefitting a maximum number of
people. Planners are reminded that the provision of rural water
should in principle be aimed at (ref. 2.):
(I) Development of Ujamaa villages;
(II) Areas of acute scarcity of water;
(III) Areas of population concentration;
(IV) Promotion of productive activities for
       agriculture and livestock.

In his opening address to the conference on Rural Water
Supplies, the Minister for Water and Power reiterated the
recommendations made in the plan. He pointed out that the rural
areas should be provided with safe and adequate water within
the next twenty years. Moreover, he urged planners not to
forget that the implementation of projects will always depend
on political decisions, the priority to Ujamaa Villages being
an example.
A master-plan should not merely provide information on
available and potential water resources but should come forward
with a ranking of areas according to water requirements and
development potential, having taken manpower and financial
restraints into account. In more explicit terms this means that
in addition to an assessment of present water needs data must
be collected on agriculture possibilities, social and economic
infrastructure, and demography, and that the planning of water
supplies should be closely co-ordinated and related to the
development programmes.

Based on these principles a preliminary priority ranking system
has been developed by Nedeco, see chapter VI.
Only if priority is given to the construction of water supplies
in areas or projects with a good development potential, can the
provision of such supplies contribute to and stimulate an
overall development.
Several studies exist on the relationship between improved
water supply and an overall rural development. For Tanzania the
research of Warner (ref. 11.) and Heynen en Conyers (ref. 22.)
are the most relevant in this respect. However their conclusions

are tentative because of the limited scale of the surveys. The major finding is that very few of the benefits expected from water occur spontaneously. Water in itself proves to be insufficient to stimulate rural development. It appears, therefore, that water must be provided as part of a "package deal" and that the people should fully participate in the project. These conclusions are confirmed by I.D.Carruthers, mainly based on the study of rural water investment in Kenya. He states that ".. water investment, though perhaps necessary for creating a progressive rural environment, is clearly not sufficient" (ref. 24). The same can be said with regard to a stimulation of concentrated settlements. In Nzega rapid growth of settlements seems to have occurred around water points located in existing villages, and more moderate growth around those located not in a village but on a road, the combination of road and water providing a nucleus. However, the points located elsewhere have not yet attracted any noticeable settlement. It may be concluded that water is not the main factor determining the location of settlements.

Therefore if optimum use is to be made of the investment in the water supply from the various resources for implementation the water development programme should not be considered on its own.

It should be an integral part of an overall regional development programme.

The drawing up of a regional development plan is beyond the scope of this study. It seems reasonable however, to assume, in keeping with the national policy of self reliance in labour and the priority towards agricultural development and in view of the fact that almost the entire population of the Region is engaged in agriculture and animal husbandry, that such a regional plan would be aimed at the optimization of the average income derived from these sectors, either per family or per group of families cooperating, (e.g. in an Ujamaa village).

Nedeco has therefore studied in outline the possible development of agriculture and animal husbandry over the period of the master-plan, the main conditions that have to be fulfilled to achieve such a development and the consequences this may have on the master-plan. Reference is made to Technical Annex E, "Agriculture".

The method applied is based on an optimum use of the available land, capital or labour, whichever is scarcest. Promising crops, yield projections, input requirements, availability of land, labour and capital, price and market projections, and changes in the composition of the livestock herd are estimated.

VII.2.   Considerations for a regional development plan

As has been said, the design of a regional water master-plan cannot be considered without taking into account the socio-economic developments in the Region for the coming decades. In many countries a water master-plan has been developed as an

isolated planning programme, mainly based on demographic
extrapolations.
In this study the future water supply is seen as an integrated
part of a regional development plan. In keeping with the
statements made by the Tanzanian Government (see section VII.1)
the purpose of the water master-plan will be to provide every
inhabitant of the Region with adequate and safe water by 1991.
The socio-economic development which would result from the
implementation of a regional development plan will determine
the future population distribution and the settlement pattern,
both essential elements for the planning of future water
supplies. The design criteria proposed in Technical Annex G,
"Civil engineering", clearly illustrate the importance to the
planning of socio-economic developments, as they relate the
types of supply to the number of consumers, type of settlement,
standard of living, development potential of the area, etc.

As the majority of the population in the Region is occupied in
agriculture, the socio-economic development will mainly be
determined by the agricultural sector, the more so since the
prospects for other economic activities during the period 1974-
1991 are considered very limited indeed. The Ministry of
Agriculture, Food and Co-operatives (Kilimo) intends to build
an abattoir possibly with a fertilizer plant, and a spinning
mill is also on the list of new projects.
Generally speaking, however, the Region does not (yet) provide
a suitable environment for industrial development.

In the description of the Region under section IV.3 on
demography it has been said that for the coming decades an
annual growth rate of 3% is expected for the population as a
whole. The 1967 population of 899,468 will then increase to
1,828,000 in 1991.
In view of the predominance of agriculture in the regional
economy the growth rate of the agricultural population (those
employed in this sector together with their dependents) is
taken to be only slightly lower than the overall-growth, i.e.
2.7 per cent per year (see the demographical projections of the
next section VII.3). On this assumption, some 1,630,000 people
will constitute the agricultural population of the Region by
1991. It is clear that this considerable increase will make
demands on the agricultural output. Considering the Region as a
whole, with the present system of land use, the increasing
population can be accommodated only for some 10-15 years from
1972 onward. That is why a more intensive use of land will be
necessary to accomodate the farmers within the regional
boundaries. The scope of the Nedeco survey precludes the
consideration of the effects of developments outside the
Region, such as immigration from Mwanza Region into Shinyanga
or emigration from Shinyanga to Tabora Region.

In the report on agriculture, Technical Annex E, detailed
recommendations are formulated to improve the gross and net

production values per hectare. Based on a division of six agronomic zones, covering the Region, the agricultural carrying capacity is calculated with an extrapolation to 1991, in which a significant increase of the average yield has been included. If these figures per division are related to the distribution of the farming population in 1991 it appears that in a number of divisions the population will surmount the carrying capacity. The population density in these areas will increase to such an extent that the land available for each production unit, being the rural household group, will be less than anticipated under conditions of improving agricultural output, and moreover that very marked differences in income will occur. An additional disadvantage would be that if farm sizes decrease it may be expected that as food crops have first priority the area with cash crops, such as cotton, paddy and oil seed, will diminish.

In particular in the Itilima, Sengerema, Itwangi, Mondo, Negezi (north), Samuye and Mjini divisions the future population will exceed the carrying capacity of the land. On the other hand there are areas like Kahama that have a vast quantity of arable land, where the carrying capacity will not be utilized by the local population in 1991, leaving ample opportunities for new settlers.

On the basis of the above considerations it is concluded in Technical Annex E that a redistribution of the farming population could play a decisive role in the intensification of land-use and as such should be a basic element of the development plan and of the water master-planning.

Technical Annex E, "Agriculture", deals with the possible development models which would further suit the above objective. The alternative which would provide the agricultural population, especially in the long run, with the highest income and the most even distribution of this income, has been elaborated. It calls for an active migration to be started in 1976, which would make it possible that as far as crop production and livestock-keeping are concerned the Region will not be fully occupied before 2005 - 2010. Criteria are suggested for the selection of emigration areas, from which people should be encouraged to move, and immigration areas to which new settlers should be attracted. The effects of the implementation of such active migration policy on the population distribution over the period up to 1991 are relevant to the water masterplan.

The promotion of a settlement pattern where people live in concentrated villages is also considered a major objective of the regional development plan. This is in line with the national policy of villagization which is more or less a prerequisite for any co-operative undertakings, a necessary condition for the improvement of the agricultural production.

In addition, seen from a different angle, the provision of adequate facilities, water supply being one of these, is very

much hampered by the existing settlement pattern under which
most people live widely dispersed.
As has been said earlier, the design of a complete Regional
Development Plan is beyond the scope of the present report.
However, the above mentioned objectives are reasonable assump-
tions for an overall planning on which a water master-plan can
be based.

VII.3.   Demographical projections

The present population in the Shinyanga Region is to a large
extent dependent on agriculture. According to the Census of
1967 the percentage of the population employed in farming and
livestock was 95.6% of the active population, being 53.5% of
the total population of the Region (see table IV.3).
For the period 1972 - 1991 it may be assumed that the economic
development will be mainly determined by the agricultural
potential of the Region. A significant increase of the other
economic sectors is not likely. This fact is illustrated by the
few possibilities for industrialization as mentioned in the
previous section and the diminishing importance of diamond
mining at Mwadui.
Based on these economic considerations it may be assumed that
only a slight increase of the non-farming population during the
planning period may be expected. Therefore the annual growth
rate for the farming population in the Region has been
estimated at 2.7% versus an overall growth rate of the Region
of 3% annually.
The extrapolation of the 1967 population up to 1991 are based
on these growth-rate assumptions. Table VII.1 shows the
estimated population of Shinyanga Region in 1967 and 1991 by
economic activity.

Table VII.1.   Population of Shinyanga Region in 1967 and 1991
                 by economic activity

	1967	1991
total population of the Region	899,468	1,828,000
farmers	859,891	1,630,000
non-farmers	39,577	198,000
non-farmers in % of total population	4.4%	10.8%

Up to now, the population distribution has been given in
accordance with the type of settlement in 1967. The data from
the sociological survey indicated a correlation between
population-size and type of settlement and the rate of growth.

The growth rates for existing concentrated settlements in 1972 have been estimated from this relationship and are listed in table VII.2. For Shinyanga town the Nedeco census, carried out in June 1972 actually showed an annual growth of more than 9% for the period 1967 - 1972 (see appendix 10).

Table VII.2. Annual growth rates for concentrated settlements (existing in 1972)

settlement	population size in 1972	economic activity	growth-rate %/yr
Kahama/Bariadi/ Maswa towns	2,000 - 6,000	non-farmers	5
Shinyanga town	11,500	same	8-9
Mwadui mines	8,000	same	0
concentrated settlements	400 - 1,000	farmers and non-farmers	3
	1,000 - 2,000	same	3-3.5
	2,000 - 4,000	same	3.5-4.5
	more than 4,000	same	5

The above mentioned growth rates have been applied for the calculations of the population distribution in 1991, shown in table VII.3. The procedure followed was:

a. The population in the district capitals and the Mwadui mines is derived from the figures of 1972 and consists entirely of non-farmers.

Kahama/Bariadi/Maswa towns: $1,05^{19}$ x 11,400 = 29,000
Shinyanga town : $1,08^{19}$ x 11,500 = 50,000
Mwadui mines : constant = 8,000

b. The total population of the concentrated settlements in the area in 1972 was calculated by applying different growth rates for the respective sizes of the settlements. Concentrated settlements, 1972 pop.

400 - 1000: $1,03^{19}$ x 89,600 = 157,000
1000 - 2000: $1,032\overline{5}^{19}$ x 61,800 = 113,000
2000 - 4000: $1,04^{19}$ x 36,600 = 77,000
    4000: $1,05^{19}$ x 11,200 = 28,000

Total   375,000

c. Besides the existing concentrated settlements a group of
    new settlements in development areas, according to the
    implementation of a regional development plan, has been
    distinguished, (see sections VII.5 and 6). The total
    farming population for this category was estimated at some
    278,000 people in 1991 in Technical Annex E, "Agriculture",
    sections V.7 and 8.

d. The differentiation between farming and non-farming
    population was calculated as follows. The non-farming
    population, living outside the district towns and the
    Mwadui mines amounts to 198,000 - 87,000 = 111,000 people.
    It may be assumed that this group will be located in
    concentrated settlements proportionally divided between
    the old and new settlements. The proportion then becomes
    16% for both types of concentrated settlements.

e. The population of the scatterd settlements follows from
    the Regional total and the totals for concentrated
    settlements.

Table VII.3.   Estimated population distribution in 1991
                by type of settlement and economic activity.

Type of settlement	estimated population in 1991 by economic activity		
	non-farmers	farmers	Total
I. District capitals and Mwadui	87,000		87,000
- Shinyanga town	50,000		50,000
- Kahama, Bariadi, Maswa town	29,000		29,000
- Mwadui mines	8,000		8,000
II. Concentrated settlements in 1972	59,000	316,000	375,000
- 1972 population 400 - 1000			157,000
- " " 1000 - 2000			113,000
- " " 2000 - 4000			77,000
- " " 4000			28,000
III.New concentrated settlements in development areas.	52,000	278,000	330,000
IV. Scattered villages		1,036,000	1,036,000
Total for the Region	198,000	1,630,000	1,828,000

Comparing the data of this table with the figures of 1972 it appears that the population living in towns in the Region will increase from 30,900 to 87,000, while the population of existing concentrated settlements will grow from 199,200 to 375,000 to which number 330,000 has to be added, being the population of the new concentrated settlements in the development areas.
The proportion of the scattered population would decrease during the planning period from 77% in 1967 to 55-60% in 1991.

The farming population in existing concentrated settlements in 1967 was 153,900 (see app. 11), while for 1991 a population of 316,000 is expected. This means for the period 1969 - 1991 an annual increase of 3.0 per cent, slightly more than the growth rate of the total farming population, being 2.7. The implication is that during the planning period a slight tendency among the farming population to settle near existing concentrated villages is assumed. The validity of this assumption is suggested by the results of the sociological survey.
The overall growth of the farming population having been taken at 2.7 per cent a year, the growth of the scattered farming population of 1967 (706,000), a group which by 1991 is divided into those who have migrated to new concentrated settlements in development areas and those remaining in scattered villages, might be assumed to amount to 2.62 per cent a year over the period 1967 - 1991. Though consistent from the mathematical point of view, it would indicate an unrealistic confidence in the accuracy of the data and assumptions underlying the predicted growth rates of table VII.2 to use this figure for the annual growth of scattered settlements. Given the occupation of their inhabitants the overall rate applied to the category "farmers" of 2.7% a year is proposed instead.
The use of this figure in section VII.5 leads to an estimate of the scattered population of 1,060,400 in 1991 or an overestimation of 2.4% as compared with table VII.3. This negligible discrepancy over a period of 24 years indicates a satisfactory degree of consistency between the assumptions made for growth rates differentiated according to natural access, economic activity, or type of settlement.

On the basis of the demographical data in this section detailed calculations will be made in section VII.5 per division for the population distribution over the master-plan period at the (interim) years 1976, 1981 and 1986. The results are relevant to the water master-plan and will further be used in Technical Annex G on 'Civil engineering'.
Summarizing the implications of demographic developments for the water master-plan it can be said that:

(i)   The increase of the population of district capitals, the Mwadui mines and the existing concentrated settlement is known for the entire master-plan period; the topographical locations are shown on maps 3.14.04-01-01 to 03.

(ii) The number and population of new concentrated settlements
      to be supplied with piped water in each period of five
      years is known; the area in which the new settlements will
      be located can only be assessed generally within a
      division (see Technical Annex E).

(iii) The scattered population of each division can be determined
      for each interim year, as well as its average distribution
      over the areas with a different water potential.
      The latter two points depend of course entirely on the
      priority criteria to be adopted for the selection of
      immigration and emigration areas. The migration alternatives
      1.a.c and 1.a.d defined in Technical Annex E, are
      discussed as are the results of their implementation on
      the population distribution.

VII.4.   Socio-economic development

In view of the predominant role of agriculture in the regional
economy a regional development plan should be aimed at the
optimalization of the average income derived from the crop
production and animal husbandry sectors, either per family or
per group of families, cooperating in an Ujamaa or other forms
of co-operative villages. Planning of water supply should be
closely co-ordinated with the region-wide development planning
of crop and livestock production in the present farming areas
and the farm settlement areas to be developed.
In the report on agriculture some alternative development
models of the regional agricultural potential, dependent on
topography, soil texture, fertility, rainfall and evaporation
distribution, as well as present and future conditions of
pastures and bush encroachment, are considered. In this section
the main aspects of the actual and future economic development
of the area are discussed.

Technical Annex E divides the whole Region into six agronomic
zones. Within each zone the natural conditions are assumed to
be more or less constant, enabling the optimum choice of a
combination of crops suitable for the area with an average
yield per ha deviating only to a limited degree. The zones have
been located within existing administrative boundaries wherever
possible.

The zones are indicated on fig. V.1 of Technical Annex E.
Generally boundaries could be matched with administrative,
divisional boundaries. For the divisions Negezi, Kishapu and
Meatu a distinction between a northern and southern part was
necessary.

For each agronomic zone a number of promising crops, adapted to
the natural conditions, were considered. Yield estimates were
made on the assumption that agriculture in the Region would

develop both along current lines and, by active promotion of modern husbandry methods, as a package deal including extension service and credit facilities, co-operative villages, etc. It is shown that by 1991 the latter development model would lead to a very considerable improvement of the Net Production Value (NPV) derided from agriculture per average farming household.

Table VII.4.   Sub-division of the Region into agronomic zones

number zone	agronomic zone	constituting division(s)	District
1	South & West Kahama	Dakama, Mweli, Siloka	Kahama
2	East Kahama	Kahama, Msalala	Kahama
3	West Shinyanga	Itwangi, Nindo	Shinyanga
4	Central Shinyanga East	Samuye, Mjini, Mondo	Shinyanga
	Maswa & Bariadi	Sengerema, Nunghu Itilima, Ntuzu, Kanadi	Maswa Bariadi
5	East Shinyanga &	Negezi (north), Kishapu (north)	Shinyanga
	East Maswa	Mwagala, Meatu (north)	Maswa
6	Southeast Shinyanga & South Maswa	Negezi (south), Kishapu (south), Meatu (south)	Shinyanga Maswa

The optimum cropping patterns to achieve this, and from these the average farm sizes, have been calculated for each agronomic zone. The cropping patterns assume that each household or group of households will provide its own labour and will give first priority to the cultivation of its own food crops, in line with both the present system and the government's policy.

It appears that in zones 1 to 5 preference should be given to crop production instead of livestock keeping, provided of course, that the land is suitable to this purpose. For zone 6 a combination of food crop production and livestock keeping would offer the best solution.
As a next step the number of people of the farming population,

who can be accommodated so that each member has an area of
agricultural land that he can handle optimally, has been
estimated for the various divisions of each agronomic zone.
This number is referred to as the "carrying capacity" of the
division. If the carrying capacities are related to a mere
extrapolation of the 1967 population of each division, the
analysis given in the agricultural report makes it clear that
in several divisions the 1991 population will surmount its
carrying capacity, notably in the divisions Itilima, Sengerema,
Itwangi, Mondo, Negezi(north), Samuye and Mjini, while in
particular in Kahama District the population is far less than
its carrying capacity.
This is to say that in the divisions mentioned the availability
of land to each production unit will be less than anticipated
and therefore the possibilities based on labour will not be
utilised adequately. Consequently the average income will be
less than that possible, the more so as available land will
firstly be allocated to the cropping of food crops, while cash
crops will only be grown on the remainder. The excess of
population under natural growth over the carrying capacity is
especially large in zone 6, where livestock keeping requires an
average grazing area per household or group of households which
is about two times the size of arable land to be allocated to
cash crop production in the other agronomic zones. On the other
hand there will be areas in the Region where quite a lot of
land will be idle, Kahama serving as an example. The differences
in land distribution would not only imply failure to obtain
maximun NPV's in too densely populated divisions, but would
also lead to considerable variations in the distribution of
income in the agricultural sector. This situation already of
undesirable proportions in 1991 would worsen steadily in later
years.

Taking not only the water master-plan period (up to 1991) but
also the farther future into consideration it should be one of
the aims of a regional development plan to reach an optimaliza-
tion of the average income in the agricultural sector, making
full use of the production development potentials of the whole
Region. It is obvious that this calls for a partical redistribu-
tion of the population allowing each production unit, the farming
family, to cultivate the maximum quantity of land which it can
handle as long as arable land is still available in the Region.
Technical Annex E estimates, that under such a policy the
farming population of the Region can be accommodated up to the
year 2005 - 2010. The number of people to be migrated in the
course of the years (see next section) is so large, that
implementation of an active migration programme should be
undertaken shortly. Its effluence on the population distribution
up to 1991 will be an important input for the water master-
plan.

The development of the agricultural potential of the Region
requires further that a regional development plan pays due

attention to the modernization of agriculture and to a marked reduction of the average livestock density (see Technical Annex E). These factors also influence the water master-plan.

Improvement of the efficiency of the extension service, the use of farm machinery and controlled grazing - necessary both to put an end to the present, serious overgrazing in some areas and to free land for crop production - call for farmers of each village to be organized under a co-operative system. It is therefore assumed that a regional development plan will emphasize "villagization" in the sense that settlers in new development areas will be accommodated in well-planned concentrated settlements and that a similar settlement pattern will also be promoted in the already more densely populated areas, though then the process will undoubtedly be more difficult and slower. Obviously, this type of settlement has economic and technical advantages and implications for the provision of water as is dealt with further in Technical Annex G, 'Civil engineering'.
The urgent need to reduce the livestock herd and to lower the average livestock density (shown in Technical Annex E as a prerequisite to improve the animal husbandry sector and further needed in densely populated areas to make land available for more porfitable crop production), has led to the recommendation that provision of water to cattle should only be included in the water master-plan in areas where controlled grazing is practised at the optimum density.

VII.5.   Migration and its influence on the population
           distribution

VII.5.1.   General
           ───────

In Technical Annex E an attempt has been made to estimate the required volume of migration during the water master-plan period up to 1991. The calculations have been made on a divisional scale related to migration from the too densely populated divisions (emigration divisions) to the scarcely populated ones (immigration divisions), a process which is called "inter-divisional migration".
Two land-suitability alternatives are distinguished. It has been calculated that taking into consideration alternative 1 a migration with a capacity gradually built up during 1976 - 1981 to 14,000 people annually, can lead to an optimum population distribution in the Region in 2008. That is to say that a total number of 430,000 people should migrate to new sites in immigration divisions. Under land suitability alternative 2 which is less favourable the figures are 16,000 annually and 464,000 people in total in 2007.
Given the period of the master-plan (up to 1991) and the small differences which both alternatives involve for that period,

the figures of alternative 1 are used for the master-plan.
An estimate is also given for the migration required within the
divisions from one area to another, referred to as "intra-
divisional migration". Starting in 1981, it is estimated that
from 1986 onwards some 5,700 people would have to be resettled
annually, totalling 102,600 members of the farming population
by 2,008.
Several alternative migration schedules are considered, based
on different priority criteria to be applied to emigration and
immigration divisions.
As feasible dates for implementation 1976 has been chosen for
the inter-divisional migration and 1981 for the intra-
divisional migration. The provision of adequate institutional
support, the size of the operation and the necessity to execute
the migration policy as a part of a detailed regional development
plan seem to prohibit realization at an earlier date. A period
of five years is foreseen during which the migration capacity
will gradually increase to the required levels of 14,000 FP
(members of the farming population)/year and 5,700 FP/yr
respectively.

It is proposed that people who migrate settle down in concentra-
ted villages, planned in development areas according to a de-
tailed plan and equipped with the necessary facilities such as
piped water supply, schools, medical provisions, agricultural
support and the like. The planning and sub-division of such
development areas is discussed later, in section VII.6.
Sub-section VII.5.2 deals with the effect of the implementation
of migration alternative 1.a.c (see Technical Annex E),
considered the most appropriate one for the water master-plan.
The resulting distribution of the farming population at 5 year
intervals (1976, 1981, 1986 and 1991) is discussed on the basis
of the data given in app. 10 of Technical Annex E.

Under migration alternative 1.a.c the situation in agronomic
zone 6 would develop along natural lines until 1991. The
restructuring required to turn this into an area where
agricultural activities would concentrate on rational and
optimalized livestock keeping on a small-holder scale, with the
cultivation of food crops for own consumption only, will pose
huge problems. Especially so, because under this system far
fewer people can be accommodated than under present land-use
practices, and large scale emigration will be required. By
extrapolation of the 1967 figures to 1976 the population of
Meatu south would be 86% of the carrying capacity, that of
Kishapu south 185% and Negezi south 247%. For 1991 these
figures would read 128, 276 and 368%! Stimulation of emigration
in the first phases of a regional development plan will also be
hampered by the current attitude of the farming population
which indicates the inclination to move into zone 6 rather than
away from it. It is therefore argued that an active emigration
policy should not be applied to zone 6 before the population
pressures in other areas have been reduced and the positive

effects of the new system have been clearly demonstrated.
Consequently migration alternative 1.a.c is chosen as the basis
for the water master-plan.
In sub-section VII.5.3, however, the implications of major
differences in the population distribution relative to that
assumed are assessed, particularly those resulting from an
earlier emigration of the "excess" farming population from zone
6 (migration alternative 1.a.d).

VII.5.2. Assumed population distribution for the water

master-plan

Farmers and their families who emigrate are assumed to belong
to the category of the scattered population. The effect of
migration will generally be that the scattered population in
each division will be smaller then that which would follow from
an extrapolation of the 1967 situation. A corresponding number
of farmers will be accommodated in new settlements in development
areas, either in the same division or in an immigration
division.
In this sub-section the figures presented in Technical Annex E
for migration alternatieve 1.a.c are considered.

The number of farmers migrating to new development areas either
under inter-divisional or intra-divisional movements have been
calculated from tables 10.5, 10.8 and 10.10 (Technical Annex E,
appendix 10) for three five-yearly periods from 1976 - 1991,
and are summarized in table VII.5 below. Technical Annex E does
not specify the sequence of the execution of intra-divisional
migration during the relevant period 1981 - 1991, but it is
assumed that priority will be given to the divisions which have
the highest overall density of the farming population. A
comparison between tables IV.1 and V.1 of Technical Annex E
then renders the following sequence for the divisions where
intra-divisional migration is foreseen in the agricultural
report:

- from 1981 to 1986: Itilima, Sengerema, Nunghu, Ntuzu and
                      Mwagala (partly);
- from 1986 to 1991: Mwagala (partly), Kahama, Kishapu
                      (north), Nindo, Meatu (north), Dakama
                      and Msalala.

The total population of the new concentrated settlements in
developments areas by 1991 is estimated in table VII.5 from the
farmers who actually migrate, their descendants and a proportion

of non-farmers taken at 16 per cent of the agricultural
population (see section VII.3).

Table VII.5.   Population of new concentrated settlements in
                development areas

x 1,000

district or division	farming population resettling in development areas [*]			1991 population of new concentrated settlements in development areas		
	1976-81	1981-86	1986-91	farmers (resettlers and descendants	non-farmers	total
KAHAMA						
Dakama	1.2	59.9	4.0	74.0	13.8	87.8
Kahama		4.6	6.2	11.5	2.2	13.7
Msalala	44.6		1.5	59.8	11.2	71.0
Mweli		3.3	77.7	81.4	15.2	96.6
SHINYANGA						
Kishapu north			1.1	1.1	0.2	1.3
Nindo		5.1	12.0	17.8	3.3	21.1
BARIADI						
Itilima		1.7		2.0	0.4	2.4
Ntuzu		11.6		13.2	2.5	15.7
MASWA						
Meatu north		4.6	3.0	8.6	1.6	10.2
Mwagala		3.0	3.0	6.4	1.2	7.6
Nung'hu		0.9		1.0	0.2	1.2
Sengerema		1.1		1.2	0.2	1.4
REGION (total)				278.0	52.0	330.0

[*] Note: for each period the number of people given represents
            those who actually migrated in that period (42,000 in
            1976-81; 87,100 in 1981-86; 98,500 in 1986-91)
            inclusive 2.7% annual growth over the year(s) from
            the moment of migration to the end of the 5-year
            period under consideration.

The water master-plan should take into account type, number, size and locations of the new settlements. Generally, development areas will have to be found in areas where the 1967 population density was below 40 capita per square kilometre (see maps 3.14.04-06-01 to 03). Exact locations can only be determined after further detailed survey, beyond the scope of the water master-plan study. Type, number and size of the new settlements will be discussed in section VII.6.

Assuming than no other migration will take place than that referred to above, the number of farmers and their families who remain in scattered settlements can be deduced for the target years 1976, 1981, 1986 and 1991 by extrapolation of the 1967 figures (see app. 11) and subtration of those resettling in development areas (see table VII.5). Their distribution over each division is important to assess the various types of improved sources which will be required for the supply of water to this group. Merely for the sake of the water master-plan emigration is therefore assumed to take place from the most densely populated areas in a division.
The planning produce for water supply to the scattered population by means of the improved sources described in Technical Annex G, Civil engineering, further requires that a distinction is made between:

- low-density areas, where strict application of a maximum walking distance to the source (1.5 km is proposed as a target) is inpracticable as it would lead to excessive cost for relatively expensive supplies such as boreholes or charcos. The population is assessed from an extrapolation of the 1967 figures at an annual growth rate of 2.7 per cent.

- medium density areas; the adopted design criteria can be applied unabridged and the population and its distribution are derided from an extrapolation of the 1967 situation.

- high density areas; the planning of the water supplies must take into account that emigration from these areas should be encouraged, whether it be during the master-plan period itself or over a relevant period thereafter, say up to the year 2000.

The resulting distribution of the scattered population up to 1991 is given in table VII.6. Low, medium and high density areas were actually determined on the basis of the 1967 population distribution maps but totalized for presentation per division, in line with the accuracy of data available and assumptions made regarding migration.
Low density areas are in general those where the total population density in 1967 was 0-19 people per km2.

Table VII.6 Assumed distribution of the scattered population over the course of the master-plan period according to the migration alternative ı.a.c
(see section VII.5.1)   (numbers are rounded to nearest 100; calculations based on unrounded figures).

x 100 people

district or division	total 1967	low-density areas*		medium density areas*		high density areas					total 1991
		1967	1991	1967	1991	1967	1976	1981	1986	1991	
KAHAMA	1282										2312
Dakama	387	28	53	316	599	43	55	63	57	42	694
Kahama	345	34	65	220	416	91	115	132	128	110	591
Msalala	244	145	273	74	140	25	33	37	37	33	446
Mweli	94	88	167	6	12	0	0	0	0	0	179
Siloka	212	100	189	112	213	0	0	0	0	0	402
BARIADI	1551										2466
Itilima	364	22	42	109	207	233	296	338	280	175	424
Kanadi	388	36	68	253	479	99	126	143	164	112	659
Ntuzu	799	55	104	513	973	231	294	336	336	306	1383
MASWA	1824										2893
Meatu north	277	121	230	116	220	40	55	70	56	46	496
Meatu south	436	34	64	0	0	402	512	585	668	763	827
Mwagala	475	62	118	221	420	192	244	284	302	239	777
Nung'hu	235	9	16	40	75	186	236	270	287	246	337
Sengerema	401	8	15	86	162	307	391	423	328	279	456
SHINYANGA	2403										2933
Itwangi	344	5	10	11	21	328	416	320	248	214	245
Kishapu north	162	0	0	126	239	36	46	54	57	57	296
Kishapu south	161	0	0	0	0	161	205	249	284	305	305
Mondo	352	3	5	108	203	241	306	399	294	241	449
Negezi north	400	7	14	0	0	393	500	390	326	299	313
Negezi south	138	0	0	0	0	138	175	200	228	260	260
Nindo	380	96	182	124	235	160	204	233	223	184	601
Samuye	181	0	0	59	112	122	155	177	126	94	206
Mjini	285	0	0	27	52	258	328	277	227	206	258
REGION	7060										10604

* Note: the population at interim years follows from extrapolation of the 1967 figures assuming a compound annual growth rate of 2.7 per cent.

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High density areas were determined as being those from which
either inter- or intra-divisional emigration would be likely to
take place before 2000. They were found mathematically by the
following procedure:

-   the 1967 population census figures and the data from the
    Nedeco survey of all concentrated settlements in 1972 were
    extrapolated and used to estimate the farming population
    in 1976 for each area of the population density maps,
    differentiated as scattered "farmers" and those living in
    concentrated settlements;

-   the density of the total farming population per area of
    each division was calculated for 1976;

-   the areas within a division were arranged according to
    declining magnitude of the above density;

-   the assumed number of emigrants per division for the
    period 1976-81 was derived from appendix 10 of Technical
    Annex E, Agriculture;

-   emigration was supposed to start in the area of a division
    with the highest density of the agricultural population
    and to affect the scattered population only. If the
    density figure dropped to the level of the second highest
    ranking area and further emigration was still necessary,
    both areas were considered jointly, and so on;

-   the farming population of each area of a division in 1981
    followed from extrapolation of the 1976 situation taking
    into account the decrease of the scattered population in
    emigration areas;

-   the new density of the farming population of each
    area could be calculated for 1981, and the procedure
    repeated for 1981-86, etc.

Table VII.7 gives a summary of the high density areas determined
in the above way. They have been indicated according to the
density class to which their minimum overall population density
belonged in 1967, as shown on the maps 3.14.04-06-01 to 03.

VII.5.3. Implications_of_earlier_development_of_agronomic_zone_6

The implications for a water master-plan designed for the
assumed population distribution as dealt with in sub-section
VII.5.2, supposing that a regional development plan were to
give priority during the master-plan period up to 1991 to
restructuring agronomic zone 6 (Negezi south, Kishapu south and
Meatu south) as a cattle keeping area, will be discussed on the

basis of migration alternative l.a.d set out in Technical Annex
E. This alternative differs from the l.a.c alternative
previously dealt with in that emigration divisions are simply
ranked according to decreasing value of relative population
density, which is the ratio between actual or extrapolated
agricultural population and the carrying capacity of a
division.

Table VII.7.   Classification of high-density areas

district or division	population density in 1967 (people / km^2) of more than	district or division	minimum population density in 1967 (people / km^2) of more than
KAHAMA		SHINYANGA	
Dakama	80	Itwangi	40
Kahama	80	Kishapu north	40
Msalala	80	Kishapu south	5
BARIADI		Mondo	40
Itilima	80	Negezi north	20
Kanadi	80	Negezi south	20
Ntuzu	80	Nindo	60
MASWA		Samuye	40
Meatu north	60	Mjini	40
Meatu south	20		
Mwagala	60		
Nung'hu	40		
Sengerema	40		

Livestock keeping in zone 6 with food crop cultivation only for
own consumption calls for a relatively low population density.
Emigration from zone 6 would therefore receive high priority,
especially for Kishapu south and Negezi south. Table 10.1 of
appendix 10, Technical Annex E, gives comparable figures for
the migration alternatives. From these the reductions to be
applied to the scattered population in the high density areas
of zone 6 as listed in table VII.6 for alternative l.a.c can be
determined for l.a.d. The results are presented in table VII.8.
In case of migration alternative l.a.d the planning of water
supplies in zone 6 would not in fact have to reckon with
scattered population in Negezi and Kishapu divisions and with a
more or less constant scattered population of some 50,000
people in Meatu south. It should however be kept in mind that
in accordance with the recommendations made on the rationalized
cattle-keeping system in the agricultural report, water supply
to the livestock of the area would have to be included.

Table VII.8.   Comparison of the scattered population in high
                density areas of zone 6 for migration alterna-
                tives l.a.c and l.a.d. (rounded figures)

x 1,000

Migration alternative l.a.c. (see table VII.6.)				division	migration alternative l.a.d.			
1976	1981	1986	1991		1976	1981	1986	1991
18	20	23	26	Negezi south	18	2	0	-
21	25	28	31	Kishapu south	21	6	1	-
51	59	67	76	Meatu south	51	59	51	48
90	104	118	133	Zone 6 total	90	67	52	48

In regard to the distribution of the scattered population in
the other divisions than zone 6, alternative l.a.d would simply
delay the emigration from high density areas some 4-5 years,
and consequently lead to population figures about 13 per cent
higher than those listed in table VII.6.
A switch from migration alternative l.a.c to l.a.d would not
affect the distribution of the scattered population in low or
medium density areas.
Neither would it have any implications for the population of
new concentrated settlements in development areas (see table
VII.5) as the ranking of these areas remains unchanged.

Vll. 6   Planning in the new areas

VII. 6.1. Planning procedure

Although it is not the aim of either this report on the water
master-plan to outline a regional development plan, it will be
necessary to indicate some guiding principles to serve as a
reference for the future water supply of the Region. Moreover,
as has been indicated in the foregoing section large scale
migration from relatively sparsely populated areas will be
necessary for an optimization of the agricultural income. Since
large scale migration of people and livestock is a major
operation, a framework for the resettlement programme has to be
considered.

Regional planning is oriented towards the future; it looks to
the relation between social purposes and spatial arrangements.

The process of planning may, in general, be regarded as one which leads to the formulation and clarification of goals and to their ultimate reduction to specific courses of action, programmes and projects. Thus regional development planning may be described as the process of formulating and clarifying social objectives in the ordering of activities in a certain area.

The basic question therefore is in what way activities have to be distributed in space in order to achieve the social objectives. Alternatively, what are the proper social objectives in accordance with which activities are to be allocated in a planning area. One of the main functions of regional planning is to state the ordering of centers within an area, to indentify the functions to be performed by each center and to study the interrelationship.

A regional development programme will suggest different things to different individuals, but is likely to suggest to everyone not a single programme but a number of related programmes focusing on common objectives. For a development agency, a regional development programme implies scores of individual projects ranging from those involving engineering to those basically educational in nature.

In general the following steps can be distinguished in the planning procedure.

A.   Formulating the targets.
     This is the phase in which the main objectives for the Region and the different sub-areas are formulated and agreed upon by the authorities. A distinction may be made between ideal and real targets.

B.   Investigation.
     It is essential that the planners possess information on the situation on which the planning is to be based and the means available. This phase makes it necessary to investigate in detail the several areas on which the regional plan will be focused.

C.   Designing the plan.
     Here the planning agency should begin by analysing the present situation and by measuring it against the targets to be reached. The next step will be to determine what action programmes can be employed within the existing situation to achieve the targets fixed in an earlier phase. Also the time and methods required for the realization of the programmes have to be determined, while a selection has to be made from among the optimum and the feasible programmes.
     In most instances a number of action programmes have to be integrated.
     The final plan can be drawn up on the basis of these considerations.

D.   Confirming the plan.
      Here the regional plan has to be presented to the
      politically reponsible authorities for approval or
      modification, while the implication for the budget also
      has to be considered.

E.   Implementation.
      When approval has been obtained, the plan is ready for
      implementation, which may be entrusted either wholly of
      partly to government agencies.

F.   Evaluation.
      If the process of planning is to function properly, it is
      essential that some idea be gained of the effect of a
      given action. Once that is known, it is possible to
      determine to what extent the plan measures up to expex-
      tations.
      Such evaluation is of essential importance when plans have
      to be drawn up on the basis of insufficient data.

Within the framework of this planning procedure, the
regional authorities will have to formulate the details of
the development plan for the area. The proposed water
supply programme and the implications of the necessary
resettlement of people in concentrated and consolidated
villages, makes it necessary to outline the general
requirements for the implementation of the settlement
programme.

Some guidelines have been given in Technical Annex E.
Three phases have been distinguished: the pre-settlement '
planning, the execution of the resettlement and the post-
settlement development. This sequence can be found in the
general planning procedure, discussed earlier in this
chapter.
The main elements of the first phase are:
-      identification of areas suitable for settlement;
-      assessment of the degree of mechanization to be
       introduced both in clearance and reclamation of the
       selected sites and in the subsequent cultivation of
       the lands;
-      the determination of the optimum size of the
       settlement units;
-      the preparation of a blueprint for an optimum
       settlement pattern, including the mapping out of new
       roads, watering points and sites for markets and
       social facilities;
-      the indication of the boundaries of the areas
       suitable for crop and/or animal husbandry and - in
       the case of a communal settlement - the setting of
       boundaries between individually and collectively
       cultivated and/or grazed land;
-      the drawing up of a tentative schedule for the
       execution of the settlement operation;

- the assessment of the manpower requirements for the execution;
- the assessment of all material and financial assistance required.

In the execution of the resettlement there are three main tasks:
- opening up the settlement areas by constructing roads, clearance and reclamation of lands and the location of villages accommodated with some social facilities such as schools, dispensaries and above all drinking water supply;
- simultaneously the recruitment of settlers will take place.
  They will have to be selected from the rural poor in the relatively densely populated areas. The most difficult task will be the motivation of the prospective candidates in order to make them willing to leave their area.
- the migration process. For the relocation of the settlers' families from their area(s) of origin to the new settlements proper organization is needed. Not only the people but their cattle, goods and chattels will have to be moved.

Finally the third phase is of crucial importance for the success of the programme. It is here that the Government not only provides the infrastructure in the new area, but also reclaims and develops the land, assists in the construction of houses and in the development of agricultural production, as well as in community development.

The great variety of tasks to be carried out in the framework of the execution of the plan will involve many government agencies. Road construction and clearance of land will have te be carried out by the Ministry of Communications, Transport and Labour (Comworks), which also has to be involved in the construction of public amenities like schools and dispensaries.
Drinking water for the human livestock population will have to be provided under the supervision of the Regional Water Engineer.

Reclamation and bringing under cultivation of the land should be done by the settlers themselves with assistance of the Ministry of Agriculture, Food and Co-operatives' regional staff.
Facilities and funds for the provision of services in the field of agricultural credit, supply of agricultural inputs and marketing of agricultural surplus will have to be provided by the Ministry of Agriculture, Food and Co-operatives and through existing agencies.

All these activities and organizations will have to be co-ordinated within a regional planning board, part of the office of the Regional Commissioner.

For the guidance of the activities within the new areas, two types of personnel are necessary. In the first place community development workers are needed especially in the early stage of development.
It is felt that the number of settlements to be served by the community development workers should preferably not exceed four villages.
Next to the community development workers agricultural extension officers will be necessary in dealing with the development of the agricultural production and marketing of surplus. Both community development workers and agricultural extension personal should co-operate very closely in the promotion of rural development.

Before the implementation of the settlement plan it would appear necessary to start the programme with an experimental phase, during which the organizing institutions try out the implications and feasibility of the project. Such a project, if properly prepared and managed, would soon be a source of practical information to be applied on a larger scale during the plan period.
It is advisable to select a favourable area for this experimental phase, while the structuring of the settlement pattern has to be done in an integral way, that is to say including an areal centre, the appropriate local centres and the agricultural villages belonging to the service area of the centres.

VII.6.2. Settlement patterns

As has been said earlier, the promotion of concentrated settlements of farmers is one of the main objectives of the plan, and more or less a condition for an adequate water supply (see Technical Annex G).
A number of guiding principles were drawn up for the Region. It was felt necessary that social and economic facilities should henceforth be concentrated as far as possible in centres since this course of action would have the following advantages:

a.   the various service units influence one another, and because of this interaction a concentration of facilities is usually more effective than an identical number distributed throughout a whole area;

b.   a concentration of this sort increase the possibility of establishing useful public facilities which can help to raise living standards considerably;

c.   the centres, on which social and economic activity must be
      focussed, will be able to improve the structuring of the
      present organization of rural areas.

Concentrating of facilities in the centres may be expected to
lead to their becoming focal points of social and economic
activity. This could exert a positive influence on the forming
of rural communities.

It will be clear that this process can only succeed if the
population is invited to help in getting centres running.

Starting from the general principle that facilities should be
concentrated in centres, the following distinctions serve as
general indication for a comprehensive settlement programme in
the new areas.

1.   District and/or divisional centre. This provides services
      including such institutions as a district office,
      hospital, etc. throughout a District, not in the admini-
      strative sense of the word but rather as a group of
      development areas roughly covering one division or some
      (parts of) smaller divisions. The district capitals and
      larger existing concentrated settlements may be suitable
      to serve as such.

2.   Areal center. The activities of these centres are limited
      to a certain area; in the resettlement programme a centre
      could be allocated to a new area that will come under
      cultivation. These centres would provide services for
      which there is a regular demand. The activities are
      estimated to cover a radius of 8-10 km. Starting from this
      assumption settlements of this kind should preferably be
      situated at a point where a main road intersects one or
      more secondary roads.

3.   Local centre. Activities of this type of settlement are on
      a local scale, providing facilities for which there is a
      daily need such as schools, and shops. Their activities
      cover a radius of 4-5 km, while the extent of the total
      area which they serve is estimated to be some 40-60 km2.
      Such centres should preferably be situated at a point
      where a secondary road intersects one or more tertiary
      roads.

4.   The agricultural village. This type of settlement is the
      lowest echelon in the settlement pattern, having as a main
      function the concentrated housing of the farmers. The
      village will cover an area of approximately 10 km2 and
      will preferably not exceed a total agricultural population
      of 700-800.

This plan has to be considered as an outline for a resettlement

programme, indicating how the allocation of people and services can be structured.

The different types of centres should generally be located in the heart of the area concerned and must be easily accessible from every part of that area. Furthermore a centre should be laid out in such a way as to leave space for eventual expansion of the service units even when the population of the service area has reached its maximum number. Every effort should be made to locate the centre in such a way as to make the fullest possible use of the facilities already in existence. Finally, care will have to be taken to ensure that the centre or village is in tune with its natural surroundings.

In general it is estimated that one out of four agricultural villages will be a local centre while one out of every four local centres will be planned as an areal centre. The inter-relationship between the types of settlement is laid out in fig. VII.1.
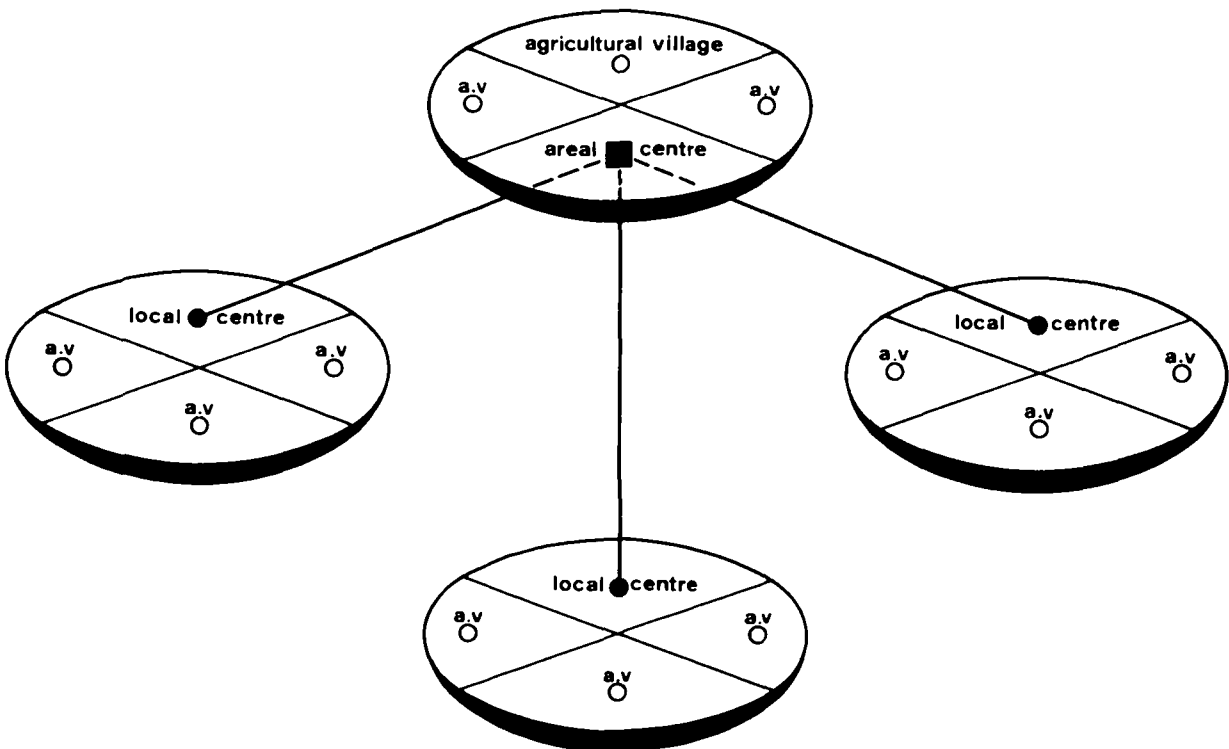
Fig. VII.1   Interrelationship between the types of settlements

It will be clear that this scheme functions solely as a model; the actual structuring will be carried out taking into account the administrative units, like divisions and sub-divisions,

whereas different sizes of agricultural villages may be required in different areas.

In the following table the characteristics and the functions of the respective types of settlements are given systematically. One area would include 12 agricultural villages, 3 local centres, and 1 areal centre with a total agricultural population of 12,000. Assuming for 1991 the category of non-farmers to constitute some 16 per cent of the total population of these new settlements (see section VII.5) they would number some 2,000-2,500 people. By assuming distribution of the non-farmers more or less in accordance with the importance of the different types of villages, the maximum total population of areal centres, local centres, and agricultural villages has been estimated at 1,300, 1,100 and 800 people respectively. Again it should be remarked that these figures are to be regarded as reasonable averages to base the water master-plan on rather than strict criteria for the regional development plan to come.

Table VII.9   Settlement scheme

type of settlement	estimated maximum population	maximum population served	radius km	area km^2	agricultural facilities	other facilities	type of access	water supply
— Areal Centre	1300	14000 - 14500	8—10	200 — 300	- tractor workshop - cotton buying post - sub-centre community development - sub-centre agricultural extension - (veterinarian officer)	- dispensary and clinic - Tanu-Head quarters - school - shops - market - restaurant - petrolpump	all weather road	piped supply
— Local Centre	1100	± 3,500	4— 5	40 —60	- trading centre - cottonstore - tractors - community development workers - agricultural extension worker	- school - shops	dry weather road	piped supply
— Agricultural village	800	± 800	1.8—2	± 10	- tractor - store		track	piped supply

In view of the fact that in the plan for centres the establish-
ment of service units is based on an altogether new policy, the
various work methods that have been used up to the present will
have to be changed and new methods, for instance with regard to
financial planning, will have to be introduced to ensure
success.
The government should assume control of the lands concerned as
soon as possible, while legislation concerning physical
planning is particularly needed. Plans regarding public
utilities can be worked out in detail now and adapted to the
future structure.
It is possible to fit the plan for centres into the plans for
political decentralization. The centres service areas could,
for the matter, serve as political units. Service areas would
thus be assigned a new and important function.

VII.6.3. Water supply to development areas

For a further water master-plan attached to a new settlement
programme, it will be necessary to have an approximation of the
number of new settlements, differentiated according to type,
which may be implemented before 1991.
For the implementation of the settlement structure designed it
is felt necessary that in new areas the programme will start
with the allocation of the area centre or/and the local
centre(s). Before the number of people reaches the maximum and
during the development of the centres within a certain area,
the lay-out of the agricultural villages belonging to the
centre has to be started.
As soon as the population within the centres reaches a certain
level - the determination of which will depend on the type of
centre and the expected demographic growth rate in the future -
new migrants are directed to the agricultural villages within
the radius of the centres.
The development of the settlement structure therefore is
started from the upper level, gradually extending towards the
lower echelons, in particular the agricultural villages. The
advantage of this policy is that the functions of the centres
are built up immediately after the occupation of the new land,
while furthermore - because of the facilities offered within
the centres - a concentrated settlement pattern is started at
the very beginning of the colonization. This will have a
demonstration effect on the settlement structure of the whole
area.

The number of new settlements required for each period of 5
years from 1967-1991 is estimated from the figures of table
VII.5, on the envisaged volume of the resettling farming
population, by observing the following assumptions:

-       to allow for growth, the farming population of a new
        settlement at the time it is established, is taken at

550-600 people. This means that the village reaches its optimum size in some 10-15 years after which the excess agricultural population should be accommodated elsewhere. In view of the very small migration volumes in the first years (1976-81) this factor is disregarded in the water master-plan.

- the total number of settlements required per division for each period of five years follows from dividing the "farming population resettling in development areas" (see table VII.5) by the above initial agricultural population;

- the first settlement to be established in an area will be the areal centre followed by agricultural villages. However, the fifth, ninth and thirteenth settlements to be established will be local centres.

The results are listed in table VII.10. Between 1976 and 1991 a total of 34 areal centres, 79 local centres and 323 agricultural villages in development areas will have to be equipped with an adequate water supply.

In order to use the water supply, being one of the facilities and utilities, which must be provided as a factor to stimulate migration to the new development areas a piped water supply system is recommended.

As argued already in section III.3 the provision of water as as integral part of development of the new areas, and in view of the priority assigned to this development, requires that the water supply to new settlements in these areas receives absolute priority and is realized at the time the settlement is established. The same reasoning applies to the other facilities and services foreseen, of course.

Nett human water consumption can be estimated for the above type of centres in keeping with the criteria proposed in sub-section V.3.5 at an average 35.7 m^3/day for areal centres, 27.9 m^3/day for local centres, and 16.0 m^3/day for agricultural villages. The total design capacity of a scheme should be determined by addition to these amounts of the waterconsumption of cattle, if applicable, and a fair margin for spillage and other water losses. See further Technical Annex G, "Civil engineering".

Table VII.10   Number and types of concentrated settlements to be established in development areas during the water master-plan period.

district of division	number and type* of concentrated settlements								
	1976-1981			1981-1986			1986-1991		
	A	L	V	A	L	V	A	L	V
KAHAMA									
Dakama	1		1	6	20	78			7
Kahama				1	1	6	1	2	8
Msalala	5	15	58				1		2
Mweli				1	1	4	8	26	101
SHINYANGA									
Kishapu north							1		1
Nindo				1	2	6	1	4	16
BARIADI									
Itilima				1		2			
Ntuzu				2	3	15			
MASWA									
Meatu north				1	1	6		2	3
Mwagala				1	1	3		1	4
Nung'hu				1		1			
Sengerema				1		1			
REGION (total)	6	15	59	16	29	122	12	35	142

*A = areal centre
 L = local centre
 V = agricultural village

Appendix 1.   QUESTIONNAIRE FOR WARD HEADQUARTERS
(Selection of villages to be interviewed separately)

1. What are the names of all the villages in this ward?

1..............................	16..............................
2..............................	17..............................
3..............................	18..............................
4..............................	19..............................
5..............................	20..............................
6..............................	21..............................
7..............................	22..............................
8..............................	23..............................
9..............................	24..............................
10..............................	25..............................
11..............................	26..............................
12..............................	27..............................
13..............................	28..............................
14..............................	29..............................
15..............................	30..............................

2. In which village is the waterneed most urgent?

(INTERVIEWER) Only ONE village:

....

3. Compared to the other villages in ward, would you say that the number of inhabitants in this village is:

1. Very large 2. Large 3. Medium, 4. Small.

4. Which village has the largest population growth?

(INTERVIEWER) Only ONE village

....

5. Compared to the other villages this ward, would you say that the number of inhabitants in this village is:

1. Very large 2. Large 3. Medium 4. Small 5. Very small.

6. Which village has the most facilities located within a concentration?

(INTERVIEWER) Only ONE village

....

7. Compared to the other villages in this ward, would you say that the number of inhabitants in this village is:

1. Very large 2. Large 3. Medium 4. Small 5. Very small.

8. Which village is entirely Ujamaa or contains Ujamaa subvillages?

Village	Subvillage
1................................	1....................................
	2....................................
2................................	1....................................
	2....................................
3................................	1....................................
	2....................................

Appendix 2.   GENERAL QUESTIONNAIRE FOR ALL VILLAGES
                (To be completed at Ward headquarters)

     Name of the village............... Name of the ward.................

1. Is there a school in the village?	1. Yes 2. No
a. If yes, number of standards or forms?	....
b. Is the school isolated or part of a concentration?	1. Isolated 2. In concentration
c. does the school get it's water from?	1. A piped supply 2. Borehole 3. Cistern 4. Well 5. Rainstorage tank 6. Other
d. Which of these sources are out of order?	....
2. Is there in the village:	
1. A hospital	1. Yes (number of beds.....) 2. No
2. A health centre	1. Yes (number of beds.....) 2. No
3. A dispensary with clinic	1. Yes (number of beds.....) 2. No
4. A dispensary without clinic	1. Yes 2. No
a. If any of these are present, are they isolated or part of a concentration?	1. Isolated 2. In concentration
b. Where do they get their water from?	1. A piped supply 2. Borehole 3. Cistern 4. Well 5. Rainstorage tank 6. Other
c. Which of these sources are out of order?	....
3. Is the village:	1. Completely scattered 2. Scattered concentrations 3. Mainly concentrated
4. Is the village a tradingcentre?	1. Yes 2. No
5. Is the village connected to a piped supply?	1. Yes 2. No
6. Is there a dam within or sufficiently near to the village for people to make use of it?	1. Yes 2. No
a. Do people use it for human drink-water?	1. Yes 2. No
7. How many cemented wells are there?	.... Number not used........
8. How many boreholes are there?	.... Number not used........

9. How many rainstorage tanks?   .... Number not used........

10.Is there a missionpost in the
   village area?   1. Yes   2. No

Appendix 3.   QUESTIONNAIRE FOR UJAMAA VILLAGES

Name of the Ujamaa village........... Provisional number..................

Name of the ward..................... Name interviewer....................

Name of the district................. Function informant..................

Subvillage of........................ Date interview......................

----

1. In which year was this Ujamaa village established?   ....

2. Of how many people did the Ujamaa village consist
    at the date of it's establishment?   ....

3. Of how many people does the village consist at
    present?   ....

4. Which activities are undertaken   1. Agriculture
    cooperatively?   2. Livestock
                                        3. Other; mention which
                                           ....
                                           ....

5. If agriculture is done cooperatively, how large
    was the area reserved for collective farming at
    the date of the establishment?   ....acres

6. How large is this collective farming area at
    present?   ....acres

7. If livestock is collectively managed how large
    was the communal herd at the date of establishment? ....heads

8. How large is the collective herd at present?   ....heads

9. If the number of people of the   ....
    Ujamaa village decreased since   ....
    the date of establishment, what   ....
    would you say is it's reason?   ....

10. If the number of acres or heads   ....
    of cattle decreased since the   ....
    date of it's establishment, ...
    what would you say to be the   ....
    reason?   ....

11. If the Ujamaa village has not
    yet reached it's final, planned   ....acres
    size, of how many acres and/or
    of how many heads of cattle and   ....heads of cattle
    of how many people should the
    village consist when this goal   ....people
    has been reached?

12. Does the Ujamaa village make   1. Yes
    yearly use of fertilizers?   2. No
13. Does the Ujamaa village make   1. Yes
    yearly use of insecticides?   2. No
14. If the answer to questions 12   ....
    and 13 is NO, explain why insec-   ....
    ticides and/or fertilizers   ....
    are not used yearly!   ....
15. What would you say are some of   ....
    the main obstacles that this   ....
    village faces in it's way   ....
    towards Ujamaa?   ....

Appendix 4.   VILLAGE QUESTIONNAIRE

Name of the village................   Provisional number...................
Name of the ward...................   Name interviewer.....................
Name of the district...............   Function informant...................

Date interview.......................

Form checked by....................   Remarks..............................
Check date.........................
Qualification G.Lang...............

Number of inhabitants..............
===

A. SOCIO-ECONOMIC INFRASTRUCTURE

1. How many hundred cell-leaders are there in this village?................
2. How many ten cell-leaders are there in this village?
   (including the hundred cell-leader)   ....
3. What are the names of the subvillages; how many tencell-leaders has
   each subvillage; what is the number of households in each ten cell?

Names Subvillages	Number of cellleaders	Number of H.H.
1.....................	1.	
	2.	
	3.	
2.....................	1.	
	2.	
	3.	
3.....................	1.	
	2.	
	3.	
4.....................	1.	
	2.	
	3.	
	TOTAL HOUSEHOLDS	
		==============

4. Which of the following facilities are there in this village? (Circle the numb.)

1. Gov't Primary School	21. Cotton buying post
2. Other school	22. Cotton primary society
3. Number of standards or forms	23. Cotton ginnery
	24. Flour mill
4. Dispensary with clinic	25. Other industries (which?........
5. Dispensary no clinic	....
6. Health centre	....
7. Hospital (number of beds........)	26. Cattle market
8. Police station	27. Cattle weight bridge
9. Post office	28. Cattle crush
10.Railway station	29. Cattle holding ground
11.Tanu headquarters	30. Veterinary centre
12.Village training centre	31. Mosque temple or church
13.Marketplace	32. Mission post
14.Shops (number...........)	33. Cattle dip
15.Hotel	34. Ujamaa village.
16.Restaurant	(if Ujamaa sub village:
17.Bar	Name of the subvillage(s))
18.Petrol pump	....
19.Garage	....
20.Agricultural repair shop	

5. Is the village situated on?

1. Railroad
2. Mainroad
3. Secondary road

6. How many cooperative societies are there in this village?

    ....

7. Is the settlement completely scattered or are there some concentrations of houses and facilities?

1. Completely scattered
2. Some concentration in subvillages
3. Most houses concentrated in one location.

8. Are the facilities within a concentration of houses or are they mainly separated from these concentrations?

1. They are a part of a concentration
2. They are isolated from concentrations.

9. How many people OR households have moved into the village?

	People		Households
1970	....	plus	....
1971	....	plus	....

10. Why have they come into this village?

1. For new shambas
2. For good grazingland
3. For water (human consumption)
4. For water (animal consumption)
5. Better facilities (mention which)
   ....
   ....
6. Other (mention which)...........
   ....

11. Where do these people come from?

District	Ward	Village
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....

12. How many people OR households have moved out of the village?

	People	Households
1970	...... plus	....
	...... plus	....

13. Do the young people here stay in the village or are they mostly leaving the village after adulthood?

1. All stay in the village
2. Majority stays in the village
3. Some stay in the village

C. AGRICULTURE

14. What are the maincrops in the village? ASK FOR THE ORDER OF IMPORTANCE!

15. Which crops are cultivated in order to be sold?

16. Which crops are grown for food?

17. What is the most common type of cultivation? (Only one answer)

1. Hoe cultivation
2. Ox and plough
3. Tractor and plough

18. How many <u>tractors</u> are there in the village?

1. None
2. ....

19. To whom do these belong?

1. Individually owned
2. Group of families
3. Co-operative
4. Contractor
5. ....

20. How many farmers use <u>manure</u>?

1. None
2. Few
3. Majority

21. For which crops mainly?

....

....

22. How many farmers use fertilizers?

1. None
2. Few
3. Majority

23. Which kind mainly?

1. Nitrogen
2. Phosphate
3. Other

24. For which crops mainly?

1. Nitrogen:................

....

2. Phosphate:..............

....

3. Other....................

25. Where do they obtain these from?

....

....

26. If farmers use fertilizers what is on the average the quantity used per acre?

.... kilos

27. How many farmers use <u>insecticides</u>?

1. None
2. Few
3. Majority

28. For which crops mainly?

....

....

29. Where do they obtain these from?

....

....

30. If farmers use insecticides what is on the average the quantity used per acre?

....

31. What is the average size of land under crop of one household?

.... acre

32. Of all land in use by one household how much is left <u>fallow</u> each year?

...........% OR ....acre

33. What is the size of the smallest farm in this village?

................acre

34. What is the size of the <u>largest</u> farm in this village?

................acre

35. Do farmers use improved seeds?

1. None
2. Few
3. Majority

36. For which crops mainly? ....
....

37. Of the average size of land used by one household, how much is planted with cashcrops, how much with food?

    1. Cashcrops ....acres
    2. Foodcrops ....acres

38. Is there enough land available for agriculture?

    1. No, there is a shortage
    2. There is enough but not abundant
    3. There is sufficient land
    4. Remarks:........................

39. How is the quality of the soil?

    1. Good
    2. Medium
    3. Bad

40. If bad, for what reason?

    1. Stays flooded too long
    2. Rocky
    3. Shallow soil
    4. Poor fertility

41. Can you describe the main types of soils found within the village area?
    INTERVIEWER: MENTION IN SEQUENCE OF IMPORTANCE!

    ....
    ....
    ....
    ....

42. Does water stay on the field for more than 3 days after heavy rains?

    1. Yes
    2. Occasionally
    3. No

43. If water stays on the field what is approximately the acreage of this flooded area in this village?

    ....

44. Which credit facilities are used by the farmers in this village?

    1. Bank   2. Mobile bank   3. Money lender   4. Co-operative   5. None

45. For which purposes are these credits used?

    1. Agriculture
    2. Cattle
    3. Other

46. Suppose that farmers in this village would suddenly earn considerably more cash than they have been doing until present, what do you think they would use this money for?

    1. To buy more cattle
    2. To obtain more land
    3. To buy fertilizers/insecticides
    4. To get an additional wife
    5. To buy articles like a transistor, bicycle or corrugated iron
    6. Save it

D. LIVESTOCK

47. How many farmers have cattle in this village?
    1. 100%
    2. 75%
    3. 50%
    4. 25%
    5. Less than 25%

48. How large is the average herd of cattle in this village?
    1. 5 - 10 heads
    2. 10 - 20 heads
    3. 20 - 40 heads
    4. Larger than 40 heads

49. Has the number of cattle increased or decreased during the last years?
    1. Increased
    2. Decreased
    3. More or less the same

50. Where do people graze their live-stock?

WET SEASON	DRY SEASON
1. Near their shambas	1.
2. Outside village	2.

51. If outside the village, why?
    1. Lack of grazing land in village
    2. Lack of water
    3. Other reasons.....................
    ....

52. Do people regularly sell cattle for commercial reasons?
    1. Most of them do
    2. Some do
    3. Nobody does

53. Where is in general cattle belonging to farmers in this village sold?
    ....
    ....
    ....

54. If cattle is grazed outside the village, what is the distance of the grazingland to the village?

WET SEASON	DRY SEASON
..........miles	..........miles

E. WATER

55. Where does the water for <u>human</u> consumption come from in this village?

	WET SEASON	Number		DRY SEASON	Number
1.	River or Stream		1.	River or Stream	
2.	Spring		2.	Spring	
3.	Natural lake or pond		3.	Natural lake or pond	
4.	Handdug waterhole in river-bed		4.	Handdug waterhole in river-bed	
5.	Handdug waterhole else		5.	Handdug waterhole else	
6.	Well		6.	Well	
7.	Borehole(s)		7.	Borehole(s)	
8.	Pumpsupplies from river and stream		8.	Pumpsupplies from river and stream	
9.	Lake with dam		9.	Lake with dam	
10.	Charcos		10.	Charcos	
11.	Rainstorage tanks		11.	Rainstorage tanks	
12.	Cistern		12.	Cistern	
13.	Paddyfield		13.	Paddyfield	

56. Which watersupply is used by most people in this village?   WET SEASON   DRY SEASON

INTERVIEWER: Code numbers from list in previous question and mention only one source for each season!

57. What would you say is the distance of this watersource to the centre of the village?   WET SEASON source: ....mile   DRY SEASON source:.............mile

58. Which of the constructed water-sources are out of order? INTER-VIEWER Code numbers from list in Q. 55.   WET SEASON   DRY SEASON

59. Is there in general enough water for human consumption available throughout the year?

WET SEASON
1. Yes
2. No

DRY SEASON
1. Yes
2. No

60. What do the villagers think about the <u>quality</u> of the drinking water?

WET SEASON
1. Good
2. Reasonable
3. Bad

DRY SEASON
1. Good
2. Reasonable
3. Bad

61. Do people from other villages make use of the same watersources?

1. No
2. Yes; which villages?.............
....
....

62. Is there enough water for cattle in this village?

WET SEASON	DRY SEASON
1. Yes	1. Yes
2. No	2. No

63. If there is not enough water for cattle, how far is cattle being driven to drink?

WET SEASON	DRY SEASON
...........miles	...........miles

64. Have people in this village made an official request for an improvement of their watersupplies?

1. Yes
2. No

65. If so, what was the reaction of the authorities?

1. New installation under construction
2. New installation promised
3. Authorities visited the village
4. No reaction.

Appendix 5.   WATER CONSUMPTION QUESTIONNAIRE
              (To be used for the interview of household)

Name of the village................   Provisional number...................

Name of the ward...................   Name of interviewer..................

Name of the district...............   Function informant...................

                                       Date interview.......................

Form checked by....................   Remarks..............................

Check date.........................

Final control......................

1.	What kind of containers do adults in your household use to carry water?	1. debe 2. bucket* 3. gourd* 4. pot*	5. skin* 6. no adults carry water 7. no children carry water

*   IF OTHER THAN A DEBE IS USED ASK:

    How many of these containers are needed to fill a debe?
    _____ (INTERVIEWER: If farmer does not know, you examine
    the container and make an estimate yourself).

2.	What kind of containers use children in your household to carry water (code answer from list in Q. 1.)	1. 2. 3. 4.	5. 7.

*   IF OTHER THAN A DEBE IS USED ASK:

    How many of these containers are needed to fill a debe?
    _____ (INTERVIEWER: If farmer doesnot know, you examine
    the container and make an estimate yourself.

3.	Do men in your household even carry water?	1. Yes 2. No

4.	Does your household get water from another source in the dry season (chu) than in the wet season (kiduku)?	1. Yes 2. No

5.	Why do you get water from from another source in the in the dry season (chu)?	1. Wet season source dries up 2. Wet season source becomes polluted (diseased) 3. Wet season source becomes salty or other bad quality (dirty, bad, taste, etc.)

6.	How many trips do members of your household make daily to the water source	WET SEASON DRY SEASON ....

7. How much water is brought back
   on each trip

   WET SEASON   DRY SEASON

   . . . .

   INTERVIEWER: Estimate the
   equivalent in debes if other
   containers are used.

8. How many people and which
   people go along on each trip

   WET SEASON   DRY SEASON

   . . . .

   . . . .

9. When did the farmer begin
   using the wet season source
   last year

   . . . .

10. When will the farmer probably
    stop using this source this
    year

    . . . .

11. What kind of source do you get
    your water from?

WET SEASON		DRY SEASON
0 =	flowing water	0
	river or stream	1
1 =	handdug hole	
	in river or	
	stream bed	
2 =	spring	2
3 =	natural lake	3
	or pond	
4 =	hand dug well	4
	or water hole	
	(no pump)	
5 =	hand dug well	5
	with pump	
6 =	bore hole	6
7 =	tap on village	7
	water supply	
	system	
8 =	other	8

12. How far is the source of your
    water from your house
    (in miles one way)

WET SEASON		DRY SEASON
0 =	don't know	0
1 =	less than 100	1
	yards	
2 =	100 yards to $\frac{1}{4}$	2
	mile	
3 =	$\frac{1}{4}$ mile to $\frac{1}{2}$	3
	mile	
4 =	$\frac{1}{2}$ mile to 1	4
	mile	
5 =	1 to 2 miles	5
6 =	2 to 3 miles	6
7 =	3 to 5 miles	7
8 =	over 5 miles	8

13. How long it takes to walk from your house to the water source

WET SEASON		DRY SEASON
1 =	under 5 min.	1
2 =	5 to 10 min.	2
3 =	10 to 15 min.	3
4 =	15 to 30 min.	4
5 =	30 min. to 60	5
6 =	1 to 1½ hrs.	6
7 =	1½ to 2½ hrs.	7
8 =	over 2½ hrs.	8

14. Which water use usually consumes the largest amount of water in your household

WET SEASON		DRY SEASON
0 =	drinking	0
1 =	cooking	1
2 =	washing uten-sils	2
3 =	washing clothes	3
4 =	bathing babies	4
5 =	bathing adults and children	5
6 =	animals	6
7 =	house building	7
8 =	irrigation	8

15. Which water use usually consumes the second largest amount of water in your household (code answer from list in previous question)

WET SEASON	DRY SEASON
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

16. Do you have to contribute any labour or pay any money for the use and upkeep of your water supply

WET SEASON	DRY SEASON
1 YES; explain what you do	1 YES; explain what you do ....
2 NO	2 NO

17. Would you say that the water you use for drinking is of good quality, bad quality or is in between good and bad

WET SEASON	DRY SEASON
1 = good	1 = good
2 = bad	2 = bad
3 = in between	3 = in between

18. What is wrong that your water is not good quality

WET SEASON	DRY SEASON
1 dirty	1 dirty
2 salty	2 salty
3 diseased	3 diseased
4 polluted by animals	4 polluted by animals
5 other, specify	5 other specify ....

19. Do you do anything to your water before you drink it

(If answer is NO, continue with next question 21)

WET SEASON	DRY SEASON
1 YES	1 YES
1 = boil	1
2 = allow to sett -le	2
3 = add dawa	3_
4 = other; speci- fy	4
....	
....	
2 NO	2 NO

20. Why don't you do anything to your water

WET SEASON	DRY SEASON
1 water good no need	1
2 no time	2
3 too expensive	3
4 nothing can be done to make the water better	4
5 don't know how to improve water	5

21. Where do members of your household usually bathe

0 At home with water carried to the house	0
1 River or stream	1
2 Handdug hole in river or stream bed	2
3 Natural lake or pond	3
4 hand dug well or waterhole (no pump)	4
5 hand dug well with pump	5
6 bore hole	6
7 tap on village	7
8 other	8

22. How long does it take to walk to the bathing place from your house (one way)

WET SEASON	DRY SEASON
1=less than 5 min.	1
2=5 to 10 min.	2
3=10 to 15 min.	3
4=15 to 30 min.	4
5=30 to 60 min.	5
6=1 to 1½ hrs.	6
7=1½hrs to 2½hrs	7
8=over 2½ hrs	8
9=other; specify	9
....	

23. On the average, how many times per week do the adults children and babies in your household take a bath

WET SEASON	DRY SEASON
1= no times	1
2= once	2
3= twice	3
4= three times	4

WET SEASON   DRY SEASON

5= four times   5
6= five times   6
7= over five times 7
8= other, specify 8
   . . . .
   . . . .

24. Are there problems that prevent   WET SEASON   DRY SEASON
    members of your household from
    bathing as often as they want   1 Yes, what are they 1
                                       1= not enough water 1
                                       2= too far to carry 2
                                          water
                                       3= too far to walk   3
                                       4= not enough time   4
                                       5= other, specify   5
                                          . . . .
                                          . . . .
                                       2 NO   2 NO

25. Does your water supply ever   0 Yes
    fail in the dry season so that
    your household doesn't have   1 No
    all of the water you need

26. How often does it fail?   1. Every year or nearly every year
                                       2. About every other year
                                       3. About 1 year in every 3 years
                                       4. Less often than one year in 3
                                       5. Other; specify. . . . .
                                          . . . .

27. How long does this period of   1. less than 1 month
    water shortage usually last?   2. 1 to 2 months
                                       3. 2 to 3 months
                                       4. 3 to 6 months
                                       5. 6 to 9 months
                                       6. other specify. . . . .
                                          . . . .

28. How long does it take to drive   WET SEASON   DRY SEASON
    your cattle to where they get
    water (one way).   1. under 30 min.   1.
                                       2. 30 to 60 min.   2.
                                       3. 1 hr. to 2 hrs.   3.
                                       4. 2 to 4 hrs.   4.
                                       5. 4 to 6 hrs.   5.
                                       6. 6 to 8 hrs.   6.
                                       7. over 8 hrs.   7.

29. Is there always enough water   WET SEASON   DRY SEASON
    for the cattle
                                       0 Yes   0
                                       1. No   1.
                                       2. Other, specify   2.
                                          . . . .

30. Do you have to do any work or pay any money to maintain this source	WET SEASON	DRY SEASON
	0 Yes; explain what..........	0
	1. No	1.

31. How many families are there within the same household group

....
....
....

32. Composition of the household group. List:

No.	Function	Sex	Age	Remarks

....
....
....
....
....
....
....
....
....
....
....

33. How long has the household group been living within the village area

.... years

34. Where did it come from

Village ....
Ward ....
District ....
....

35. Why did it come to this place

....
....
....

36. How many babies were born in this household group in 1971

....

	Males	Females
First family	.....	....
Second family	.....	....
Third family	.....	....

37. How many people died in this household group in 1971

Males .... Age ....

Females .... Age ....

38. How many houses are there on the compound of the household group including barns.

....

Appendix 6.   WATER CONSUMPTION QUESTIONNAIRE
                (To be used for interviews at the source)

Name of the village:................... Form checked by:.................

Name of the interviewer:.............. Check date:......................

Date of the interview:................ Coding........... Date..........

Interviewee: Adult collecting water at source.
Introduction: Explain to the interviewee that the water supply in Shinyanga
              Region is a problem and needs to be improved. To find out
              what the situation is here, we would like to ask some ques-
              tions about the water supply of your household group.

1. Age ....

2. Sex ....

3. Level of education: O None
                        O Standard I/IV
                        O Standard V/VIII
                        O Form I-II
                        O Higher than form II

4. How many families are there in your householdgroup: ....

5. What is the composition of the householdgroup?

	No adults	No children	No babies (0/1 y)
Family I	....	....	....
Family II	....	....	....
Family III	....	....	....
Total	....	....	....

6. Have you never lived in a village other than this one: Yes/No

7. Why have you migrated:

8. What is your occupation: O Farmer
                                    O Shopkeeper
                                    O ....
                                    O Cotton
                                    O Cereals
                                    O ....

9. What is your main crop:

10. How far have you travelled to this water source?
    Don't know
    Less than 100 yards
    O 100 yards to ¼ mile
    O ¼ to ½ mile
    O ½ to 1 mile
    O 1 to 2 miles
    O 2 to 3 miles
    O 3 to 5 miles
    O 5 miles and more
    O other: ....

11. Do you use the water you get here for drinking? Yes/No.

12. Which other water sources do you use during the dry season?

	For drinking water	For other purposes
None		
River/stream		
Spring		
Natural lake/pond		
Handdug waterhole in		
Handdug waterhole elsewhere		
Ring-well		
Borehole		
Pumpsupply or stream from river		
Dam		
Storage tank		
Paddyfield		
Tap		

13. Do you use any other water source during the wet season?

	For drinking water	For other purposes
None		
River/stream		
Spring		
Natural lake/pond		
Handdug waterhole in river bed		
Handdug waterhole elsewhere		
Ring-well		
Pumpsupply or stream from river		
Dam		
Storage tank		
Paddyfield		
Tap		

14. If you use any other sources, why do you do this?
....

15. Is there any water source closer to your home than this one? Yes/No
    If yes, why don't you use that one?
    O Polluted (diseased)
    O Salty/dirty/bad taste
    O Crowded
    O Difficult to use
    O Other: ....

16. Why do you use this one?   NOTE

    O Close to home   If more answers are given, list in
    O Good water   order of importance.
    O Not crowded
    O Easy to use
    O Others: ....

17. Which two of the following water sources do you prefer, and why
    River/stream   ....
    Spring   ....
    Natural lake/pond   ....
    Handdug waterhole in river bed ....
    Handdug waterhole elsewhere   ....
    Ring-well   ....
    Borehole   ....
    Pumpsupply from river stream   ....
    Dam   ....
    Storage tank   ....
    Paddyfield   ....
    Tap   ....

18. How often do you come to this water source? .... To get how
    many debes per day? ....

19. Why don't you come more often?
    (not necessary/too far/have to work in fields/others: ....)

20. What are you going to do/have you done today? ....

21. What is your opinion about the quality of the water of this source:

                    Dry season   Wet season

    Good   ....
    Fair   ....
    Bad   ....

22. Do you do anthing to your water before you drink it?
    (No/yes, boil/yes, allow to settle/yes, add dawa/yes, other: ....)

23. Do you think this village needs a new water supply? Yes/No.

24. If yes, of what kind? (well/borehole/pumpsupply from river/stream/dam
    storage tank/other: ....)

25. (a) Would you work for a week to construct it? (Yes/No/don't know)
    (b) If water here became very scarce, and you knew that there was an
        abundance of it in a village nearby, would you go and live there?
        (Don't know/may be/yes/no).

26. Does the head of your household ever buy water? ....
    (Regularly/occasionally/never)
    If yes from whom? ....
    When, and for what reason do you buy water? ....
    What is the price per debe? ....

27. What members of your householdgroup carry water daily, and how many times?

Men: age	Men: times	Women: age	Women: times	Chidren: times
1:.......	....	....	....	....
2:.......	....	....	....	....
3:.......	....	....	....	....
4:.......	....	....	....	....

28. What is the time they spend walking from your home to here?

.... hours .... minutes.

29. At what time of the day do the household members usually go to carry water?

Morning from .... to ....
Afternoons from .... to ....
Evenings from .... to ....

30. How much water did the following family members bring <u>YESTERDAY?</u>

	Number debes	Number litres	NOTE: If no debes were
			used, examine
Number men			containers &
Number women			give estimated
Number children			number of litres
Total			

31. Do members of your household use carts, bicycles or animals to carry water?

Type of transport:

Always   ....
Sometimes   ....
Never   ....

32. What type of storage do you use for drinking water? ....

33. Which water uses consume the largest and second largest amount of carried water in your household?

	Wet season	Dry season
Drinking	....	
Cooking	....	
Washing	....	
Bathing	....	
Animals	....	
Housing/building	....	
Irrigation	....	
Others:	....	

34. Where do members of your household usually bathe?

	Wet season	Dry season
At home	....	
At traditional source	....	
At modern source	....	
Distance .... miles ....yards		

35. What work do you have to do or amount of money to pay for the use and upkeep of your water supply?
    Wet season ....
    Dry season ....

36. Does your water supply ever fail during the <u>dry</u> season, so that your household doesn't have all the water they need?
    (never/occasionally/regularly)

37. How often does it fail? .... times in the dry season

38. If a good and constant water, supply for the cattle was nearby in another village, would you go and live there? (Yes/No).

Appendix 7.   RESULTS OF VILLAGE QUESTIONNAIRE

EXPLANATION

GENERAL CODE
0-NOT ANSWERED
1-YES
2-NO
9-NOT RELEVANT

PRINT COLUMN	LINE	QUESTION	KEY TO CODING
1	1	NAME OF VILLAGE	
1	2	CODE NUMBER	
2	1	WARD	SEE APP. 8
2	2		
3	1	NAME OF DISTRICT	1.-SHINYANGA
			2-MASWA
			3-KAHAMA
			4-BARIADI
3	2	GOVERNMENT PRIMARY SCHOOL	GENERAL CODE
4	1	UJAMAA VILLAGE	GENERAL CODE
4	2	OTHER THAN GOVT.PRIM. SCHOOL	GENERAL CODE
5	1	POPULATION SIZE	0-NOT ANSWERED
			1-0 TO 400 PEOPLE
			2-401 TO 800 PEOPLE
			3-MORE THAN 800 PEOPLE
5	2	DISPENSARY WITH CLINIC	GENERAL CODE
6	1	TOTAL PRIORITY SCORE	0-NOT DETERMINED
			EXACT NUMBER
6	2	DISPENSARY WITHOUT CLINIC	GENERAL CODE
7	1	LOCATION OF VILLAGE	0-NOT ANSWERED
			1-AT RAILROAD
			2-ON ALL-WEATHER ROAD
			3-ON OTHER ROAD
			4-1 + 2
			5-1 + 3
7	2	HEALTH CENTRE	GENERAL CODE
8	1	TYPE OF SETTLEMENT	0-NOT ANSWERED
			1-COMPLETELY SCATTERED
			2-PARTLY OR MAINLY CONCENTRA-
			TED WITH POPULATION OF NOT
			MORE THAN 400 PEOPLE IN '72
			3-PARTLY OR MAINLY CONCENTRA-
			TED WITH POPULATION OF MORE
			THAN 400 PEOPLE IN 1972
8	2	HOSPITAL	GENERAL CODE
9	1	IMMIGRATION DURING LAST	0-NONE
		TWO YEARS	- EXACT NUMBER
			998-998 PEOPLE OR MORE
			999-NOT ANSWERED
9	2	POLICE STATION	GENERAL CODE
10	1	EMIGRATION DURING LAST	AS COLUMN 9 LINE 1
		TWO YEARS	
10	2	POST OFFICE	GENERAL CODE
11	1	MAIN CROPS	0-NOT ANSWERED
			1-COTTON ONLY
			2-COTTON AND MAIZE
			3-COTTON AND RICE
			4-COTTON,MAIZE AND RICE
			5-MAIZE ONLY
			6-MAIZE AND RICE
			7-RICE ONLY
11	2	RAILWAY STATION	GENERAL CODE
12	1	MOST COMMON TYPE OF	0-NOT ANSWERED
		CULTIVATION	1-HOE
			2-OX AND PLOUGH
			3-TRACTOR AND PLOUGH
12	2	TANU OFFICE	GENERAL CODE
13	1	NUMBER OF TRACTORS IN THE	0-NOT ANSWERED
		VILLAGE	1-7EXACT NUMBER
			8-8 OR MORE
			9-NONE
13	2	VILLAGE TRAINING CENTRE	GENERAL CODE

EXPLANATION continued

PRINT COLUMN	LINE	QUESTION	KEY TO CODING
14	1	HOW MANY FARMERS USE MANURE	0-NOT ANSWERED 1-NONE 2-FEW 3-MAJORITY
14	2	MARKETPLACE	GENERAL CODE
15	1	AVERAGE SIZE OF LAND UNDER CROP PER HOUSEHOLD	0-NOT ANSWERED -EXACT NUMBER OF ACRES 58-58 ACRES OR MORE
15	2	HOTEL	GENERAL CODE
16	1	AVAILABILITY OF AGRICULTURAL LAND	0-NOT ANSWERED 1-SHORTAGE 2-JUST SUFFICIENT 3-ABUNDANT 4-REMARKS
16	2	RESTAURANT	GENERAL CODE
17	1	QUALITY OF THE SOIL	0-NOT ANSWERED 1-GOOD 2-MEDIUM 3-BAD
17	2	BAR	GENERAL CODE
18	1	WHAT DO FARMERS USE EXTRA MONEY FOR	0-NOT ANSWERED 1-TO BUY MORE CATTLE 2-TO OBTAIN MORE LAND 3-FERTILIZERS/INSECTICIDES 4-TRACTOR 5-OTHERS 6-OTHERS
18	2	PETROL PUMP	GENERAL CODE
19	1	HOW MANY FARMERS HAVE CATTLE	0-NOT ANSWERED 1-100 % 2- 75 % 3- 50 % 4- 25 % 5-LESS THAN 25 % 8-NO FARMERS IN VILLAGE 9-NOT RELEVANT
19	2	WORKSHOP(MOTOR VEHICLES)	GENERAL CODE
20	1	AVERAGE HERD OF CATTLE	0-NOT ANSWERED 1- 5 TO 10 HEADS 2-10 TO 20 HEADS 3-20 TO 40 HEADS 4-MORE THAN 40 HEADS 9-NOT RELEVANT
20	2	AGRICULTURAL REPAIR SHOP	GENERAL CODE
21	1	HAS THE NUMBER OF CATTLE INCREASED OR DECREASED OVER THE LAST YEARS	0-NOT ANSWERED 1-INCREASED 2-DECREASED 3-MORE OR LESS THE SAME 9-NOT RELEVANT
21	2	COTTON BUYING POST	GENERAL CODE

22	1	WHERE DO PEOPLE GRAZE THEIR LIVESTOCK	0-NOT ANSWERED
			1-NEAR SHAMBAS,
			  WET AND DRY SEASON
			2-OUTSIDE VILLAGE
			  WET AND DRY SEASON
			3-WET SEASON: NEAR SHAMBAS
			  DRY SEASON: OUTSIDE VILLAGE
			4-WET SEASON: OUTSIDE VILLAGE
			  DRY SEASON: NEAR VILLAGE
			8-1 + 2
			9-NOT RELEVANT

22	2	COTTON PRIMARY SOCIETY	GENERAL CODE
23	1	WHY IS LIVESTOCK GRAZED OUTSIDE VILLAGE	0-NOT ANSWERED 1-SHORTAGE OF LAND 2-LACK OF WATER 3-1 + 2 4-DISEASES 5-8 OTHER REASONS 9-NOT RELEVANT
23	2	COTTON GINNERY	GENERAL CODE

EXPLANATION continued

PRINT COLUMN	LINE	QUESTION	KEY TO CODING
24	1	R-GUL/R SELLING CF CATTLF FOR COMMERCIAL REASONS	C-NOT ANSWERED 1-BY MOST CATTLE FANERS 2-BY SOME CATTLE CWNERS 3-NOT PRACTISED C-NOT RELEVANT
24	2	FLOUR MILL	GENERAL CODE
25	1	CDOLLETTER OF FACILITIES FOR ANIMAL HUSBANDRY,FOR PRESENCE SEE LINE 2	H-CATTLE MARKET P-CATTLE WEIGH-BRIDGE C-CATTLE CRUSH H-CATTLE HOLDING GROUND V-VETERINARY CENTER L-CATTLE DIP
25	2	AVAILABILITY OF ANIMAL HUSBANDRY FACILITIES ACCORDING TO LINE 1	GENERAL CODE
26	1	PRESENCE OF SHOPS	GENERAL CODE
26	2	NUMBER OF SHOPS ACCORDING TO INFORMATION FROM WARD HEAD-QUARTERS	C-NOT ANSWERED 1-1 TO 5 2-6 TO 15 3-MORE THAN 15 4-NONE 5-NOT RELEVANT OR UNKNOWN
27	1	CODE LETTER OF ADDITIONAL FACILITIES, FOR PRESENCE SEE LINE 2	X-MOSQUE, TEMPLE OR CHURCH Y-MISSION POST Z-OTHER INDUSTRIES
27	2	AVAILIBILITY OF ADDITIONAL FACILITIES ACCORDING TO LINE 1	GENERAL CODE
28	1	SOURCES FOR HUMAN WATER CONSUMPTION IN WET SEASON	C-NOT ANSWERED 1-TRADITIONAL SUPPLY 2-WELL 3-PIPED SUPPLY 4-1 + 2 5-1 + 3 6-2 + 3 7-1 + 2 + 3 8-OTHER TYPES OF SUPPLY
28	2	SOURCES FOR HUMAN WATER CONSUMPTION IN DRY SEASON	SEE LINE 1
29	1	WHICH WATER SUPPLY IS USED BY MOST PEOPLE IN THE WET SEASON	C-NOT ANSWERED 1-8 SEE CODING COLUMN 28 LINE 1 9-NOT RELEVANT
29	2	WHICH WATER SUPPLY IS USED BY MOST PEOPLE IN THE DRY SEASON	SEE LINE 1
30	1	DISTANCE FROM CENTRE OF VILLAGE TO WATER SUPPLY MOST FREQUENTLY USED IN THE WET SEASON	C-NOT ANSWERED 1-LESS THAN 1 MILE 2-1 TO 3 MILES 3-3 TO 5 MILES 4-5 TO 7 MILES 5-MORE THAN 7 MILES 6-NOT RELEVANT
30	2	DISTANCE FROM CENTRE OF VILLAGE TO WATER SUPPLY MOST FREQUENTLY USED IN THE DRY SEASON	SEE LINE 1
31	1	IS THERE IN GENERAL ENOUGH WATER FOR HUMAN CONSUMPTION IN THE WET SEASON	GENERAL CODE
31	2	IS THERE IN GENERAL ENOUGH WATER FOR HUMAN CONSUMPTION IN THE DRY SEASON	GENERAL CODE
32	1	PEOPLES OPINION ON QUALITY OF DRINKING WATER IN THE WET SEASON	C-NOT ANSWERED 1-GOOD 2-REASONABLE 3-BAD
32	2	PEOPLES OPINION ON QUALITY OF DRINKING WATER IN THE DRY SEASON	SEE LINE 1

EXPLANATION continued

PRINT COLUMN	LINE	QUESTION	KEY TO CODING
33	1	IS THERE IN GENERAL ENOUGH WATER FOR CATTLE AVAILABLE IN THIS VILLAGE IN THE WET SEASON	GENERAL CODE
33	2	IS THERE IN GENERAL ENOUGH WATER FOR CATTLE AVAILABLE IN THIS VILLAGE IN THE DRY SEASON	GENERAL CODE
34	1	OFFICIAL REQUEST SUBMITTED FOR IMPROVEMENT OF WATER SUPPLY	GENERAL CODE
34	2	REACTION OF AUTHORITIES TO OFFICIAL REQUEST OF LINE 1	0-NOT ANSWERED 1-NEW SUPPLY UNDER CONSTRUC- TION OR CONSTRUCTED 2-NEW SUPPLY PROMISED 3-OFFICIAL VISIT TO VILLAGE 4-NO REACTION 6-7 CONDITIONS TO BE MET BEFORE CONSTRUCTION WILL BE UNDERTAKEN 9-NOT RELEVANT
35	1	MIGRATION SURPLUS ACCORDING TO COLUMNS 9 AND 10 SEE ALSO LINE 2	0-NO MIGRATION OR NO SURPLUS -EXACT NUMBER 999-NO DATA AVAILABLE
35	2	CODE FOR MIGRATION SURPLUS OF LINE 1	1-IMMIGRATION 2-EMIGRATION 3-NO MIGRATION(SURPLUS) 9-NOT RELEVANT
36	1	IMMIGRATION IN PERCENTAGE POINTS OF POPULATION	0-97 EXACT NUMBER 98-98 OR MORE 99-NOT RELEVANT
36	2	EMIGRATION IN PERCENTAGE POINTS OF POPULATION	SEE LINE 1
37	1	LINE NUMBER	1
37	2	LINE NUMBER	2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

SHINYANGA DISTRICT
Negezi division

BUGAYANJIGU	11	1	2	1	00	3	1	12	24	2	2	9	1	C6	3	2	1;5	2	2	2	1	5	2	MRCHVC	2	XYZ	01	01	1	1	2	1	1	12	99	1
CODENR. 11105		2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	5	2
MWAMALA	11	1	2	2	00	2	3	12	11	5	1	9	1	01	1	3	5;0	5	2	1	1	5	2	MRCHVC	1	XYZ	01	01	1	1	3	1	1	1	0	1
CODENR. 11109		2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
UZOGORE	11	1	2	2	00	2	3	44	90	2	2	1	1	C7	3	1	4;0	4	0	2	1	5	2	MRCHVC	1	XYZ	03	02	2	1	3	1	2	14	2	1
CODENR. 11118		2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	1	2	222222	1	122	20	00	0	0	0	0	0	1	99	2
IBADAKULI	11	1	1	3	00	2	3	28	11	2	2	9	1	C7	3	2	5;0	2	2	1	1	5	2	MRCHVC	1	XYZ	05	01	1	1	2	1	1	17	2	1
CODENR. 11119		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	122	20	00	0	0	0	0	0	1	99	2
KOLANDOTO	11	1	2	3	00	2	3	0	0	5	1	9	1	02	3	1	5;5	5	1	2	1	5	2	MRCHVC	1	XYZ	05	03	1	1	1	1	1	0	0	1
CODENR. 11120		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	2	222	20	00	0	0	0	0	0	3	0	2

MWAMALA	12	1	1	2	00	2	3	13	16	2	2	9	1	C7	3	2	1;5	4	3	2	1	5	3	MRCHVC	1	XYZ	01	01	2	1	3	1	1	3	99	1
CODENR. 11205		1	2	2	1	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	2	1	2
ILIMBILU	12	1	2	3	00	3	1	0	6	4	2	9	2	12	3	2	1;5	2	2	1	1	5	2	MRCHVC	1	XYZ	01	01	2	1	1	1	1	6	99	1
CODENR. 11207		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	1	2
ITUMBULU	12	1	2	2	00	3	3	0	24	2	2	9	1	C6	3	1	1;5	2	3	1	1	5	2	MRCHVC	2	XYZ	01	01	2	1	3	1	1	24	99	1
CODENR. 11209		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	6	2
ITILIMA	12	1	1	3	00	3	3	8	18	2	2	9	1	C4	3	2	1;5	2	3	3	1	9	2	MRCHVC	1	XYZ	01	01	1	1	2	1	2	10	99	1
CODENR. 11214		2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	1	2

MALWA	13	1	1	2	00	5	1	41	24	2	1	9	1	30	2	1	7;5	5	2	2	1	5	2	MRCHVC	2	XYZ	01	01	2	1	3	1	1	17	2	1
CODENR. 11301		2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
NEGEZI	13	1	1	2	00	2	3	0	12	2	2	1	1	C7	1	1	5;5	4	2	2	1	9	2	MRCHVC	1	XYZ	05	01	1	1	1	1	1	12	99	1
CODENR. 11312		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	2	2	2
UKENYENGE	13	1	2	1	00	2	2	18	0	2	1	9	1	02	1	1	5;5	5	9	0	0	5	2	MRCHVC	1	XYZ	05	00	1	1	1	9	1	18	5	1
CODENR. 11314		1	2	2	2	2	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2

MWAMISHELI	14	1	1	2	00	2	3	0	0	2	2	3	1	05	2	1	1;5	5	2	2	1	5	2	MRCHVC	1	XYZ	05	01	1	1	1	1	1	0	0	1
CODENR. 11401		1	2	1	2	2	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	222222	2	222	20	00	0	0	0	0	0	3	0	2
ISAGALA	14	1	1	2	00	2	3	6	6	3	2	9	1	C6	2	1	1;5	2	2	2	1	5	2	MRCHVC	1	XYZ	01	01	1	1	3	1	1	0	0	1
CODENR. 11406		2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
MWAMPOLMU	14	1	2	1	00	2	2	36	18	2	2	9	1	09	2	1	1;5	2	2	2	1	9	2	MRCHVC	1	XYZ	01	01	1	2	3	2	1	18	5	1
CODENR. 11408		2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
BUSILILI	14	1	1	1	00	2	2	12	24	2	2	9	1	C5	2	1	1;5	2	3	2	1	9	2	MRCHVC	1	XYZ	03	01	1	1	3	1	1	12	99	1
CODENR. 11409		2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	4	2

IKOMU	15	1	2	1	00	3	2	6	6	2	2	1	1	20	3	1	1;5	2	3	1	1	5	2	MRCHVC	1	XYZ	08	03	1	1	1	1	1	0	0	1
CODENR. 11510		2	1	2	1	2	2	2	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	3	0	2
KALANDALE	15	1	2	1	00	2	1	0	0	2	2	9	1	C7	1	2	1;0	2	4	2	1	9	2	MRCHVC	2	XYZ	08	03	2	1	2	2	1	0	0	1
CODENR. 11501		1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
KIJIMA	15	1	2	1	00	2	2	6	0	4	2	9	1	C9	3	1	1;5	5	3	2	1	9	2	MRCHVC	1	XYZ	01	01	1	1	2	1	1	6	2	1
CODENR. 11512		2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2

MIHAMA	16	1	2	1	00	3	3	12	6	2	2	5	1	40	2	1	1;5	2	4	2	1	5	2	MRCHVC	1	XYZ	01	01	1	2	3	1	1	6	0	1
CODENR. 11601		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MWAMAPULU	16	1	2	3	00	3	3	110	24	2	2	4	1	70	2	1	1;5	2	2	2	1	5	2	MRCHVC	1	XYZ	08	01	4	2	1	2	1	95	10	1
CODENR. 11607		2	2	2	2	2	2	2	2	2	1	2	2	1	2	1	2	1	2	2	2	2	2	222222	2	222	20	00	0	0	0	0	0	1	99	2
MWAMAPULU-OJAMA	16	1	1	3	00	3	1	271	0	2	2	4	1	25	2	1	1;5	2	4	1	1	3	2	MRCHVC	1	XYZ	01	01	1	2	3	1	1	271	32	1
CODENR. 11610		2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	2	2	2	1	2	2	2	222222	2	222	20	00	0	0	0	0	0	1	99	2
MWAMA PUTA	16	1	2	3	00	3	3	531	413	2	2	8	1	20	2	1	1;5	2	4	1	3	1	2	MRCHVC	1	XYZ	05	03	2	1	3	1	1	118	5	1
CODENR. 11609		1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	2	2	2	1	2	1	121232	2	222	20	00	0	0	0	0	0	1	99	2

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COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Negezi division (continued)

IMALAHUPINA	16	1	1	1	00	3	2	0	8	2	3	5	1	25	2	1	1;0	2	3	1	3	3	1	MACHVD	1	XYZ	08	00	1	1	2	1	1	8	99	1
CODENR. 11617	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	1	2	2	??????	1	???	20	00	0	0	0	0	0	2	8	2
BULYANZOBE	16	1	2	3	00	3	3	0	0	2	2	3	1	10	3	1	1;5	2	5	1	1	5	2	MACHVD	1	XYZ	01	01	1	1	2	1	2	0	0	1
CODENR. 11612	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	??????	9	???	20	00	0	0	0	0	0	3	0	2
NHOBOLA	17	1	1	1	00	3	1	30	999	2	1	9	1	05	2	1	1;5	3	2	2	1	9	2	MACHVD	2	XYZ	01	01	1	1	2	0	2	999	99	1
CODENR. 11702	1	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	9	99	2
ISUMBANKULA	17	1	1	1	00	3	1	18	23	4	2	5	1	05	3	1	1;5	4	2	2	1	9	2	MACHVD	2	XYZ	01	01	1	1	3	1	1	5	99	1
CODENR. 11704	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	2	2	2
NGOFILA	18	1	2	3	00	3	3	63	84	2	2	4	1	20	3	2	1;5	2	2	2	1	9	3	MACHVD	1	XYZ	08	05	2	2	3	2	1	21	99	1
CODENR. 11803	1	2	2	1	2	2	2	2	1	2	2	1	2	1	2	2	2	2	1	2	1	2	??????	9	???	20	00	0	0	0	0	0	2	2	2
INOLELO	18	1	2	3	00	3	1	30	49	2	2	9	1	30	3	1	1;5	2	3	2	1	9	2	MACHVD	2	XYZ	01	01	4	2	3	2	1	19	99	1
CODENR. 11809	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	2	2	2

Itwangi division

ISHOLOLO	21	1	2	3	00	3	3	0	5	2	1	9	2	06	3	3	1;0	4	1	2	1	9	3	MACHVD	2	XYZ	01	01	1	1	1	1	2	5	99	1
CODENR. 12102	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	2	1	2
ISHEGENYA	21	1	2	2	00	3	3	38	5	4	1	9	2	05	2	3	1;5	2	2	2	1	9	2	MACHVD	2	XYZ	01	01	1	1	2	1	1	33	7	1
CODENR. 12103	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2
USULE	21	1	2	2	00	3	3	5	0	4	1	9	2	07	3	2	1;5	4	2	2	1	9	3	MACHVD	1	XYZ	02	02	1	1	1	1	2	5	1	1
CODENR. 12106	1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	1	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2
BUMUYU	21	1	2	2	00	3	1	6	1	4	1	9	1	06	3	1	1;5	5	1	2	1	9	2	MACHVD	2	XYZ	01	01	1	1	1	1	1	5	1	1
CODENR. 12112	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2
MHUGI	21	1	2	3	00	1	2	0	0	4	1	9	1	03	1	1	2;5	5	1	2	3	1	3	MACHVD	2	XYZ	01	01	1	1	1	1	1	0	0	1
CODENR. 12114	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	3	0	2
SHILOLELI	21	1	2	2	00	3	3	5	10	4	1	9	1	08	2	2	1;5	4	3	2	1	9	3	MACHVD	2	XYZ	01	01	1	1	2	1	2	5	99	1
CODENR. 12115	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	1	2
MWAMAKUMI	21	1	2	2	00	6	1	0	5	3	1	9	1	04	2	3	1;5	5	1	2	1	9	3	MACHVD	2	XYZ	01	01	1	1	2	1	2	5	99	1
CODENR. 12116	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	1	2
BUTUMBA	21	1	2	1	00	3	2	0	5	4	1	9	2	04	3	1	1;5	5	1	2	1	9	2	MACHVD	2	XYZ	01	01	1	1	1	1	1	0	0	1
CODENR. 12119	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	3	0	2
SHIKHEMBE	21	1	2	3	00	3	2	0	5	4	1	9	2	13	1	3	1;4	4	2	2	1	9	3	MACHVD	1	XYZ	01	01	1	1	2	1	2	5	99	1
CODENR. 12120	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	2	2	2
MWADONO	22	1	2	2	00	2	1	13	15	3	1	0	3	06	1	3	1;0	4	2	2	1	1	2	MACHVD	2	XYZ	02	02	1	1	1	1	2	6	99	1
CODENR. 12202	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	1	2
NYASHIMBI	22	1	2	2	00	2	3	0	5	2	1	0	3	04	2	2	1;0	4	2	2	1	9	1	MACHVD	2	XYZ	01	01	1	2	3	2	1	4	1	1
CODENR. 12206	2	2	2	1	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	??????	1	???	20	00	0	0	0	0	0	1	99	2
SUMBUA-KAGELA	22	1	2	2	00	2	3	20	12	2	1	1	2	10	3	2	1;0	4	2	2	1	9	2	MACHVD	2	XYZ	04	01	2	1	3	1	1	8	1	1
CODENR. 12207	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2
UZANZA	22	1	2	2	00	1	3	1	2	2	1	9	2	06	2	2	1;0	2	2	2	1	9	1	MACHVD	2	XYZ	08	03	2	1	1	1	1	2	99	1
CODENR. 12208	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	0	2
CHENELI	22	1	2	2	00	1	3	0	23	2	1	9	2	04	3	2	1;0	4	3	1	1	9	2	MACHVD	2	XYZ	08	01	1	1	3	1	1	36	99	1
CODENR. 12209	1	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	2	7	2
KIGANG'HONA-UJAMAA	22	1	1	3	00	2	1	60	6	2	3	1	2	00	1	2	5;4	2	2	1	3	3	3	MACHVD	2	XYZ	08	00	1	1	1	1	2	54	5	1
CODENR. 12210	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	1	99	2
LOHUMBU-DIDIA	22	1	2	3	00	4	3	14	10	6	1	9	1	02	1	3	5;6	8	5	9	9	5	9	MACHVD	1	XYZ	05	03	1	1	2	9	1	4	1	1
CODENR. 12211	1	2	2	2	2	2	2	1	1	1	1	1	1	2	1	1	2	2	2	1	2	1	122221	3	121	20	00	0	0	0	0	0	1	99	2

Itwangi division (continued)

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
MASKATI	23	1	2	2	00	4	3	0	24	4	1	9	3	04	1	3	1;5	5	.	2	.	5	2	MBCHVD	1	XYZ	04	02	1	1	1	1	1	24	99	1
CODENR. 12301	2	1	2	2	2	2	2	2	1	2	2	1	1	2	2	2	2	2	2	1	2	1	222222	2	122	20	00	0	0	0	0	0	2	3	2
MATINA	23	1	2	2	00	3	1	9	5	5	1	9	1	05	1	3	1;5	2	3	1	1	9	2	MBCHVD	2	XYZ	04	01	2	2	3	1	2	4	1	1
CODENR. 12309	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
ILUMILI	23	1	2	2	00	1	3	96	6	4	1	9	2	03	2	3	1;5	4	2	2	2	1	2	MBCHVD	1	XYZ	04	02	1	1	3	1	1	90	12	1
CODENR. 12310	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	222222	9	222	20	00	0	0	0	0	0	1	99	2
IGALULA	23	1	1	1	00	3	2	0	5	4	1	9	1	05	1	3	1;5	4	1	2	1	9	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	5	99	1
CODENR. 12311	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	9	122	20	00	0	0	0	0	0	2	5	2
HILIZU	24	1	2	2	00	2	3	15	26	4	1	9	2	05	1	3	1;5	4	2	2	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	5	99	1
CODENR. 12401	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	1	222222	1	222	20	00	0	0	0	0	0	2	1	2
NSHISHIMULU	24	1	2	3	00	3	1	0	5	4	1	9	2	07	2	1	1;5	4	2	2	4	1	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	5	99	1
CODENR. 12402	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	1	222	20	00	0	0	0	0	0	2	0	2
IGUPELO	24	1	2	1	00	2	1	0	0	4	1	9	3	06	2	1	5;0	4	3	1	1	9	2	MBCHVD	1	XYZ	04	02	2	1	3	1	1	0	0	1
CODENR. 12403	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
MWAMKANGA	24	1	2	3	00	3	1	15	0	6	1	9	2	08	2	2	1;5	4	2	2	1	9	2	MBCHVD	2	XYZ	04	01	1	1	3	1	1	15	1	1
CODENR. 12404	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
IDUTA	24	1	2	2	00	2	3	15	0	6	1	9	3	04	1	3	1;5	3	2	1	1	9	2	MBCHVD	1	XYZ	01	01	2	1	3	1	1	15	3	1
CODENR. 12413	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
NHIMBILI	24	1	2	3	00	3	1	10	20	4	1	9	2	06	3	2	1;5	4	2	2	1	9	2	MBCHVD	1	XYZ	01	01	1	1	1	1	1	10	99	1
CODENR. 12415	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	1	222	20	00	0	0	0	0	0	2	1	2
IGULUGUTO	24	1	2	3	00	2	1	10	0	4	1	9	3	03	3	1	1;5	4	2	2	1	9	2	MBCHVD	2	XYZ	08	01	2	1	1	1	1	10	1	1
CODENR. 12420	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
TINDE	24	1	2	3	00	2	3	1	0	4	2	9	3	15	3	2	1;5	4	1	1	1	9	2	MBCHVD	1	YYZ	07	03	1	1	2	1	1	1	0	1
CODENR. 12421	1	2	2	2	1	2	2	2	2	1	2	1	1	2	1	2	1	2	2	2	1	2	222222	9	152	20	00	0	0	0	0	0	1	99	2
KASIMGILI	25	1	2	2	00	2	3	20	46	2	1	0	2	07	3	1	1;0	4	3	1	1	9	2	MBCHVD	1	XYZ	02	02	2	2	3	1	1	26	99	1
CODENR. 12501	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	6	2
SHAMATALG	25	1	2	2	00	2	3	0	5	5	1	9	2	06	1	1	1;0	4	5	2	1	9	1	MBCHVD	1	XYZ	04	01	2	1	3	1	1	5	99	1
CODENR. 12502	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	1	2
IMALANGUZU	25	1	2	2	00	3	1	32	999	2	1	0	2	04	3	2	1;0	4	2	2	3	1	2	MBCHVD	2	XYZ	04	02	2	1	2	1	1	999	99	1
CODENR. 12503	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	9	99	2
ZUMZULI	25	1	2	2	00	3	1	15	2	2	1	9	2	07	3	1	1;0	4	3	2	1	9	1	MBCHVD	1	XYZ	01	01	0	1	2	1	2	13	3	1
CODENR. 12505	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MEMDO	25	1	2	2	00	3	1	52	47	2	1	0	2	03	3	1	1;0	4	2	2	3	9	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	5	1	1
CODENR. 12506	1	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
IHALU	25	1	2	1	00	2	1	32	15	2	1	9	2	05	3	1	0;5	5	0	2	3	9	1	MBCHVD	1	XYZ	04	01	2	1	1	1	2	17	4	1
CODENR. 12507	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
NDUGUTI	26	1	2	3	00	3	3	13	18	2	1	0	2	00	2	2	1;0	4	3	2	1	9	1	MBCHVD	2	XYZ	08	01	1	1	1	1	1	5	99	1
CODENR. 12601	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	1	2
BUKUNGA	26	1	2	3	00	3	1	23	89	2	1	0	2	06	2	2	1;0	2	4	2	1	9	1	MBCHVD	2	XYZ	08	01	0	1	1	1	2	56	99	1
CODENR. 12602	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	7	2
ITURUMILU	26	1	2	3	00	3	1	61	47	2	1	9	3	03	3	1	1;0	2	2	2	1	9	2	MBCHVD	1	XYZ	08	01	0	1	3	1	2	14	1	1
CODENR. 12603	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	9	222	20	00	0	0	0	0	0	1	99	2
ZUGUGU	26	1	2	2	00	2	3	21	10	5	1	0	3	05	2	2	1;0	4	2	2	1	9	1	MBCHVD	2	XYZ	08	01	2	1	1	1	1	11	2	1
CODENR. 12604	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
ITWANGI	26	1	2	4	00	2	3	23	0	4	1	9	3	04	1	2	3;5	4	3	2	3	2	3	MBCHVD	2	XYZ	05	05	1	1	2	1	1	33	5	1
CODENR. 12605	1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Mondo division																																				
BUBIKI	31	1	2	2	00	2	3	48	0	2	3	9	1	C5	2	2	5;5	5	1	1	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	48	6	1
CODENR. 13101		1	2	2	1	2	2	2	2	2	1	2	2	1	2	1	2	2	2	2	1	2	1	222222	2	222	20	00	0	0	0	0	0	1	99	2
NYASAMBA-UJAMAA	31	1	1	1	00	2	2	3	0	2	3	9	1	C3	3	1	1;5	5	1	1	1	9	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	3	11	1
CODENR. 13105		2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
BUSANGWA	31	1	2	3	00	2	3	38	10	2	2	9	1	07	2	1	1;5	4	2	3	1	9	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	28	3	1
CODENR. 13111		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	222222	1	122	20	00	0	0	0	0	0	1	99	2
PAMBE	31	1	2	3	00	3	1	27	0	2	1	9	1	08	3	1	0;5	5	1	1	1	9	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	27	3	1
CODENR. 13113		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
BUGAMBIYU	32	1	2	3	00	3	3	27	16	2	2	1	1	13	3	1	1;5	2	3	1	1	9	2	MBCHVD	1	XYZ	01	01	1	1	1	1	1	11	1	1
CODENR. 13201		1	1	1	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	1	2	1	222222	2	122	20	00	0	0	0	0	0	1	99	2
ITONGOITALE	32	1	2	3	00	3	3	77	20	2	2	9	1	C5	3	1	1;5	2	3	1	1	9	3	MBCHVD	1	XYZ	01	01	1	1	2	1	1	57	7	1
CODENR. 13206		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	222222	1	222	20	00	0	0	0	0	0	1	99	2
BUGORO	33	1	2	2	00	3	3	0	7	2	2	9	1	C4	3	1	5;5	4	3	2	1	9	3	MBCHVD	2	XYZ	08	01	1	1	3	1	1	7	99	1
CODENR. 13301		2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222221	0	221	20	00	0	0	0	0	0	2	1	2
SEKE	33	1	2	3	00	5	3	C	C	5	2	2	1	C6	3	1	5;5	3	3	2	1	9	3	MBCHVD	1	XYZ	01	01	1	1	1	1	1	0	0	1
CODENR. 13303		1	2	2	2	2	2	2	1	1	2	1	1	2	1	2	1	2	2	2	1	2	1	222222	3	222	20	00	0	0	0	0	0	3	0	2
NSAYU	33	1	2	3	00	2	1	38	28	2	2	9	1	C8	3	1	1;5	5	1	2	1	9	3	MBCHVD	2	XYZ	01	01	1	1	2	1	1	0	0	1
CODENR. 13310		2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
MWAMANONGA	33	1	2	3	00	3	1	9	15	2	2	9	1	10	3	1	1;5	4	2	2	1	9	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	6	99	1
CODENR. 13311		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	2	1	2
MIPA	33	1	2	3	00	2	3	81	5	2	2	1	2	C3	3	1	1;5	5	2	2	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	76	7	1
CODENR. 13314		1	2	2	2	2	2	2	1	2	2	1	2	1	2	1	2	2	2	2	1	2	1	222221	1	222	20	00	0	0	0	0	0	1	99	2
MWASHINUNG'HELA	33	1	2	3	00	0	1	11	5	2	1	9	1	04	3	1	1;5	5	1	2	1	9	3	MBCHVD	2	XYZ	01	01	1	1	1	1	1	6	1	1
CODENR. 13315		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	0	222	20	00	0	0	0	0	0	1	99	2
WISHITELEJA	34	1	2	2	00	2	3	91	11	2	2	3	2	10	3	1	1;5	4	2	1	1	9	2	MBCHVD	1	XYZ	01	01	2	1	2	1	1	60	15	1
CODENR. 13401		1	2	1	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	222211	1	221	20	00	0	0	0	0	0	1	99	2
BUGAMIKA	34	1	2	2	00	2	3	38	24	2	2	1	1	06	2	2	1;5	5	2	2	1	9	3	MBCHVD	1	XYZ	01	01	1	1	3	1	1	14	2	1
CODENR. 13405		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	212	20	00	0	0	0	0	0	1	99	2
NDEMA	34	1	2	2	00	2	1	999	19	2	2	9	1	10	3	1	2;5	5	1	2	1	9	3	MBCHVD	2	XYZ	08	03	5	1	3	1	1	999	99	1
CODENR. 13409		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	9	99	2
MWAMALYELYE	34	1	2	3	00	2	1	50	68	2	3	2	1	C6	3	1	0;5	5	1	2	1	9	3	MBCHVD	1	XYZ	01	01	3	2	3	1	1	16	99	1
CODENR. 13410		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	1	222	20	00	0	0	0	0	0	2	2	2
JIHANILWENTEMI	35	1	2	1	00	3	1	49	43	2	3	5	1	C3	3	2	4;0	4	2	2	1	9	2	MBCHVD	2	XYZ	08	03	1	1	2	1	1	6	2	1
CODENR. 13504		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
IDUKIRI	37	1	2	2	00	3	3	76	11	5	2	1	1	16	1	2	1;5	2	3	1	1	9	1	MBCHVD	1	XYZ	01	01	3	1	3	1	2	65	9	1
CODENR. 13702		1	2	1	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2	2	1	2	1	222222	2	122	20	00	0	0	0	0	0	1	99	2
BUGERE	37	1	2	2	00	3	1	16	999	2	1	9	1	C6	2	1	1;0	2	3	2	1	9	3	MBCHVD	1	XYZ	01	01	1	1	2	1	1	999	99	1
CODENR. 13704		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	222	00	00	0	0	0	0	0	9	99	2
MWANGOMBULWA	37	1	2	2	00	3	1	0	69	2	1	1	1	C7	3	1	1;0	2	3	2	1	9	2	MBCHVD	2	XYZ	01	01	1	1	2	1	1	69	99	1
CODENR. 13706		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	2	14	2
IKOMBABUKI	37	1	2	1	00	2	1	37	21	5	2	2	1	C7	3	1	1;0	2	3	2	1	9	1	MBCHVD	2	XYZ	08	03	1	1	2	1	1	16	5	1
CODENR. 13707		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
KASHISHI	37	1	2	2	00	3	3	51	16	5	2	9	1	C6	3	2	1;0	2	3	2	1	9	1	MBCHVD	1	XYZ	01	01	1	1	3	1	1	35	5	1
CODENR. 13716		1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	1	222	20	00	0	0	0	0	0	1	99	2
MAGANZO	38	1	2	3	00	2	3	108	70	5	2	3	3	C8	1	2	4;5	4	3	2	1	9	1	MBCHVD	1	XYZ	05	03	1	2	3	2	1	38	3	1
CODENR. 13802		1	2	2	2	2	2	1	2	2	2	2	1	1	1	1	2	1	2	2	2	2	1	222222	3	222	20	00	0	0	0	0	0	1	99	2

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COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Kishapu division																																				
UNYANYEMBE	41	1	2	2	00	2	3	11	22	1	2	9	1	12	1	2	1;0	2	3	1	1	9	0	MBCHVD	2	XYZ	01	01	2	1	3	1	1	11	99	1
CODENR. 14101		1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	2	2
IGAGA	41	1	2	3	00	3	1	55	6	5	2	9	1	C7	1	1	1;0	2	3	1	3	3	0	MBCHVD	2	XYZ	01	01	0	2	1	2	1	49	6	1
CODENR. 14104		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	???????	0	???	20	00	0	0	0	0	0	1	99	2
KAKOLA	41	1	1	2	00	3	3	44	11	5	3	9	1	C3	3	1	0;5	4	3	2	1	9	0	MBCHVD	2	XYZ	03	00	1	1	3	0	0	33	9	1
CODENR. 14107		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	1	99	2
NGUNDANGALI	41	1	2	2	00	3	3	66	56	5	2	1	1	09	3	1	1;0	2	4	1	1	9	2	MBCHVD	1	XYZ	01	01	2	1	2	1	2	10	2	1
CODENR. 14111		2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	1	2	??????	2	???	20	00	0	0	0	0	0	1	99	2
BADI	42	1	2	2	00	2	2	82	17	2	2	9	1	14	1	3	1;3	2	2	2	1	9	3	MBCHVD	1	XYZ	01	01	2	1	2	1	2	66	11	1
CODENR. 14202		1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	??????	0	???	20	00	0	0	0	0	0	1	99	2
MWANG'HALANGA	42	1	1	1	00	2	1	11	11	2	2	9	2	C5	2	1	1;0	4	2	2	2	0	0	MBCHVD	2	XYZ	01	01	1	1	1	1	2	0	0	1
CODENR. 14210		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	0	2
NZEGA	42	1	2	2	00	3	1	28	22	1	2	9	1	C8	3	1	1;0	2	2	3	1	9	1	MBCHVD	2	XYZ	01	01	0	1	1	1	2	6	1	1
CODENR. 14204		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	1	99	2
MWANGONGO	42	1	2	2	00	2	1	17	28	2	2	9	1	10	3	1	1;5	2	4	1	1	9	3	MBCHVD	2	XYZ	01	01	1	1	1	1	1	11	99	1
CODENR. 14208		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	2	2
NDGLELEJI	43	1	2	3	00	3	3	22	22	2	2	9	3	C6	3	2	1;0	2	3	1	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	2	0	0	1
CODENR. 14302		1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	3	0	2
MWALATA	43	1	2	3	00	3	3	0	11	2	2	9	1	C4	3	1	1;5	2	3	3	1	9	2	MBCHVD	2	XYZ	08	05	2	1	1	1	1	11	99	1
CODENR. 14303		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	1	2
SHAGIHILU	43	1	2	1	00	3	3	0	C	2	2	2	1	06	3	1	1;0	4	3	1	1	9	2	MBCHVD	1	XYZ	05	03	1	1	1	1	2	0	0	1
CODENR. 14304		2	2	2	2	2	2	2	1	2	1	2	1	2	1	2	1	2	2	2	1	2	2	??????	2	???	20	00	0	0	0	0	0	3	0	2
GIMAGI	43	1	2	2	00	2	3	0	17	2	2	9	1	C8	1	1	1;5	2	3	1	1	9	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	17	99	1
CODENR. 14306		2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	??????	1	???	20	00	0	0	0	0	0	2	3	2
MASANGA	44	1	2	3	00	3	3	570	413	2	2	8	1	25	3	1	4;0	4	3	2	5	7	1	MBCHVD	1	XYZ	01	01	1	1	1	1	1	157	4	1
CODENR. 14401		1	2	3	2	2	2	2	2	1	2	1	2	1	2	3	2	2	2	1	2	2	2	??????	2	???	10	00	0	0	0	0	0	1	99	2
MWAMASHIMBA	44	1	2	2	00	3	1	56	77	1	2	9	1	07	2	1	1;0	1	4	2	1	9	1	MBCHVD	2	XYZ	03	01	0	2	3	1	1	21	99	1
CODENR. 14403		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	5	2
ISEMELO	44	1	2	3	00	3	3	290	77	2	2	1	1	13	1	1	1;0	1	4	1	4	1	1	MBCHVD	1	XYZ	06	00	1	1	3	1	1	203	7	1
CODENR. 14407		1	2	2	3	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	1	2	2	??????	0	???	20	00	0	0	0	0	0	1	99	2
MWAMALASA	45	1	2	2	00	3	3	11	11	2	2	1	1	C5	3	1	1;5	5	2	2	1	2	2	MBCHVD	1	XYZ	03	03	1	1	1	1	1	0	0	1
CODENR. 14501		1	2	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2	2	1	2	2	2	??????	2	???	20	00	0	0	0	0	0	3	0	2
MALENDI	45	1	2	1	00	3	1	22	28	1	2	9	1	C8	3	1	1;5	2	3	1	1	9	0	MBCHVD	2	XYZ	01	01	1	1	3	1	1	6	99	1
CODENR. 14507		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	2	2
MILISHI	45	1	2	1	00	2	3	0	77	4	2	9	1	C8	3	1	5;1	2	4	1	1			MBCHVD	2	XYZ	08	01	1	1	2	1	1	77	99	1
CODENR. 14508		1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2					??????	0	???	20	00	0	0	0	0	0	2	22	2
MIZANZA	46	1	2	2	00	3	3	C	C	2	2	9	1	10	1	1	1;5	4	3	2	1	9		MBCHVD	1	XYZ	04	01	1	1	1	1	1	0	0	1
CODENR. 14601		2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2					??????	1	???	20	00	0	0	0	0	0	3	0	2
HIMITE	46	1	2	2	00	3	3	C	C	2	2	9	1	C6	3	2	1;0	2	3	1	1	9	2	MBCHVD	2	XYZ	01	01	2	1	3	1	2	0	0	1
CODENR. 14604		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2					??????	0	???	20	00	0	0	0	0	0	3	0	2
MWANG'HANGA	46	1	2	1	00	3	1	11	0	4	2	9	1	C9	3	1	1;5	2	2	2	1	9	3	MBCHVD	1	XYZ	01	01	1	1	2	1	1	11	5	1
CODENR. 14607		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2		??????	1	???	20	00	0	0	0	0	0	1	99	2
BUTUNJA	46	1	2	2	00	3	1	6	6	2	2	9	1	C9	3	1	1;0	2	3	2	3	2	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	0	0	1
CODENR. 14610		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	3	0	2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13,14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Kishapu division (continued)

KISHAPU	47	1	2	2	00	2	3	6	6	2	2	9	1	C4	2	1	1;5	4	3	2	1	9	2	MBCHVD	2	XYZ	08	01	2	1	2	1	1	0	0	1
CODENR. 14701		2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
OLD MHUNZE	47	1	2	3	00	2	3	17	0	2	2	3	1	C3	2	3	1;5	4	3	2	1	9	2	MBCHVD	1	XYZ	01	01	1	0	2	1	1	17	1	1
CODENR. 14712		2	2	2	2	2	2	2	2	1	2	2	1	2	2	1	2	2	2	2	2	2	2	222222	2	222	20	00	0	0	0	0	0	1	99	2
MHUNZE GINNERY	47	1	2	3	00	2	3	0	6	5	2	1	1	C3	1	2	5;0	5	9	9	9	9	9	MBCHVD	1	XYZ	05	01	1	1	2	9	1	6	99	1
CODENR. 14703		1	2	2	1	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	1		2				20	00	0	0	0	0	0	2	0	2
MWATAGA	47	1	2	2	00	3	1	11	999	2	2	2	1	C6	3	2	5;0	3	1	2	3	1	3	MBCHVD	2	XYZ	01	01	1	1	1	1	2	999	99	1
CODENR. 14704		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	9	99	2
MWATAGEMBE	47	1	2	1	00	2	2	17	0	2	2	0	1	C5	3	2	1;5	2	3	1	1	9	1	MBCHVD	2	XYZ	05	01	1	1	2	1	1	17	1	1
CODENR. 14705		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MANGU	47	1	2	2	00	2	1	45	0	2	2	9	1	C3	3	3	1;5	2	2	2	1	9	1	MBCHVD	2	XYZ	01	01	1	1	2	1	2	45	10	1
CODENR. 14706		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
KILULELI	47	1	2	2	00	3	1	0	10	2	1	0	1	06	3	1	1;2	2	3	1	1	9	2	MBCHVD	2	XYZ	01	01	3	2	3	1	1	10	99	1
CODENR. 14707		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	2	2
KAZABONU	47	1	1	2	00	2	2	0	446	5	3	9	1	C5	2	1	1;0	4	1	1	1	9	2	MBCHVD	1	XYZ	01	01	2	1	1	1	1	446	99	1
CODENR. 14719		2	2	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2	2	2	1	2	2	222222	9	222	20	00	0	0	0	0	0	2	99	2

Mjini division

MWAMADILANHA	51	1	2	2	00	3	1	76	5	2	1	9	1	C4	3	1	1;5	4	1	1	3	3	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	71	9	1
CODENR. 15105		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MWALUKWA	51	1	2	2	00	2	3	22	10	2	2	9	1	13	2	1	1;5	4	2	1	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	12	2	1
CODENR. 15103		2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	222222	2	222	20	00	0	0	0	0	0	1	99	2
NSAYU	51	1	2	3	00	3	3	64	19	4	1	1	1	C6	3	1	1;5	4	2	1	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	45	3	1
CODENR. 15112		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	222222	2	122	20	00	0	0	0	0	0	1	99	2
PANDAGICHIZA	51	1	2	2	00	2	3	44	16	2	1	9	2	12	2	1	1;5	4	2	1	1	9	2	MBCHVD	1	XYZ	01	01	2	1	3	1	1	28	4	1
CODENR. 15119		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	212	20	00	0	0	0	0	0	1	99	2
GUNGUHUMA	51	1	2	2	00	3	1	10	5	2	1	9	1	05	2	2	1;5	2	2	1	1	9	2	MBCHVD	2	XYZ	01	01	1	1	3	1	2	5	1	1
CODENR. 15124		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MWABENDA	51	1	2	2	00	3	1	16	23	2	1	1	1	11	3	1	1;5	4	1	1	1	9	2	MBCHVD	2	XYZ	01	01	1	1	1	1	1	7	99	1
CODENR. 15132		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	2	1	2
OLD-SHINYANGA	51	1	2	2	00	2	3	12	0	2	1	2	1	C4	2	1	5;5	5	9	9	9	9	9	MBCHVD	1	XYZ	07	05	1	1	1	9	1	12	2	1
CODENR. 15133		1	2	1	2	2	2	2	2	1	2	2	2	1	2	2	1	2	2	2	1	2	1	222221	2	122	20	00	0	0	0	0	0	1	99	2

KIZUMBI	52	1	2	2	00	2	3	0	18	6	2	1	1	C7	1	2	5;0	4	2	2	1	9	3	MBCHVD	1	XYZ	03	01	1	1	2	1	1	18	99	1
CODENR. 15201		2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	1	222222	1	222	20	00	0	0	0	0	0	2	3	2
UDAT	52	1	2	3	00	2	1	18	0	2	1	9	2	04	3	1	5;0	3	3	3	1	9	3	MBCHVD	2	XYZ	01	01	2	1	3	1	1	18	5	1
CODENR. 15202		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	4	222	20	00	0	0	0	0	0	1	99	2
ISINZAMATA	52	1	2	3	00	4	3	999	999	5	1	9	1	C2	1	1	5;0	5	9	9	9	9	9	MBCHVD	1	XYZ	03	01	1	1	2	9	2	999	99	1
CODENR. 15205		1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	222222	1	212	20	00	0	0	0	0	0	9	99	2
LYANU	52	1	1	2	00	2	1	12	25	2	1	9	1	C3	3	1	1;5	3	2	3	1	1	9	MBCHVD	2	XYZ	01	01	1	1	3	1	1	13	99	1
CODENR. 15206		1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	3	2

Nindo division

SOLWA	61	1	2	2	00	2	3	0	5	2	1	9	2	03	3	1	1;5	4	2	3	1	9	3	MBCHVD	1	XYZ	01	01	1	1	1	1	2	5	99	1
CODENR. 16101		1	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	222211	1	221	20	00	0	0	0	0	0	2	1	2
MWABENDA	61	1	2	2	00	2	3	31	0	4	1	9	1	C7	3	1	1;5	2	3	1	1	9	3	MBCHVD	1	XYZ	01	01	2	1	2	1	1	31	5	1
CODENR. 16102		2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	222222	2	222	20	00	0	0	0	0	0	1	99	2
MWANDUTU	61	1	2	2	00	3	3	0	8	2	1	9	1	15	3	1	1;5	3	2	1	1	9	3	MBCHVD	2	XYZ	01	01	2	1	3	1	1	5	99	1
CODENR. 16103		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	2	1	2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Nindo division (continued)

| MANHIGANA | 61 1 2 3 00 2 1 107 63 4 1 9 1 C5 3 1 1;6 4 2 2 1 9 2 MACHVD 1 XYZ 01 01 1 1 2 1 1 44 5 1 |
| CODENR. 16104 | 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 1 222 20 00 0 0 0 0 0 1 99 2 |

KAKOLA	62 1 1 2 00 3 2 66 63 2 1 9 1 C5 1 2 1;0 4 3 2 3 1 3 MACHVD 1 XYZ 01 01 1 1 2 1 2 3 0 1
CODENR. 16203	2 2 2 1 2 2 2 2 2 2 2 2 2 1 1 2 2 2 2 2 2 1 222222 9 122 20 00 0 0 0 0 0 1 99 2
MHANGU	62 1 2 2 00 2 3 C C 2 1 1 1 C9 3 2 1;0 3 3 1 3 1 3 MACHVD 1 XYZ 01 01 1 1 2 1 2 0 0 1
CODENR. 16207	2 2 2 2 2 2 2 2 2 2 2 2 1 1 2 1 2 1 222222 2 122 20 00 0 0 0 0 0 3 0 2
IBILA	62 1 2 3 00 3 1 78 32 2 1 9 1 C5 3 1 1;0 2 3 1 9 MACHVD 1 XYZ 01 01 3 1 1 1 2 222 20 1
CODENR. 16211	0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 8 9200 1 2 445 5 00 0 0 0 0 0 2 00 2
NZIMA	62 1 2 2 00 2 3 2 31 2 1 9 2 10 3 2 1;0 2 4 3 2 1 2 MACHVD 2 XYZ 08 01 1 1 1 1 1 29 99 1
CODENR. 16212	2 2 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 122 20 00 0 0 0 0 0 2 4 2

BUYOGO	63 1 2 3 00 3 1 999 6 6 1 9 1 C6 3 1 1;5 5 1 2 1 9 2 MACHVD 2 XYZ 01 01 1 1 1 1 2 999 99 1
CODENR. 16301	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 1 222 20 00 0 0 0 0 0 9 99 2
MISHEPO	63 1 2 3 00 5 3 6 6 4 1 9 1 C4 2 1 5;0 5 1 2 1 9 2 MACHVD 1 XYZ 04 02 1 1 1 1 2 0 0 1
CODENR. 16303	1 2 2 1 2 2 2 2 1 2 2 2 2 1 2 2 2 2 2 2 222222 9 122 20 00 0 0 0 0 0 3 0 2
KITYULO	63 1 2 3 00 3 3 12 19 4 1 9 2 06 3 1 5;0 4 2 2 1 9 2 MACHVD 1 XYZ 08 01 1 1 1 1 2 7 99 1
CODENR. 16307	2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 1 2 222222 1 122 20 00 0 0 0 0 0 2 1 2
NJINGO	62 1 2 2 00 3 1 38 13 4 1 9 2 12 2 2 1;0 4 2 2 1 9 2 MACHVD 2 XYZ 01 01 1 1 1 1 1 25 6 1
CODENR. 16309	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
NYASHIMBA	63 1 2 3 00 3 1 25 19 4 1 9 2 C3 3 1 1;0 5 1 2 1 9 2 MACHVD 2 XYZ 01 01 1 1 1 1 1 6 1 1
CODENR. 16313	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
MHUGE	63 1 2 2 00 2 1 51 6 4 1 9 1 06 3 1 1;5 4 2 2 1 9 2 MACHVD 2 XYZ 01 01 1 1 2 1 1 45 7 1
CODENR. 16321	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 122 20 00 0 0 0 0 0 1 99 2

MWAKILUGULA	64 1 2 2 00 3 1 95 51 4 1 9 1 C5 3 1 1;0 2 4 2 2 2 1 MACHVD 2 XYZ 08 03 2 1 1 1 1 44 8 1
CODENR. 16401	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
MWACITUGU	64 1 2 2 00 3 1 28 959 2 1 9 1 06 3 1 1;0 2 2 1 1 9 1 MACHVD 1 XYZ 08 03 1 1 1 1 2 999 99 1
CODENR. 16406	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 222222 9 222 20 00 0 0 0 0 0 9 99 2
KABALE	64 1 2 2 00 3 1 52 25 2 1 9 1 C6 3 1 1;0 2 4 2 1 9 1 MACHVD 2 XYZ 08 03 2 1 1 1 2 27 4 1
CODENR. 16407	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
MHAW KALANGA	64 1 2 2 00 2 1 139 44 4 1 9 1 12 3 1 1;0 2 4 2 1 9 2 MACHVD 2 XYZ 08 03 2 1 1 2 2 95 13 1
CODENR. 16408	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
MWAKUMBALA	64 1 2 2 00 0 1 999 999 4 1 9 1 12 3 1 1;0 2 4 3 1 9 1 MACHVD 2 XYZ 08 03 1 1 2 1 1 999 99 1
CODENR. 16412	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 9 99 2
BUSUMBU	64 1 2 2 00 2 3 212 6 4 1 1 1 C7 3 1 1;0 2 4 2 3 1 2 MACHVD 1 XYZ 01 01 1 1 2 1 1 208 14 1
CODENR. 16413	1 2 2 2 2 2 2 2 2 1 2 1 2 2 2 2 2 2 1 222222 2 122 20 00 0 0 0 0 0 1 99 2

LYABUKANDE	65 1 2 2 00 3 3 32 C 2 1 9 1 C8 3 1 1;5 2 4 1 9 2 MACHVD 1 XYZ 08 01 1 1 1 1 1 32 5 1
CODENR. 16501	2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 1 222 20 00 0 0 0 0 0 1 99 2
KIMANDAGULI	65 1 2 1 00 2 1 69 C 4 1 9 1 04 3 1 1;5 3 3 1 1 9 3 MACHVD 2 XYZ 01 01 1 1 1 1 1 69 33 1
CODENR. 16502	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
UKIRIGURU	65 1 2 2 00 2 1 12 C 4 1 9 1 C5 3 1 1;5 3 2 1 1 9 3 MACHVD 1 XYZ 01 01 1 1 1 1 1 12 2 1
CODENR. 16510	2 1 2 2 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2

MWAKITULYO	66 1 2 2 00 3 3 59 44 2 1 9 1 C9 2 1 1;9 2 3 1 1 9 2 MACHVD 2 XYZ 01 01 1 1 3 1 1 35 3 1
CODENR. 16602	1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
MANEMILU	66 1 2 2 00 3 1 28 11 2 1 9 1 C3 3 1 1;5 2 1 2 1 9 3 MACHVD 2 XYZ 01 01 1 1 1 1 1 17 4 1
CODENR. 16613	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 122 20 00 0 0 0 0 0 1 99 2
MANEMBE	66 1 2 2 00 3 1 19 19 2 1 9 1 C9 3 1 1;5 2 1 2 1 9 2 MACHVD 2 XYZ 01 01 1 2 3 2 1 0 0 1
CODENR. 16614	2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 3 0 2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Samuye division

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
KITONGO	71	1	2	2	00	2	3	8	2C	4	1	5	1	C8	3	1	1;5	5	3	2	1	5	3	MBCHVD	2	XYZ	01	01	1	1	3	I	2	12	99	1
CODENR. 17102	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	?	2	2	1	2	2	2	??????	9	???	20	00	0	0	0	0	0	2	2	2
IDUBULA	71	1	2	2	00	2	3	0	7	4	1	5	1	C8	3	1	1;5	5	1	2	1	5	3	MBCHVD	1	XYZ	01	01	2	2	3	1	2	7	99	1
CODENR. 17104	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	??????	9	???	20	00	0	0	0	0	0	2	1	2
SELEMI	71	1	2	2	00	2	3	0	3	6	1	9	1	00	3	2	1;5	5	2	2	3	1	2	MBCHVD	2	XYZ	01	01	4	2	3	1	1	3	99	1
CODENR. 17108	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	1	???	20	00	0	0	0	0	0	2	0	2
KAZIMA	71	1	2	2	00	3	3	11	16	4	1	1	2	00	1	2	1;5	3	2	1	1	9	2	MBCHVD	2	XYZ	01	01	2	1	3	1	2	5	99	1
CODENR. 17110	1	2	2	2	2	?	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	6	???	20	00	0	0	0	0	0	2	1	2
SHATIMBA	71	1	2	2	00	3	3	11	5	4	2	5	2	1C	3	3	5;5	2	2	2	4	1	2	MBCHVD	2	XYZ	01	01	1	1	3	2	1	6	1	1
CODENR. 17111	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2
IDUKILO	72	1	2	2	00	3	1	5	5	4	2	9	3	C2	2	2	1;5	2	3	1	3	1	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	0	0	1
CODENR. 17203	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	??????	9	???	20	00	0	0	0	0	0	3	0	2	
SESEKO	72	1	2	2	00	3	3	0	0	4	2	9	2	C5	3	3	1;5	4	2	2	1	5	2	MBCHVD	2	XYZ	08	01	1	2	1	1	1	0	0	1
CODENR. 17205	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	??????	1	???	20	00	0	0	0	0	0	3	0	2		
MWANGILI	72	1	2	2	00	0	2	12	10	6	2	9	1	03	2	1	1;5	2	3	1	1	5	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	2	0	1
CODENR. 17207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2		
SUSWA	72	1	2	2	00	3	3	5	0	4	2	9	1	C3	2	1	1;5	2	2	2	3	1	2	MBCHVD	1	XYZ	01	01	1	1	1	1	2	5	1	1
CODENR. 17209	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	??????	2	???	20	00	0	0	0	0	0	1	99	2		
KANYENYE	72	1	2	3	00	2	3	37	10	4	2	9	2	04	1	3	1;5	4	2	2	3	1	2	MBCHVD	1	XYZ	07	03	2	1	1	1	1	27	3	1
CODENR. 17211	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	??????	9	???	20	00	0	0	0	0	0	1	99	2		
SINGITA	72	1	2	3	00	2	3	41	22	4	2	9	2	C7	3	3	5;5	4	2	1	3	1	2	MBCHVD	1	XYZ	07	01	1	1	2	1	1	19	2	1
CODENR. 17212	2	1	1	2	2	2	2	2	1	1	2	1	2	2	2	2	2	2	1	2	1	??????	2	???	20	00	0	0	0	0	0	1	99	2
MUNGE	72	1	2	1	00	2	2	8	4	4	2	9	1	04	3	3	1;9	2	2	1	1	9	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	4	1	1
CODENR. 17213	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2		
MASENGWA	73	1	2	2	00	3	3	999	999	4	3	9	1	C3	3	1	1;5	2	2	2	5	5	2	MBCHVD	1	XYZ	01	01	0	1	3	1	1	999	99	1
CODENR. 17301	1	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	??????	1	???	20	00	0	0	0	0	0	9	99	2				
ISELA	73	1	2	2	00	2	1	5	5	4	2	2	1	C6	1	3	1;5	2	2	2	1	5	2	MBCHVD	1	XYZ	04	01	1	1	2	1	1	0	0	1
CODENR. 17302	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	1	???	20	00	0	0	0	0	0	3	0	2			
BURUNGWA	73	1	2	3	00	3	3	22	0	4	2	9	1	C5	3	3	1;5	2	2	1	3	5	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	22	2	1
CODENR. 17303	2	1	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	1	99	2								
KILOLELI	73	1	2	2	00	3	3	40	50	4	2	9	1	03	3	1	1;5	2	3	1	3	9	2	MBCHVD	2	XYZ	01	01	2	1	1	1	1	10	2	1
CODENR. 17304	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	??????	6	???	20	00	0	0	0	0	0	1	99	2					
TUPENDANE	73	1	1	1	00	3	2	0	378	5	2	5	1	04	2	2	1;0	2	2	1	2	1	9	MBCHVD	2	XYZ	01	01	1	1	2	1	1	378	99	1
CODENR. 17305	2	2	2	2	2	2	2	2	2	2	2	2	??????	0	???	20	00	0	0	0	0	0	2	98	2										
IBINGO	73	1	2	1	00	2	2	0	0	2	2	2	2	04	1	3	1;5	2	1	2	1	5	2	MBCHVD	2	XYZ	08	03	1	1	1	1	1	0	0	1
CODENR. 17306	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	??????	9	???	20	00	0	0	0	0	0	3	0	2							

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

MASWA DISTRICT
Nung'hu division

KINANG'WIGULU	12 2 2 3 00 3 3 217 17 2 3 1 2 06 3 2 1;5 5 1 2 1 9 3 MBCHVD 1 XYZ 08 01 2 1 1 1 1 200 12 1
CODENR. 21209	1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 221221 2 221 20 00 0 0 0 0 0 1 99 2
KIZUNGU	12 2 2 3 00 3 2 17 6 2 3 1 2 05 3 1 1;5 5 1 2 1 9 3 MBCHVD 1 XYZ 01 01 2 1 3 1 1 11 1 1
CODENR. 21210	2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 1 2 1 222222 2 122 20 00 0 0 0 0 0 1 99 2
MALITA-UJAMAA	12 2 1 3 00 2 3 0 0 2 3 9 1 05 1 1 5;5 4 1 2 1 9 2 MBCHVD 1 XYZ 08 01 2 1 1 1 1 0 0 1
CODENR. 21218	1 1 2 2 2 2 2 2 2 2 1 1 2 1 1 2 2 2 1 2 1 221222 2 122 20 00 0 0 0 0 0 3 0 2
BULUBALO	12 2 2 2 00 3 3 6 0 2 1 9 1 05 3 1 1;5 5 1 2 1 9 3 MBCHVD 2 XYZ 08 03 2 1 3 1 1 6 1 1
CODENR. 21228	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 221222 2 222 20 00 0 0 0 0 0 1 59 2
SAYU-SAYU	12 2 2 2 00 3 3 0 0 4 1 9 1 09 2 3 1;5 2 3 2 1 9 2 MBCHVD 2 XYZ 08 01 1 1 3 1 1 0 0 1
CODENR. 21229	1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 222212 2 222 20 00 0 0 0 0 0 3 0 2

MASELA	13 2 2 2 00 3 3 6 34 2 2 1 1 10 1 2 1;5 2 2 2 1 9 3 MBCHVD 1 XYZ 08 01 1 1 2 1 1 28 99 1
CODENR. 21301	1 2 1 2 2 2 2 2 2 1 2 2 1 2 1 2 2 2 2 1 2 1 221221 2 221 20 00 0 0 0 0 0 2 4 2
MWAHUNDI-UJAMAA	13 2 1 1 00 3 2 40 46 2 2 9 1 03 3 1 4;5 4 3 1 1 9 3 MBCHVD 2 XYZ 01 01 1 1 3 1 1 6 99 1
CODENR. 21317	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222221 2 221 20 00 0 0 0 0 0 2 9 2
MWABOMBA-UJAMAA	13 2 1 1 00 3 2 0 11 2 2 9 1 04 1 1 1;5 0 3 1 1 9 3 MBCHVD 1 XYZ 01 01 1 1 3 1 1 11 99 1
CODENR. 21300	1 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 2 1 2 1 221222 1 222 20 00 0 0 0 0 0 2 15 2
SENWA	13 2 2 2 00 3 3 0 0 2 2 9 1 06 3 1 1;6 4 2 2 1 9 2 MBCHVD 1 XYZ 08 03 1 1 3 1 2 0 0 1
CODENR. 21321	1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 221222 1 122 20 00 0 0 0 0 0 3 0 2

NGEGENI	14 2 2 3 00 2 3 12 29 4 2 9 2 07 3 1 5;1 2 2 3 1 9 2 MBCHVD 1 XYZ 08 01 1 1 3 1 1 17 99 1
CODENR. 21401	1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222223 1 222 20 00 0 0 0 0 0 2 1 2
KIDERA	14 2 2 3 00 3 3 400 229 2 3 1 1 06 2 1 5;5 4 2 2 1 9 2 MBCHVD 1 XYZ 05 01 1 1 3 1 1 171 6 1
CODENR. 21404	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 221221 2 221 20 00 0 0 0 0 0 2 99 2
NGAKA	14 2 2 3 00 3 2 70 23 2 2 1 3 08 2 1 4;5 2 4 1 1 9 1 MBCHVD 1 XYZ 05 01 1 1 3 1 1 47 3 1
CODENR. 21405	1 2 2 2 2 2 2 2 2 2 2 1 2 1 2 2 2 1 2 221222 1 222 20 00 0 0 0 0 0 1 99 2

Sengerema division

MALAMPAKA	31 2 1 2 00 4 3 403 12 5 3 0 2 58 1 1 5;0 5 2 2 1 9 3 MBCHVD 1 XYZ 03 03 1 1 3 1 1 391 92 1
CODENR. 23101	1 2 2 2 1 2 1 1 1 1 2 1 2 1 1 1 2 2 2 1 1 221221 3 111 20 00 0 0 0 0 0 1 99 2
LALI	31 2 2 2 00 2 3 12 12 2 3 9 1 07 3 1 1;6 4 3 2 1 9 3 MBCHVD 2 XYZ 01 01 1 1 3 1 1 0 0 1
CODENR. 23105	2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 2 222 20 00 0 0 0 0 0 3 0 2

AYU	3 2 1 4 03 3 2 1;4 2 3 XYZ 01 01 2 1 2 1 1 20 12 1
CODENR.	2 2 2 2 2 2 2 20 00 0 0 0 0 0 1 99 2
GADI	33 2 2 2 00 3 2 12 26 2 3 2 2 04 2 1 1;5 2 2 9 2 MBCHVD 1 XYZ 01 01 2 1 3 1 1 23 99 1
CODENR. 23212	1 2 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 1 2 221222 9 222 20 00 0 0 0 0 0 2 5 2

MWANYATE	33 2 2 3 00 3 1 23 37 2 3 9 1 07 3 1 1;5 4 2 2 3 2 2 MBCHVD 2 XYZ 01 01 1 1 1 1 1 6 1 1
CODENR. 23302	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 221222 9 222 20 00 0 0 0 0 0 1 99 2
MWAMIHANZA	23 2 1 1 00 3 2 30 116 2 1 1 1 04 3 2 6;5 5 1 2 1 9 2 MBCHVD 1 XYZ 05 01 1 1 3 1 1 86 99 1
CODENR. 23304	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222221 1 221 20 00 0 0 0 0 0 2 68 2
KULIMI	33 2 1 1 00 3 2 14 1 4 3 9 1 04 3 1 1;5 4 2 2 2 0 2 MBCHVD 1 XYZ 01 01 1 1 1 1 2 13 11 1
CODENR. 23306	1 2 2 2 2 2 2 2 2 1 2 2 2 2 2 1 2 1 222222 1 222 20 00 0 0 0 0 0 1 99 2
MWABAYANDA	33 2 2 3 00 3 3 17 12 4 1 9 1 10 3 1 1;5 4 2 2 3 1 2 MBCHVD 1 XYZ 08 03 0 1 3 1 1 5 0 1
CODENR. 23308	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 221121 2 221 20 00 0 0 0 0 0 1 99 2
ILAMATA	33 2 2 3 00 3 3 18 6 2 3 7 1 28 3 3 1;6 2 4 1 3 3 2 MBCHVD 1 XYZ 01 01 1 1 1 1 1 12 1 1
CODENR. 23315	2 1 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 1 2 222222 2 122 20 00 0 0 0 0 0 1 99 2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Sengerema division (continued)

MWALUKULIKO	34	2	2	2	00	3	3	23	17	4	3	9	1	04	3	1	1;5	4	2	2	1	9	2	MBCHVD	1	XYZ	01	01	1	1	2	1	1	6	1	1
CODENR. 23405		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
NG'WABULIMBU	34	2	2	2	00	3	1	67	0	4	3	9	1	09	3	1	1;5	4	2	2	2	1	2	MBCHVD	2	XYZ	09	01	1	1	3	1	1	47	3	1
CODENR. 25410		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
NG'WANHEGELE	34	2	2	2	00	3	1	35	17	4	1	1	1	06	2	2	1;5	4	3	1	1	9	2	MBCHVD	1	XYZ	05	01	1	1	3	1	1	23	3	1
CODENR. 23417		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
NYABUBINZA-UJAMAA	34	2	1	2	00	2	3	6	0	4	1	9	1	06	2	1	1;5	1	1	1	1	9	2	MBCHVD	2	XYZ	01	01	1	1	2	1	1	6	1	1
CODENR. 23419		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
SHISHIYU	35	2	1	1	00	3	2	88	28	4	2	1	1	07	3	2	1;4	4	3	1	1	9	3	MBCHVD	1	XYZ	01	01	2	1	3	1	1	60	29	1
CODENR. 23501		1	1	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	222221	1	222	20	00	0	0	0	0	0	1	99	2
IGWATA	35	2	2	2	00	2	3	174	47	4	3	9	1	10	2	1	1;5	2	3	1	1	9	3	MBCHVD	1	XYZ	01	01	1	1	1	1	1	127	16	1
CODENR. 23507		2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2	1	222222	9	222	20	00	0	0	0	0	0	1	99	2
IGUIYA	35	2	1	1	00	3	3	999	999	4	3	9	1	20	2	1	1;6	4	2	1	1	9	3	MBCHVD	1	XYZ	08	01	1	1	3	1	1	999	99	1
CODENR. 23512		2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	3	222222	1	222	20	00	0	0	0	0	0	9	99	2
MWABASHIYA	35	2	2	2	00	3	3	17	41	4	1	7	2	06	3	1	1;5	3	1	1	1	9	3	MBCHVD	1	XYZ	08	01	1	1	1	1	1	24	99	1
CODENR. 23513		2	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1	2	1	222222	1	222	20	00	0	0	0	0	0	2	3	2
MAANDU	51	2	2	3	00	3	3	149	89	2	2	9	1	15	2	2	4;5	2	3	2	2	2	1	MBCHVD	1	XYZ	01	01	4	1	1	1	1	60	3	1
CODENR. 25101		2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	2	222222	2	222	20	00	0	0	0	0	0	1	99	2
LUBYIGA	51	2	2	2	00	3	1	0	37	2	2	9	1	08	2	1	1;5	2	4	1	1	9	1	MBCHVD	1	XYZ	01	01	1	1	3	1	1	37	99	1
CODENR. 25107		1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	1	2	1	222222	2	222	20	00	0	0	0	0	0	2	5	2
ITINJE ITUNGU	51	2	2	3	00	3	3	68	19	5	2	9	1	07	2	1	1;5	2	3	2	3	1	3	MBCHVD	2	XYZ	01	01	4	1	1	1	1	49	5	1
CODENR. 25110		1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MASANGA	51	2	2	3	00	3	3	353	118	2	2	9	1	10	2	1	1;0	2	3	1	1	9	1	MBCHVD	1	XYZ	01	01	3	1	2	1	2	235	8	1
CODENR. 25116		1	2	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
MWAGUZO	53	2	1	3	00	3	3	0	43	2	2	3	1	05	3	1	1;5	4	2	1	3	1	2	MBCHVD	1	XYZ	01	01	1	1	2	1	1	43	99	1
CODENR. 25301		1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	222222	2	222	20	00	0	0	0	0	0	2	5	2
MWANANUNGU	53	2	2	2	00	3	3	56	37	2	2	4	1	08	3	2	1;5	4	2	2	1	9	2	MBCHVD	1	XYZ	01	01	3	1	3	1	2	19	1	1
CODENR. 25302		1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	222222	2	222	20	00	0	0	0	0	0	1	99	2
MWAMASIGILI	53	2	2	2	00	3	3	19	0	2	2	9	1	10	3	1	1;5	2	3	1	1	9	2	MBCHVD	2	XYZ	01	01	2	1	1	1	1	19	2	1
CODENR. 25307		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
IMALASEKO	54	2	1	1	00	2	3	240	55	1	2	8	1	25	2	1	1;0	2	4	1	4	1	2	MBCHVD	1	XYZ	01	01	2	1	1	1	1	205	70	1
CODENR. 25401		1	2	1	2	2	2	2	2	2	2	1	2	1	2	1	1	2	2	2	1	2	2	122212	2	222	20	00	0	0	0	0	0	1	99	2
KABUNDA	54	2	2	2	00	3	3	93	68	1	2	2	2	15	3	1	1;0	2	3	2	1	9	1	MBCHVD	1	XYZ	01	01	1	1	1	1	2	25	4	1
CODENR. 25419		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	222222	1	222	20	00	0	0	0	0	0	1	99	2
MWANYAHINA	55	2	1	2	00	3	3	949	999	2	2	1	1	04	3	1	1;5	4	3	1	3	1	3	MBCHVD	1	XYZ	03	03	1	1	2	1	1	999	99	1
CODENR. 25501		1	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	9	99	2
MWANHUZI	55	2	2	2	00	3	3	232	35	2	2	1	1	12	1	1	1;5	5	3	9	9	9	5	MBCHVD	1	XYZ	01	01	1	1	1	9	1	207	26	1
CODENR. 25502		2	2	1	2	2	2	2	1	2	2	1	2	1	2	2	2	2	2	2	1	2	1	122122	1	122	20	00	0	0	0	0	0	1	99	2
MWAMBITI	55	2	2	2	00	3	3	137	0	2	3	2	1	20	1	2	1;5	3	2	1	1	1	3	MBCHVD	1	XYZ	01	01	1	1	1	1	1	117	19	1
CODENR. 25510		2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2	2	2	222222	2	122	20	00	0	0	0	0	0	1	91	2
LUGURU	55	2	2	2	00	3	3	74	25	2	2	1	1	15	1	1	1;2	4	2	2	1	9	2	MBCHVD	1	XYZ	01	01	1	1	1	1	1	49	9	1
CODENR. 25512		2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	222222	9	122	20	00	0	0	0	0	0	1	99	2
MWASWILA	55	2	2	3	00	3	3	0	0	2	2	9	1	09	3	1	1;5	3	3	2	1	9	3	MBCHVD	1	XYZ	01	01	1	1	2	1	2	0	0	1
CODENR. 25523		1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Meatu division

LINGEKA	56	2	2	3	00	3	1	699	12	2	3	2	1	C7	3	1	1;4	2	4	1	1	5	2	MBCHVD	1	XYZ	01	01	3	1	3	1	2	687	49	1
CODENR. 25609		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2 ??????	?	???	20	00	0	0	0	0	0	1	99	2
KISESA	56	2	2	00	3	3	62	12	2	2	3	1	C5	2	1	1;5	2	?	3	1	5	2	MBCHVD	1	XYZ	04	01	1	1	1	1	2	50	7	1	
CODENR. 25632		1	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	?	2	2	2	??????	2 ???	20	00	0	0	0	0	0	1	99	2	
MWABUSALU	56	2	2	2	00	3	1	43	C	2	?	3	1	15	2	1	1;5	2	4	1	5	?	MBCHVD	1	XYZ	01	01	1	1	1	1	1	43	9	1	
CODENR. 25619		1	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	1	2	??????	?	???	20	00	0	0	0	0	0	1	99	2	
MWANDOYE	56	2	2	3	00	3	1	50	C	2	2	2	1	20	2	1	1;5	2	4	3	3	1	MBCHVD	1	XYZ	01	01	1	1	3	1	2	50	4	1	
CODENR. 25630		1	1	2	2	2	2	2	2	2	2	C	1	2	1	2	2	2	1	2	1	??????	2 ???	20	00	0	0	0	0	0	1	99	2	
MWAMALOLE	57	2	2	2	00	3	3	32	18	1	2	1	1	13	3	1	1;5	2	4	2	3	1	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	6	99	1
CODENR. 25701		2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	1	2	1	??????	?	???	20	00	0	0	0	0	0	2	1	2	
USIULIZE	57	2	1	1	00	3	2	6	37	2	2	9	1	02	3	1	6;5	0	2	1	5	2	MBCHVD	?	XYZ	01	01	1	1	3	1	2	31	99	1
CODENR. 25702		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	1 ???	20	00	0	0	0	0	0	2	33	2	
MBUSHI	57	2	2	3	00	3	1	43	68	2	2	9	1	C8	3	1	1;5	2	4	2	1	3	MBCHVD	?	XYZ	01	01	1	1	1	1	1	25	99	1
CODENR. 25712		2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	??????	1 ???	20	00	0	0	0	0	0	2	2	2			
MWANYOMBA	57	2	2	00	3	3	31	0	2	2	9	1	C6	3	2	1;5	2	4	2	3	1	2	MBCHVD	1	XYZ	04	01	1	1	2	1	2	31	5	1	
CODENR. 25714		1	2	1	2	2	2	1	2	2	1	2	2	2	2	2	2	2	?	2	123???	? ???	20	00	0	0	0	0	0	1	99	2			
NKUMA	58	2	2	00	3	3	3	1	2	2	9	1	03	1	1	1;5	6	9	9	9	9	MBCHVD	1	XYZ	01	01	1	1	1	9	2	2	0	1	
CODENR. 25801		1	2	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2	2	1	2	1 ??????	?	???	20	00	0	0	0	0	0	1	99	2	
IDAGO	58	2	2	3	00	3	1	0	6	2	2	9	1	C6	3	1	1;5	2	3	2	1	9	3	MBCHVD	?	XYZ	01	01	4	2	3	2	1	6	99	1
CODENR. 25804		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	4 ???	20	60	0	0	0	0	0	2	1	2			

Mwagalla division

MWASITA	73	2	2	3	00	3	3	11	C	2	2	5	1	15	3	1	1;5	2	2	2	4	1	2	MBCHVD	1	XYZ	08	01	3	1	3	1	1	11	0	1
CODENR. 27301		1	2	2	2	2	2	2	2	2	2	2	2	1	2	?	2	2	?	1	2	1 ??????	? ???	20	00	0	0	0	0	0	1	99	2			
SIMKASHOKA	73	2	2	3	00	2	1	247	73	2	?	9	2	C6	3	1	1;5	2	2	1	1	5	3	MBCHVD	1	XYZ	08	01	3	1	3	1	1	174	6	1
CODENR. 27303		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1 ??????	? ???	20	00	0	0	0	0	0	1	99	2				
MWAGAYANDA	73	2	2	3	00	3	3	0	0	2	3	5	1	16	2	2	5;4	2	3	2	1	5	2	MBCHVD	1	XYZ	01	01	1	1	3	1	1	0	0	1
CODENR. 27306		1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2 ??????	2 ???	20	00	0	0	0	0	0	3	0	2				
MWARALATULU	74	2	2	3	00	3	3	11	11	1	2	9	1	C6	2	1	1;2	2	3	2	1	5	1	MBCHVD	1	XYZ	01	01	1	1	1	1	1	0	0	1
CODENR. 27401		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2 ??????	1 ???	20	00	0	0	0	0	0	3	0	2				
BUDEKWA	74	2	2	3	00	2	3	51	49	1	2	9	1	C6	1	2	1;2	2	3	2	1	5	1	MBCHVD	1	XYZ	01	01	1	1	1	1	2	2	0	1
CODENR. 27405		1	2	1	2	2	2	2	2	1	2	2	1	2	1	2	2	2	1	2	1 ??????	? ???	20	00	0	0	0	0	0	1	99	2			
MASAGWA	74	2	2	3	00	2	3	0	22	2	2	2	1	C7	2	1	1;2	2	4	1	3	1	MBCHVD	1	XYZ	05	03	1	1	1	1	2	22	99	1	
CODENR. 27408		1	2	2	2	2	1	2	2	2	2	1	2	2	2	1	2	1 ??????	2 ???	20	00	0	0	0	0	0	2	2	2				
BUDEKWA-UJAMAA	74	2	1	2	00	2	3	0	56	2	3	9	1	C6	1	1	5;0	4	2	1	1	5	1	MBCHVD	1	XYZ	01	01	1	1	1	1	2	56	99	1
CODENR. 27412		1	0	1	2	2	2	2	1	2	2	1	2	1	2	2	2	1	2	1 ??????	0 ???	20	00	0	0	0	0	0	2	12	2		
MWAMASHINDIKE	74	2	1	2	00	2	1	41	0	2	2	9	1	C6	2	1	1;5	2	3	1	1	5	2	MBCHVD	?	XYZ	01	01	1	1	2	1	1	41	6	1
CODENR. 27413		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2 ??????	0 ???	20	00	0	0	0	0	0	1	99	2				
ZEBEYA	75	2	2	00	3	3	23	11	2	2	3	1	C8	1	1	5;4	2	4	2	1	9	1	MBCHVD	1	XYZ	01	01	1	1	1	1	1	11	2	1	
CODENR. 27501		1	2	2	1	2	2	2	2	1	2	2	1	2	2	2	2	2	1	2	1 ??????	1 ???	20	00	0	0	0	0	0	1	99	2		
SENANI	75	2	1	1	00	3	2	20	0	2	2	9	1	C4	1	1	5;4	4	2	2	3	1	1	MBCHVD	?	XYZ	01	01	2	1	1	1	2	20	36	1
CODENR. 27502		1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	??????	9 ???	20	00	0	0	0	0	0	1	99	2				
KULIMI	75	2	1	3	00	3	1	17	28	1	2	9	1	10	1	1	1;0	2	3	2	1	1	0	MBCHVD	1	XYZ	01	01	3	2	1	1	1	11	99	1
CODENR. 27503		1	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	??????	5 ???	20	00	0	0	0	0	0	2	1	2			
MWANINDO	75	2	2	3	00	2	3	123	67	2	2	8	1	12	2	1	1;5	2	3	2	1	9	1	MBCHVD	1	XYZ	01	01	2	1	1	1	1	56	5	1
CODENR. 27519		2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	1	2	1 ??????	0 ???	20	00	0	0	0	0	0	1	99	2	

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Mwagalla division (continued)

SANGA-MWALUGESHA 75 2 2 3 00 3 3 0 0 2 3 6 1 C7 2 1 5;5 4 2 2 3 1 2 MBCHVC 1 XYZ 01 01 1 1 1 1 1 0 0 1
CODENR. 27520 2 2 2 2 2 2 2 2 2 2 2 2 2 1 1 2 2 2 1 1 2 221222 2 122 20 00 0 0 0 0 0 3 0 2

SHINYANGA 76 2 2 2 00 3 3 74 0 2 2 5 1 11 2 1 1;5 2 3 2 3 1 2 MBCHVC 1 XYZ 01 01 2 1 1 1 2 74 15 1
CODENR. 2760 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 221222 1 222 20 00 0 0 0 0 0 1 99 2
MWANDETE 76 2 2 1 00 2 1 0 6 2 2 9 1 C7 3 1 1;5 2 2 2 1 9 3 MBCHVC 2 XYZ 08 05 2 1 3 1 1 6 99 1
CODENR. 27610 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 221222 9 112 20 00 0 0 0 0 0 2 2 2

IWELIMO 77 2 2 2 00 3 1 67 56 5 2 9 1 C8 2 1 1;5 2 2 2 1 9 2 MBCHVC 2 XYZ 01 01 2 1 3 1 1 11 2 1
CODENR. 27701 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
NGULIGULI 77 2 2 2 00 3 3 95 28 2 2 4 1 10 3 1 1;5 2 3 2 1 9 2 MBCHVC 1 XYZ 01 01 2 1 3 1 1 67 8 1
CODENR. 27703 1 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 1 2 1 221222 2 222 20 00 0 0 0 0 0 1 99 2
IPILILO 77 2 2 3 00 3 3 224 67 2 2 1 1 09 3 1 1;5 2 3 2 1 9 2 MBCHVC 1 XYZ 01 01 1 0 3 1 1 157 10 1
CODENR. 27707 1 2 2 2 2 2 2 2 2 2 2 2 1 2 1 2 2 2 2 1 2 1 222222 3 222 20 00 0 0 0 0 0 1 99 2

LALAGO 72 2 2 3 00 2 3 0 0 2 2 3 1 06 2 2 5;5 5 1 2 1 9 2 MBCHVC 1 XYZ 03 03 1 1 1 1 2 0 0 1
CODENR. 27201 1 2 2 2 1 2 1 2 2 1 1 1 1 2 1 1 2 2 2 1 2 1 121221 3 121 20 00 0 0 0 0 0 3 0 2

COLUMN.1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

KAHAMA DISTRICT
Kahama division

LISAGEHE	12	3	2	3	00	2	3	91	0	5	1	9	1	03	1	3	1;5	4	2	2	1	5	3	MBCHVD	1	XYZ	06	03	1	1	1	1	1	91	11	1
CODENR. 31201	1	2	1	2	2	2	2	1	2	1	2	2	1	2	1	2	2	2	2	1	2	1	113232	2	122	20	00	0	0	0	0	0	1	99	2
MWALUGURU	12	3	2	3	00	3	1	144	29	5	1	9	1	05	3	1	1;5	2	3	2	1	5	3	MBCHVD	2	XYZ	01	01	1	1	1	1	2	115	7	1
CODENR. 31202	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222221	9	122	20	00	0	0	0	0	0	1	99	2
MPERA	12	3	1	1	00	2	2	34	57	5	1	1	1	28	1	3	5;5	4	2	1	1	5	3	MBCHVD	2	XYZ	03	03	1	1	1	1	2	43	99	1
CODENR. 31217	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	222222	1	222	10	00	0	0	0	0	0	2	98	2
ITUGUNHU	12	3	1	1	00	2	2	0	18	2	1	9	2	01	3	3	3;5	8	9	9	9	5	9	MBCHVD	2	XYZ	01	01	1	1	1	9	1	18	99	1
CODENR. 31205	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	50	2
BUDUSHI	12	3	1	1	00	2	2	34	54	2	1	9	1	02	1	1	1;5	3	9	9	9	5	9	MBCHVD	2	XYZ	06	03	1	1	1	9	1	20	99	1
CODENR. 31231	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	122	20	00	0	0	0	0	0	2	34	2
INYANGA	12	3	2	2	00	2	1	949	999	6	1	9	3	06	1	1	1;5	4	2	4	1	2	MBCHVD	2	XYZ	01	01	2	1	2	1	2	999	99	1
CODENR. 31232	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222221	1	221	20	00	0	0	0	0	0	9	99	2
SANGITWA	12	3	2	2	00	2	3	0	5	2	1	9	1	05	3	3	1;5	5	2	2	1	9	3	MBCHVD	1	XYZ	03	03	1	1	1	1	1	5	99	1
CODENR. 31235	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	1	221222	2	122	20	00	0	0	0	0	0	2	1	2		

BUTOGOLO	13	3	2	1	00	3	2	5	5	4	2	9	2	12	3	1	1;6	4	2	2	1	9	2	MBCHVD	2	XYZ	01	01	1	1	2	1	1	0	0	1
CODENR. 31310	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
NHUMBI	13	3	2	3	00	2	1	228	14	4	1	9	1	06	2	1	1;5	4	2	2	1	5	2	MBCHVD	2	XYZ	05	01	1	1	3	1	1	214	26	1
CODENR. 31326	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
ISAKA	13	3	2	2	00	4	2	24	5	4	1	9	2	05	2	3	1;5	5	9	9	9	5	3	MBCHVD	1	XYZ	03	01	1	1	3	9	1	19	4	1
CODENR. 31329	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
NTUMGULU	13	3	2	2	00	2	2	0	0	4	1	9	3	07	2	1	1;5	5	3	2	1	5	2	MBCHVD	2	XYZ	01	01	1	1	1	1	2	0	0	1
CODENR. 31330	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	122	20	00	0	0	0	0	0	3	0	2
ITUGWANG'HOLO	13	3	1	0	00	2	2	999	999	4	1	9	3	02	2	1	5;1	4	1	2	2	2	2	MBCHVD	2	XYZ	03	03	1	1	1	1	1	999	99	1
CODENR. 31331	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	9	99	2

NGOKOLO	15	3	2	1	00	3	1	134	5	4	1	9	1	04	3	1	1;5	4	4	2	5	3	2	MBCHVD	2	XYZ	01	01	1	1	1	1	2	129	63	1
CODENR. 31517	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MWANZI	15	3	2	1	00	3	1	49	67	2	1	9	1	04	3	1	1;5	2	2	2	1	5	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	19	99	1
CODENR. 31521	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	9	222	20	00	0	0	0	0	0	2	5	2
MBULU	15	3	2	5	00	2	3	33	0	4	1	9	2	06	3	2	1;5	5	2	1	5	3	MBCHVD	1	XYZ	08	04	2	1	1	1	1	33	3	1
CODENR. 31529	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	212	20	00	0	0	0	0	0	1	99	2
MHONGOLO	15	3	2	2	00	2	3	5	0	6	1	9	2	03	1	1	1;5	4	1	2	1	5	2	MBCHVD	2	XYZ	01	01	1	1	1	1	2	5	1	1
CODENR. 31510	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	222222	1	122	20	00	0	0	0	0	0	1	99	2

SERI	16	3	2	1	00	3	2	15	14	2	1	9	2	06	2	1	1;5	5	2	2	1	6	3	MBCHVD	2	XYZ	04	01	1	1	2	1	1	1	0	1
CODENR. 31608	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2
MWATUA	16	3	2	2	00	2	3	5	5	3	1	9	3	03	1	2	1;5	5	2	2	1	9	3	MBCHVD	2	XYZ	04	02	1	1	2	1	1	0	0	1
CODENR. 31615	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
ZUGIMERA	16	3	2	1	00	2	2	0	0	4	1	9	2	04	2	2	1;5	5	1	2	1	5	3	MBCHVD	1	XYZ	04	02	1	1	1	1	1	0	0	1
CODENR. 31629	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
MALINGI	16	3	2	1	00	3	2	29	10	4	1	9	2	05	2	1	5;5	5	2	2	1	2	MBCHVD	2	XYZ	01	01	1	1	3	1	1	19	17	1	
CODENR. 31630	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2

HUNGWA	16	3	2	1	00	3	2	0	0	4	1	9	1	05	3	1	0;0	5	1	2	1	5	3	MBCHVD	2	XYZ	01	01	1	1	1	1	2	0	0	1
CODENR. 31621	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2
KALUNDE	16	3	2	2	00	3	3	15	15	6	1	9	3	04	1	1	5;5	4	2	1	1	5	3	MBCHVD	1	XYZ	01	01	2	1	2	1	1	0	0	1
CODENR. 31623	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	222	20	00	0	0	0	0	0	3	0	2
SHUNU	16	3	2	1	00	3	2	0	0	4	1	9	3	07	3	2	1;5	5	3	2	1	9	2	MBCHVD	2	XYZ	02	02	1	1	1	1	2	0	0	1
CODENR. 31622	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Dakama division

IBOJA	21	3	2	2	00	2	2	20	36	4	1	9	1	05	3	1	5;5	5	2	2	1	9	2	MBCHVD	1	XYZ	08	04	1	1	2	1	1	16	99	1
CODENR. 32101	1	2	2	2	1	2	2	2	1	2	1	1	2	1	2	2	2	2	2	1	2	1	222222	2	2	20	00	0	0	0	0	0	2	2	2
NHIMBO	21	3	2	3	00	3	1	79	10	4	1	9	3	06	3	1	1;5	4	3	2	1	9	2	MBCHVD	1	XYZ	01	01	1	1	2	1	1	69	5	1
CODENR. 32102	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	1	99	2
KISUKE	21	3	2	2	00	2	3	5	15	4	1	9	1	06	3	1	1;5	4	2	2	9	2	MBCHVD	1	XYZ	08	01	1	1	1	1	2	10	99	1
CODENR. 32103	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	20	00	0	0	0	0	0	2	2	2
KINAMAPULA	21	3	2	1	00	3	2	0	20	4	1	9	2	07	3	1	1;5	5	1	2	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	20	99	1
CODENR. 32109	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	1	2	1	222221	1	20	00	0	0	0	0	0	2	6	2
IGUNDA	21	3	2	2	00	3	3	18	210	4	1	9	2	06	2	1	1;5	5	2	1	9	2	MBCHVD	1	XYZ	08	01	1	1	3	1	1	192	99	1
CODENR. 32134	1	2	1	2	2	3	2	2	2	1	2	1	2	1	2	2	2	20	00	0	0	0	0	0	2	41	2
ILEMVE	21	3	2	1	00	3	1	35	5	2	1	9	1	05	3	1	1;5	4	4	1	2	MBCHVD	2	XYZ	01	01	1	1	2	1	1	80	12	1
CODENR. 32150	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	20	00	0	0	0	0	0	1	99	2
KINISHINA	21	3	2	3	00	2	3	10	0	4	1	9	1	05	3	1	1;5	5	3	4	2	MBCHVD	1	XYZ	01	01	1	1	2	1	2	10	1	1
CODENR. 32151	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	1	99	2
KISUKE-UJAMAA	21	3	1	1	00	2	2	0	1	4	1	9	1	02	3	1	5;5	1	1	2	9	2	MBCHVD	1	XYZ	06	03	1	1	1	1	1	1	99	1
CODENR. 32153	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	2	1	2
IBOJA-UJAMAA	21	3	1	1	00	2	2	5	71	4	1	9	1	05	3	3	5;5	5	9	9	9	3	MBCHVD	1	XYZ	06	02	1	1	2	9	2	66	99	1
CODENR. 32154	2	1	2	2	2	2	2	2	1	2	1	1	2	2	2	2	2	222222	2	20	00	0	0	0	0	2	72	2

KILAGO	22	3	2	3	00	3	3	26	13	5	1	9	1	07	3	1	1;5	5	1	2	1	9	3	MBCHVD	1	XYZ	01	01	1	1	2	1	1	13	1	1
CODENR. 32201	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	1	99	2
HANU	22	3	1	1	00	3	2	0	16	5	1	9	1	28	3	1	6;0	4	9	9	9	9	MBCHVD	2	XYZ	02	02	1	1	2	9	1	16	99	1
CODENR. 32208	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	222222	2	20	00	0	0	0	0	0	2	13	2
NHALAMBO	22	3	1	1	00	3	1	0	5	2	1	9	1	06	3	1	5;0	5	1	2	1	2	MBCHVD	2	XYZ	01	01	1	1	2	1	1	6	99	1
CODENR. 32213	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	5	20	00	0	0	0	0	0	2	86	2
BUTUWAMBUGO	22	3	1	1	00	3	2	0	0	2	1	9	1	07	3	1	1;5	5	3	0	1	9	3	MBCHVD	2	XYZ	01	01	1	1	1	1	1	0	0	1
CODENR. 32223	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	5	20	00	0	0	0	0	0	3	0	2
CHUMU	22	3	2	2	00	3	3	0	0	5	1	9	1	04	3	1	1;5	4	2	2	1	9	3	MBCHVD	1	XYZ	04	01	1	1	1	1	1	0	0	1
CODENR. 32227	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	3	0	2
CHAMPO	22	3	2	2	00	3	3	61	0	2	1	9	1	06	2	1	1;5	5	2	2	1	9	2	MBCHVD	1	XYZ	01	01	1	1	1	1	1	61	8	1
CODENR. 32229	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	222222	2	20	00	0	0	0	0	0	1	99	2
ISUPALILO	22	3	2	2	00	3	3	10	0	5	1	9	1	13	3	1	1;5	4	4	3	3	2	MBCHVD	1	XYZ	01	01	1	1	1	1	2	10	2	1
CODENR. 32246	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	1	99	2
KILAGO-UJAMAA	22	3	1	1	00	3	2	12	11	5	1	9	1	08	3	1	1;0	5	1	2	1	9	MBCHVD	1	XYZ	01	01	1	1	3	1	1	1	1	1
CODENR. 32247	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	1	99	2
TUTULE-UJAMAA	22	3	1	1	00	3	2	0	18	5	1	9	1	05	3	1	1;5	5	2	1	9	2	MBCHVD	1	XYZ	04	02	1	1	1	1	2	18	99	1
CODENR. 32248	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	2	12	2

MPUIZE	23	3	2	2	00	2	3	25	0	4	1	9	2	04	3	2	5;0	5	2	2	1	9	3	MBCHVD	1	XYZ	08	01	2	1	2	1	1	25	5	1
CODENR. 32301	2	1	1	2	2	2	1	2	2	2	1	1	2	1	2	2	2	222222	2	20	00	0	0	0	0	0	1	99	2
LOWA	23	3	2	2	00	2	3	0	0	3	1	9	2	04	3	2	1;5	5	2	2	2	MBCHVD	1	XYZ	08	01	1	1	2	1	1	0	0	1
CODENR. 32305	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	3	0	2
IGUSA	23	3	2	3	00	3	1	86	21	4	1	9	2	06	3	2	5;0	4	4	3	3	2	MBCHVD	1	XYZ	08	01	2	1	3	1	2	55	6	1
CODENR. 32310	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	10	00	0	0	0	0	0	1	99	2
SABA-SABINI	23	3	1	1	00	3	2	999	959	2	1	9	1	05	3	1	1;6	5	2	1	9	3	MBCHVD	1	XYZ	01	01	2	1	2	1	1	999	99	1
CODENR. 32311	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	9	99	2

Mweli division

UBAGWE	31	3	1	1	00	3	1	0	2	2	1	9	1	04	3	3	5;6	5	2	1	1	9	3	MBCHVD	1	XYZ	01	01	2	1	1	1	2	2	99	1
CODENR. 33102	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	20	00	0	0	0	0	0	2	2	2
BULUNGWA	31	3	2	1	00	3	2	228	999	5	1	9	1	05	3	1	6;5	3	3	1	1	9	3	MBCHVD	2	XYZ	01	01	1	1	2	1	1	999	99	1
CODENR. 33103	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	9	20	00	0	0	0	0	0	9	99	2

COLUMN 1	2 3 4 5	6 7 8	9	10 11 12	13 14 15	16 17	18	19 20	21 22 23 24	25	26	27	28 29	30	31	32	33	34	35 36	37

Mweli division (continued)

KINANHINDU	31 3 2 2 00	3 1	0	0 3	1 9 1	09	3 1 1;5	2 4	1 3 1 2	MBCHVD		XYZ	01 01	1	1	1	1	1	0 0	1
CODENR. 33104	2 2 2 1 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	1 2 2 2	222222	9	222	20 00	0	0	0	0	0	3 0	2
ULEWI	31 3 2 1 00	3 2	0	20 2	1 9 1	03	3 2 6;5	5 2	3 1 9 3	MBCHVD		XYZ	01 01	1	1	2	1	2	20 99	1
CODENR. 33105	1 2 2 1 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	1	222	20 00	0	0	0	0	0	2 9	2
SONGAMBELE	31 3 2 1 00	3 1 999 999	2	1 9 1	C3	3 2 6;5	5 1	3 1 9 3	MBCHVD		XYZ	01 01	1	1	3	1	2	999 99	1
CODENR. 33106	2 2 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	9 99	2

MBIKA	32 3 2 2 00	2 3	0	0 4	1 9 2	10	3 3 0;5	5 2	2 1 9 3	MBCHVD		XYZ	04 01	1	1	1	1	1	0 0	1
CODENR. 33201	1 1 1 1 2	2 2	2	2 1	2 2 2	2 2	2 2	2 2	2 1 2 1	222223	1	222	20 00	0	0	0	0	0	3 0	2
ULUMA	32 3 2 2 00	3 3	20	32 6	1 1 2	04	3 1 1;5	5 2	3 1 9 3	MBCHVD		XYZ	04 01	2	1	2	1	1	12 99	1
CODENR. 33205	1 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 1	222222	9	222	10 00	0	0	0	0	0	2 2	2
NYENYEBA	32 3 2 2 00	2 2	10	5 4	1 9 2	07	3 2 6;5	4 2	2 1 9 3	MBCHVD		XYZ	08 01	1	1	1	1	1	5 2	1
CODENR. 33207	1 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	1 99	2
ITULAMASHIKI	32 3 2 2 00	3 1	16	0 4	1 9 1	C5	3 1 1;5	4 4	3 1 9 3	MBCHVD		XYZ	04 01	2	1	1	1	2	16 4	1
CODENR. 33209	2 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 1 2	222222	9	222	20 00	0	0	0	0	0	1 99	2
ULUMA-UJAMAA	32 3 1 2 00	3 3	36	0 6	1 1 1	C1	3 1 0;5	5 4	1 1 9 3	MBCHVD		XYZ	04 01	1	1	1	1	1	36 8	1
CODENR. 33212	1 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 1	222222	9	222	10 00	0	0	0	0	0	1 99	2

UYOGO	33 3 2 2 00	2 3	36	21 6	1 9 2	C3	3 2 1;5	4 4	5 3 1 3	MBCHVD		XYZ	01 01	2	1	3	1	2	15 3	1
CODENR. 33301	2 1 2 2 2	2 2	2	2 1	2 2 2	2 2	2 2	2 2	3 2 2 2	222222	9	222	20 00	0	0	0	0	0	1 99	2
BUKWIMBA	33 3 2 1 00	2 2	41	36 4	1 9 1	05	3 1 1;5	4 4	0 2 1 2	MBCHVD		XYZ	04 01	2	1	2	1	1	5 1	1
CODENR. 33304	1 2 1 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	1 2 2 2	222222	1	222	20 00	0	0	0	0	0	1 99	2
BUKWIMBA-UJAMAA	33 3 1 2 00	2 2	0	0 4	1 9 1	C6	3 1 1;5	4 4	1 2 0 3	MBCHVD		XYZ	04 01	2	1	2	1	2	0 0	1
CODENR. 33310	2 2 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	3 0	2
KANYENYE-UJAMAA	33 3 1 2 00	3 2	14	0 4	1 9 1	C2	3 2 5;6	5 1	2 1 9 3	MBCHVD		XYZ	01 01	2	1	1	1	1	14 54	1
CODENR. 33305	2 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	1 99	2
NANGOMA-UJAMAA	33 3 1 1 00	3 2	16	10 4	1 9 2	04	3 2 1;5	2 4	5 3 1 3	MBCHVD		XYZ	01 01	2	1	2	1	1	6 13	1
CODENR. 33307	2 2 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	1 99	2
IGOMA	33 3 1 1 00	2 2	0	5 4	1 9 3	05	2 1 5;0	5 2	2 1 9 3	MBCHVD		XYZ	04 01	1	1	1	1	1	5 99	1
CODENR. 33311	2 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	2 12	2
BUGISHI	33 3 2 2 00	2 1	999	4 4	1 9 1	06	3 1 1;5	5 3	3 1 9 3	MBCHVD		XYZ	01 01	1	1	3	1	2	999 90	1
CODENR. 33308	2 2 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	9 99	2

Siloka division

MSASA	41 3 1 1 00	3 2	0	123 2	1 1 1	C3	3 1 6;5	3 1	1 1 1 0	MBCHVD		XYZ	05 01	1	1	1	1	2	123 99	1
CODENR. 34101	1 2 1 2 2	2 1	2	2 2	2 1 2	2 2	2 2	2 2	2 1 2 1	222222	1	222	20 00	0	0	0	0	0	2 98	2
KALIMINA	41 3 2 1 00	2 2	21	8 2	1 9 1	C5	1 1 6;5	2 1	1 1 9 3	MBCHVD		XYZ	04 02	1	1	1	1	2	13 4	1
CODENR. 34110	2 1 2 2 1	2 2	2	1 2	2 2 1	2 2	2 2	2 2	2 2 2 2	222222	1	222	20 00	0	0	0	0	0	1 99	2
KAMLA	41 3 1 1 00	3 2	999 999	2	1 9 1	C3	3 1 6;5	2 1	1 1 9 3	MBCHVD		XYZ	08 01	1	1	1	1	2	999 99	1
CODENR. 34117	1 2 2 1 2	2 2	2	2 2	2 1 2	2 2	2 2	2 2	1 2 2 2	222222	1	222	20 00	0	0	0	0	0	9 99	2
BUSONBIGA	41 3 2 3 00	3 3	25	4 2	1 9 1	03	3 1 5;5	2 1	5 1 9 3	MBCHVD		XYZ	01 01	1	1	1	1	2	21 2	1
CODENR. 34131	2 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	1 99	2
UYOVU	41 3 1 1 00	2 2	999	4 2	1 9 1	04	3 1 5;1	2 1	1 1 9 3	MBCHVD		XYZ	04 02	1	1	3	1	2	999 99	1
CODENR. 34134	2 2 2 2 2	2 2	2	1 2	2 2 2	2 2	2 2	2 2	2 2 2 2	222222	9	222	20 00	0	0	0	0	0	9 99	2

USHIROMBO	42 3 2 2 00	2 3	1	1 2	1 1 1	C6	2 1 5;0	4 1	2 1 9 1	MBCHVD		XYZ	01 01	1	1	1	1	1	0 0	1
CODENR. 34201	1 1 1 2 2	2 1	2	1 2	2 1 2	2 1	2 2	2 2	1 2 2 2	222222	1	222	20 00	0	0	0	0	0	3 0	2
MWALO	42 3 2 2 00	3 1	29 999	2	1 9 1	09	2 1 5;0	4 1	2 1 9 3	MBCHVD		XYZ	01 01	1	1	1	1	1	999 99	1
CODENR. 34202	2 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 2	2 2	2 2 1 2	222222	9	222	20 00	0	0	0	0	0	9 99	2
BUTAMHALA	42 3 2 2 00	2 2	84	21 2	1 9 1	C8	2 1 5;0	4 2	5 1 9 1	MBCHVD		XYZ	01 01	1	1	1	1	1	63 11	1
CODENR. 34203	2 1 2 2 2	2 2	2	2 2	2 2 2	2 2	2 1	2 2	2 2 1 2	222222	1	222	20 00	0	0	0	0	0	1 99	2

Siloka division (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
BUKUMBE	42	3	2	2	00	2	1	126	999	2	1	9	1	12	2	1	5;0	5	2	2	1	5	1	MBCHVD	1	XYZ	04	02	1	1	1	1	2	999	99	1
CODENR. 34206	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	222	20	00	0	0	0	0	0	9	99	2
MWALO-UJAMAA	42	3	1	1	00	3	1	999	17	2	1	9	1	08	2	1	5;0	4	1	2	1	5	1	MBCHVD	2	XYZ	01	01	1	1	1	1	1	999	99	1
CODENR. 34207	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	0	222	20	00	0	0	0	0	0	9	99	2
MASUMBWE	43	3	2	1	00	2	2	118	0	4	1	9	1	06	3	1	5;5	5	2	1	1	5	3	MBCHVD	1	XYZ	04	01	2	1	1	1	1	118	40	1
CODENR. 34301	1	1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	122	20	00	0	0	0	0	0	1	99	2
NSANGO	43	3	2	1	00	3	1	122	0	4	1	9	1	10	3	1	1;5	8	9	2	9	9	9	MBCHVD	2	XYZ	01	01	1	1	2	9	2	122	65	1
CODENR. 34305	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	0	222	10	00	0	0	0	0	0	1	99	2
LUHALA	43	3	2	2	00	3	3	100	25	4	2	9	1	10	3	1	1;6	2	2	1	3	2	3	MBCHVD	2	XYZ	01	01	1	1	2	1	1	75	14	1
CODENR. 34312	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	2	222222	5	122	20	00	0	0	0	0	0	1	99	2
MBOGWE	44	3	2	2	00	2	3	0	0	2	1	9	1	10	3	1	1;5	3	0	0	1	5	3	MBCHVD	1	XYZ	04	01	1	1	1	1	1	0	0	1
CODENR. 34402	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	1	2	2	1	2	1	222222	2	222	20	00	0	0	0	0	0	3	0	2
BULUGALA	44	3	2	2	00	3	1	26	0	1	2	9	1	13	3	1	1;5	2	3	2	5	0	3	MBCHVD	2	XYZ	01	01	1	1	1	1	1	26	6	1
CODENR. 34407	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	1	99	2
NYASATO	44	3	2	2	00	3	2	21	13	2	1	9	1	11	3	1	1;5	4	3	2	1	5	3	MBCHVD	1	XYZ	01	01	1	1	1	1	2	8	1	1
CODENR. 34409	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
BUTIMBA	44	3	2	2	00	2	3	0	0	1	1	9	1	15	3	1	1;5	4	3	2	1	5	2	MBCHVD	1	XYZ	01	01	1	1	2	1	1	0	0	1
CODENR. 34410	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	1	222222	2	122	20	00	0	0	0	0	0	3	0	2
IBOYA	44	3	2	1	00	3	2	54	0	1	1	9	1	07	1	1	5;5	5	3	1	1	5	2	MBCHVD	1	XYZ	08	04	1	1	3	1	1	34	9	1
CODENR. 34416	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	212	20	00	0	0	0	0	0	1	99	2

Msalala division

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
NGULU	51	3	2	2	00	3	1	8	8	2	1	9	2	25	2	1	1;5	4	2	1	1	5	1	MBCHVD	2	XYZ	08	01	1	1	1	1	1	0	0	1
CODENR. 35101	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	3	0	2
NYANGWALE	51	2	2	0	00	2	3	0	0	3	1	9	2	28	2	1	1;4	2	4	1	1	5	1	MBCHVD	1	XYZ	08	01	1	1	1	1	1	0	0	1
CODENR. 35102	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	2	1	2	222222	2	222	10	00	0	0	0	0	0	3	0	2
NG'OGWA	51	5	2	2	00	2	3	4	0	2	1	9	3	12	2	2	1;5	4	4	1	3	1	1	MBCHVD	1	XYZ	01	01	1	1	1	1	1	4	1	1
CODENR. 35105	2	1	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	222221	1	121	10	00	0	0	0	0	0	1	99	2
MATALANGE	51	3	1	1	00	2	1	17	42	2	2	9	3	10	1	2	4;5	4	2	1	3	1	1	MBCHVD	2	XYZ	01	01	1	1	1	0	2	25	99	1
CODENR. 35112	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	2	98	2
NYAMBULA	51	3	1	2	00	2	1	13	137	2	2	9	1	06	3	1	5;5	4	0	0	1	5	0	MBCHVD	2	XYZ	01	01	1	1	1	1	1	124	99	1
CODENR. 35113	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	2	222	10	00	0	0	0	0	0	2	98	2
KATUNGULU	51	3	2	1	00	3	1	59	999	2	1	9	2	06	3	1	1;5	5	2	2	1	9	2	MBCHVD	2	XYZ	01	01	1	1	2	1	2	999	99	1
CODENR. 35114	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	0	222	20	00	0	0	0	0	0	9	99	2
KIBAMBA	52	3	2	1	00	2	2	83	4	2	1	9	2	06	1	2	1;6	4	3	2	2	1	1	MBCHVD	1	XYZ	04	02	1	1	1	1	2	79	26	1
CODENR. 35203	1	1	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2	1	2	2	2	2	2	222222	1	122	20	00	0	0	0	0	0	1	99	2
NTOBO	52	5	2	2	00	2	3	210	25	3	1	9	2	20	3	1	5;6	4	2	1	1	5	1	MBCHVD	1	XYZ	01	01	1	1	1	1	1	185	14	1
CODENR. 35205	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	122	20	00	0	0	0	0	0	1	99	2
NUGUU	52	3	2	2	00	3	1	133	8	2	2	9	1	30	3	3	1;5	2	3	1	1	9	1	MBCHVD	1	XYZ	01	01	1	1	1	1	1	105	18	1
CODENR. 35210	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	122	20	00	0	0	0	0	0	1	99	2
NGAYA	53	3	2	2	00	2	3	16	4	2	1	9	2	07	3	3	1;5	5	1	1	1	4	3	MBCHVD	1	XYZ	08	01	1	1	1	1	2	12	3	1
CODENR. 35301	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	222221	2	222	20	00	0	0	0	0	0	1	99	2
KASHISHI	53	3	2	2	00	3	1	21	8	2	2	9	2	04	3	1	1;5	2	2	2	1	5	3	MBCHVD	1	XYZ	01	01	1	1	1	1	1	13	2	1
CODENR. 35315	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	222222	1	222	20	00	0	0	0	0	0	1	99	2
LUNGUYA	54	3	2	1	00	2	2	12	0	4	1	9	3	06	3	1	1;6	3	3	1	3	2	2	MBCHVD	1	XYZ	04	02	1	1	2	1	1	12	6	1
CODENR. 35401	1	1	2	1	2	2	2	2	2	1	2	1	1	2	2	2	2	2	1	2	2	2	2	222221	1	121	10	00	0	0	0	0	0	1	99	2

COLUMN 1	2 3 4 5	6 7 8	9	10 11	12	13 14	15	16 17	18	19	20	21	22	23	24	25 26	27	28 29	30	31	32	33	34	35	36	37

Msalala division (continued)

BUZIHA	54 3 1 1	00 2 2	0	5 4	1	9 2	05	3 3	1;5	5	4	3	1	9		3	MECHVD 2	XYZ	01 01	1	1	1	1	1	5	99	1
CODENR. 35402	2 1 2	2 2	2	2 2	2	2 2	2	2 2	2	2	2	2	2	2	2	222222 9	222	20 00	0	0	0	0	0	2	23	2
SHILELA	54 3 2 2	00 2 3	29	25 4	1	9 2	07	3 1	1;6	4	2	3	2	2		2	MECHVD 1	XYZ	01 01	2	1	2	1	1	4	1	1
CODENR. 35403	1 2	2 2	2	2 2	2	2 1	1	2 1		2	2		2	1	2	322222 1	122	20 00	0	0	0	0	0	1	99	2
IBANZA	54 3 1 2	00 2 3	30	12 2	1	9 2	06	3 1	1;5	4	3	2	1	9		2	MECHVD 1	XYZ	01 01	1	1	1	1	1	18	4	1
CODENR. 35402	2 1 2	2 2	2	2 2	2	2 1	2	2 1		2	2	2	1	2	1	322222 1	122	20 00	0	0	0	0	0	1	99	2
BUGAPAMA	54 3 2 1	00 3 2	27	12 2	1	9 3	04	1 3	1;5	4	2	2		9		3	MECHVD 1	XYZ	01 01	1	1	1	1	1	25	12	1
CODENR. 35403	2 1 2	1 2 2	2	2 2	2	2 2	2	2 2	2	2	2	2	1	2	1	222222 2	122	20 00	0	0	0	0	0	1	99	2

COLUMN 1	2 3 4 5	6 7 8	9	10 11	12	13 14 15	16 17	18 19 20	21 22 23 24	25 26	27 28 29 30 31 32 33 34	35 36 37

BARIADI DISTRICT
Itilima division

LUGUFU	21 4 1 3	00 2 3	25	0 5	1	9 1 07	1 1	5;0		MRCHVD	1 XYZ 04 01 1 1 2 1 1	25 2 1
CODENR. 42102	1 1 2 1	2 2	2	2 2	1	2 2 1	2 1			20 00	0 0 0 0 0	1 99 2
INALU	21 4 2 3	00 5 3	13	13 2	3	7 1 10	3 1	1;0		MRCHVD	2 XYZ 04 01 1 1 2 1 1	0 0 1
CODENR. 42103	1 2 2 2	2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	3 0 2
LUGUFU GITMERY	21 4 2 3	00 2 3	103	7 2	1	6 1 04	1 1	5;0		MRCHVD	1 XYZ 03 03 1 1 2 1 1	176 16 1
CODENR. 42104	1 1 2 1	2 2	2	2 2	2	2 1 2	1 1			20 00	0 0 0 0 0	1 99 2
SUNZULA	21 4 2 3	00 3 3	23	0 2	3	2 1 08	3 1	5;5		MRCHVD	1 XYZ 08 08 1 1 2 1 1	23 1 1
CODENR. 42105	1 2 2 2	2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	1 99 2
KABALE	22 4 2 1	00 3 2	0	7 2	3	1 1 09	2 1	1;5		MRCHVD	1 XYZ 08 03 1 1 2 1 1	7 99 1
CODENR. 42204	2 2 1	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	2 2 2
BUKINGWAMINZI	22 4 2 2	00 3 3	7	39 2	3	6 1 C8	3 1	1;5		MRCHVD	1 XYZ 01 01 2 1 2 1 1	32 99 1
CODENR. 42208	2 2 2 2	2 2	2	2 1	2	2 2 1	2 2			20 00	0 0 0 0 0	2 5 2
ZAHZUI	22 4 2 1	00 3 2	124	38 2	3	8 1 07	2 1	4;1		MRCHVD	1 XYZ 05 01 3 2 1 1 1	86 22 1
CODENR. 42221	1 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	1 99 2
NGEME	22 4 2 2	00 3 3	79	52 2	3	7 1 07	3 1	1;5		MRCHVD	1 XYZ 01 01 1 1 3 1 1	27 4 1
CODENR. 42230	1 2 2 2	2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	1 99 2
NYAMILAMA	22 4 2 2	00 5 3	0	0 2	3	3 1 06	3 1	1;5		MRCHVD	2 XYZ 01 01 1 1 1 1 2	0 0 1
CODENR. 42233	2 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	3 0 2
MAGANZO	22 4 2 3	00 3 3	58	7 2	3	3 1 07	2 1	1;4		MRCHVD	1 XYZ 01 01 1 1 1 1 2	91 10 1
CODENR. 42234	2 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	1 99 2
NYAMIGUNGA	22 4 2 1	00 3 1	0	0 2	1	9 1 03	3 1	1;5		MRCHVD	2 XYZ 01 01 1 1 3 1 2	0 0 1
CODENR. 42235	2 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	3 0 2
SEKENGE	22 4 2 2	00 3 3	33	7 2	1	9 1 03	3 1	5;5		MRCHVD	1 XYZ 01 01 1 1 2 1 2	26 4 1
CODENR. 42236	2 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	1 99 2
SULULU	22 4 2 1	00 3 2	0	0 2	1	9 1 07	3 1	1;5		MRCHVD	2 XYZ 08 03 1 1 2 1 1	0 0 1
CODENR. 42237	2 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	3 0 2
NANGA	22 4 2 2	00 3 3	14	14 2	3	2 1 08	2 1	1;5		MRCHVD	2 XYZ 01 01 1 1 2 1 2	0 0 1
CODENR. 42238	2 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	3 0 2
MWALUSHU	23 4 2 3	00 2 3	45	39 2	3	8 1 09	3 1	5;5		MRCHVD	1 XYZ 08 01 1 1 1 1 2	6 0 1
CODENR. 42302	1 2 2	2 2 2	2	2 1	2	2 1 2	2 2			20 00	0 0 0 0 0	1 99 2
DASIHA	23 4 2 3	00 3 3	19	13 2	2	9 1 05	3 1	1;5		MRCHVD	1 XYZ 01 01 2 1 2 1 1	6 0 1
CODENR. 42303	1 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	1 99 2
GAMBASINGU	23 4 2 3	00 3 1	32	14 2	3	2 1 04	3 1	5;1		MRCHVD	1 XYZ 01 01 1 1 1 1 1	18 1 1
CODENR. 42304	1 2 2	2 2 2	2	2 2	2	2 1 2	2 2			20 00	0 0 0 0 0	1 99 2
MWALUSHU-UJAMAA	23 4 2 2	00 3 2	173	26 2	3	5 1 06	1 1	5;5		MRCHVD	1 XYZ 08 01 1 1 1 1 2	147 37 1
CODENR. 42306	1 1 1	2 2 2	2	2 1	2	2 1 2	2 2			20 00	0 0 0 0 0	1 99 2
MWANAPALALA	24 4 2 3	00 2 3	228	0 2	1	9 2 06	2 1	1;4		MRCHVD	1 XYZ 07 01 5 1 3 1 1	228 12 1
CODENR. 42401	1 2 1	2 2 2	2	1 2	2	2 1 2	1 1			20 00	0 0 0 0 0	1 99 2
KASILI	24 4 2 3	00 3 2	161	161 2	3	7 2 06	1 1	2;5		MRCHVD	1 XYZ 01 01 1 1 2 1 1	0 0 1
CODENR. 42403	1 2 2	2 2 2	2	2 2	2	2 2 2	2 2			20 00	0 0 0 0 0	3 0 2
MWANWITA	24 4 2 3	00 3 3	53	7 2	3	6 1 08	3 1	5;5		MRCHVD	1 XYZ 08 01 1 1 3 1 1	46 3 1
CODENR. 42404	2 1 2	2 2 2	2	2 2	2	2 1 2	2 2			20 00	0 0 0 0 0	1 99 2
MAHEMBE	25 4 2 3	00 3 3	553	195 4	3	5 1 07	3 2	1;5		MRCHVD	1 XYZ 08 05 1 1 3 1 1	358 7 1
CODENR. 42501	1 2 2	1 2 2	2	2 1	2	2 2 1	2 2			20 00	0 0 0 0 0	1 99 2
KINAMWELI	25 4 2 3	00 3 3	33	13 2	3	3 1 03	3 1	1;6		MRCHVD	1 XYZ 01 01 1 1 3 1 1	20 2 1
CODENR. 42502	1 1 2	2 2 2	2	2 2	2	2 1 2	1 2		221222 2 122	20 00	0 0 0 0 0	1 99 2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Itilima division (continued)

| NHOBOLA | 25 | 4 | 2 | 3 | 00 | 3 | 1 | 325 | 163 | 4 | 3 | 4 | 1 | 08 | 3 | 1 | 1;4 | 5 | 3 | 2 | 1 | 9 | 2 | MPCHVD | 2 | XYZ | 01 | 01 | 1 | 1 | 1 | 1 | 1 | 162 | 7 | 1 |
| CODENR. 42503 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 221222 | 2 | 222 | 20 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 2 |

Ntuzu division

NG'WAMOTO	41	4	2	3	00	2	3	83	41	2	3	5	1	C7	3	1	1;0	4	3	1	1	9	3	MRCHVD	2	XYZ	08	01	1	1	1	1	2	42	4	1
CODENR. 44109	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	221221	2	222	20	00	0	0	0	0	0	1	99	2
SAMUDA	41	4	2	3	00	2	3	7	7	2	3	5	1	C5	3	3	1;5	4	3	1	1	9	3	MRCHVD	1	XYZ	01	01	0	1	1	1	2	0	0	1
CODENR. 44111	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	2	222	20	00	0	0	0	0	0	3	0	2
NG'HANG'WALI	41	4	2	2	00	3	3	179	14	5	3	9	1	05	3	1	1;0	4	2	2	1	9	3	MRCHVD	2	XYZ	01	01	1	1	2	1	1	165	29	1
CODENR. 44113	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2

NKOLOLO	42	4	2	3	00	2	3	0	7	2	3	2	1	C5	3	1	1;5	4	1	2	1	9	3	MRCHVD	2	XYZ	01	01	2	1	3	1	1	7	99	1
CODENR. 44201	1	2	2	1	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	1	2	1	1	222222	2	222	20	00	0	0	0	0	0	2	1	2
NKULOLO-UJAMAA	42	4	1	2	00	3	3	52	2	2	3	2	1	13	1	1	1;5	5	2	2	1	9	3	MRCHVD	1	XYZ	01	01	2	1	3	1	2	50	12	1
CODENR. 44214	1	2	2	1	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	1	2	1	222222	0	222	20	00	0	0	0	0	0	1	99	2
MHASA	42	4	2	2	00	3	3	0	7	2	3	9	1	C5	3	1	4;5	4	2	2	1	9	3	MRCHVD	2	XYZ	01	01	1	1	2	1	1	7	99	1
CODENR. 44209	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	1	2
IHUSHI	42	4	2	3	00	3	3	28	35	2	1	2	1	03	3	1	1;5	4	2	2	1	9	3	MRCHVD	1	XYZ	08	01	1	1	3	1	1	7	99	1
CODENR. 44210	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	222222	1	221	20	00	0	0	0	0	0	2	0	2
BUBALE	42	4	2	3	00	5	1	55	41	2	1	1	1	02	1	1	5;5	5	2	2	1	9	3	MRCHVD	2	XYZ	01	01	1	1	1	1	2	14	1	1
CODENR. 44211	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	122	20	00	0	0	0	0	0	1	99	2
HALAWA	42	4	2	3	00	8	3	0	0	2	1	0	1	C6	3	1	1;5	3	4	2	1	9	2	MRCHVD	2	XYZ	01	01	2	1	2	1	2	0	0	1
CODENR. 44212	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	221222	2	222	20	00	0	0	0	0	0	3	0	2
BETA	42	4	2	2	00	3	2	14	0	2	2	1	1	C7	3	1	1;5	4	2	2	1	9	2	MRCHVD	2	XYZ	01	01	1	1	2	1	2	14	2	1
CODENR. 44213	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	1	99	2

NGULYATI	43	4	2	00	3	3	179	7	2	3	8	1	C7	1	1	1;5	5	2	1	2	1	3	MRCHVD	1	XYZ	08	01	1	1	2	1	1	172	27	1		
CODENR. 44301	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	1	222222	2	122	20	00	0	0	0	0	0	1	99	2			
NGULYATI-UJAMAA	43	4	1	2	00	3	3	3	0	5	3	9	1	CO	1	1	5;5	5	0	0	2	1	9	MRCHVD	1	XYZ	08	06	1	1	2	1	2	3	1	1
CODENR. 44305	2	2	2	2	2	2	2	2	2	1	2	2	1	1	2	2	1	2	222222	0	122	20	00	0	0	0	0	0	1	99	2				
MBITI	43	4	2	3	00	2	3	20	26	2	3	8	1	09	2	2	5;2	4	2	1	1	9	2	MRCHVD	1	XYZ	01	01	1	1	2	1	1	6	99	1
CODENR. 44308	1	1	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	221222	2	122	20	00	0	0	0	0	0	2	0	2			
KASOLI	43	4	2	3	00	5	3	456	90	2	2	2	1	C6	3	1	1;0	4	3	1	1	9	3	MRCHVD	1	XYZ	01	01	2	1	2	1	1	366	23	1
CODENR. 44316	1	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	1	2	221122	2	222	20	00	0	0	0	0	0	1	99	2				
ISANGA	43	4	2	2	00	2	3	48	0	2	2	9	1	10	2	1	1;5	4	2	2	1	9	2	MRCHVD	1	XYZ	05	01	1	1	3	1	1	48	7	1
CODENR. 44318	1	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	222222	9	122	20	00	0	0	0	0	0	1	99	2			
KIDALATA	43	4	2	3	00	2	3	0	0	2	2	9	1	C7	1	1	5;5	4	1	1	1	9	2	MRCHVD	1	XYZ	04	01	1	1	3	1	1	0	0	1
CODENR. 44319	1	2	1	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	1	221213	1	222	20	00	0	0	0	0	0	3	0	2			

MALINDNI	44	4	2	3	00	2	3	76	14	2	2	1	1	C4	3	1	1;5	4	1	3	1	9	2	MRCHVD	2	XYZ	01	01	2	1	3	1	1	62	7	1
CODENR. 44401	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	221222	0	222	20	00	0	0	0	0	0	1	99	2			
BARIADI-UJAMAA	44	4	1	2	00	2	3	67	0	2	3	5	1	CO	3	1	5;5	5	9	9	9	9	MRCHVD	1	XYZ	07	02	1	1	1	9	2	67	17	1
CODENR. 44402	1	2	2	1	1	2	1	1	2	1	1	1	2	1	1	1	2	2	1	2	221212	1	112	10	00	0	0	0	0	0	1	99	2			
BARIADI	44	4	2	3	00	2	3	0	0	2	3	5	3	04	3	3	5;5	5	9	9	9	9	MRCHVD	1	XYZ	07	03	1	2	1	9	1	0	0	1
CODENR. 44403	2	2	2	2	2	1	1	2	1	2	1	1	2	1	1	1	1	2	2	1	111222	1	122	20	00	0	0	0	0	0	3	0	2			

NG'WAMAGOKO	45	4	2	3	00	3	1	28	28	2	1	1	1	04	2	2	1;5	5	1	2	1	9	2	MRCHVD	2	XYZ	08	01	1	1	3	1	1	0	0	1
CODENR. 44501	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	221222	9	222	20	00	0	0	0	0	0	3	0	2			
ISANGA	45	4	2	3	00	2	3	131	14	2	1	6	1	C4	3	2	1;5	4	1	2	1	9	2	MRCHVD	1	XYZ	01	01	1	1	3	1	1	117	2	1
CODENR. 44502	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	221222	3	222	20	00	0	0	0	0	0	1	99	2			

COLUMN 1   2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24   25 26   27 28 29 30 31 32 33 34   35 36 37

Ntuzu division (continued)

ITARAMANDA	45 4 2 3 00 3 3 0 11 2 3 4 1 10 2 2 1;5 3 2 2 1 9 2 MBCHVD 1 XYZ 01 01 1 1 2 1 2 11 99 1
CODENR. 44506	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 221242 1 222 20 00 0 0 0 0 0 2 1 2
GAMBISI	46 4 2 3 00 3 1 186 173 2 1 5 1 C4 3 1 1;5 2 3 1 7 9 3 MBCHVD 1 XYZ 01 01 1 1 2 1 2 13 1 1
CODENR. 44601	2 1 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 1 221232 2 122 20 00 0 0 0 0 0 1 99 2
IKUNGULYABYSHASHI	46 4 2 3 00 3 2 7 0 2 3 2 1 C5 3 1 1;5 5 1 1 1 9 3 MBCHVD 1 XYZ 01 01 1 1 2 1 1 7 1 1
CODENR. 44602	2 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 1 221222 2 222 20 00 0 0 0 0 0 1 99 2
NYAKABINDI	46 4 2 1 00 2 2 55 21 2 3 6 1 C4 1 2 5;5 5 9 9 9 9 2 MBCHVD 1 XYZ 08 02 1 2 3 9 1 34 9 1
CODENR. 44618	1 2 2 2 2 2 2 2 1 2 1 1 2 1 1 1 2 2 1 2 1 222222 3 222 20 00 0 0 0 0 0 1 99 2
BUPANDAGILA	47 4 2 2 00 3 3 7 21 2 1 2 1 C7 2 1 1;5 4 1 2 1 9 2 MBCHVD 2 XYZ 08 01 1 1 3 1 1 14 99 1
CODENR. 44706	1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 221221 9 111 20 00 0 0 0 0 0 2 2 2
BANEMI	47 4 2 2 00 2 1 0 7 2 3 9 1 C3 3 3 1;6 4 1 2 1 9 3 MBCHVD 1 XYZ 01 01 1 1 2 1 2 7 99 1
CODENR. 44707	2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 221222 1 222 20 00 0 0 0 0 0 2 1 2
IKUNGULYAZA	47 4 2 3 00 3 1 214 35 2 1 9 2 08 2 2 1;0 5 1 2 1 9 2 MBCHVD 2 XYZ 01 01 1 1 3 1 1 179 6 1
CODENR. 44722	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 222222 9 222 20 00 0 0 0 0 0 1 99 2
MATINGU	48 4 2 3 00 3 3 998 28 2 2 C 1 15 3 1 1;6 2 4 1 1 9 2 MBCHVD 1 XYZ 01 01 3 1 3 1 1 970 29 1
CODENR. 44813	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 221222 2 222 20 00 0 0 0 0 0 1 99 2
SAPIWI	48 4 2 3 00 2 3 477 7 2 3 8 1 10 2 1 1;5 2 4 1 3 1 2 MBCHVD 1 XYZ 08 03 1 1 3 1 1 470 32 1
CODENR. 44815	1 2 2 1 2 2 2 2 2 2 1 1 2 1 2 2 2 1 2 121211 3 122 20 00 0 0 0 0 0 1 99 2
MASEWA	48 4 1 1 00 3 2 42 35 2 3 9 1 31 3 1 1;5 1 2 2 1 9 2 MBCHVD 1 XYZ 08 01 2 1 1 1 1 7 6 1
CODENR. 44816	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 222222 1 222 20 00 0 0 0 0 0 1 99 2
DUTWA	48 4 2 3 00 2 3 0 21 2 2 2 1 C5 3 1 1;5 3 2 2 1 9 2 MBCHVD 1 XYZ 01 01 1 1 1 1 2 21 99 1
CODENR. 44817	1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 222222 3 222 20 00 0 0 0 0 0 2 1 2
IGEGU	48 4 1 3 00 3 3 29 6 2 3 3 1 05 2 1 1;2 4 3 2 1 9 2 MBCHVD 1 XYZ 08 08 1 1 3 1 1 23 1 1
CODENR. 44806	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 1 221222 2 222 20 00 0 0 0 0 0 1 99 2
MWALALAGI	49 4 2 4 00 3 1 0 14 2 3 3 1 C8 3 1 1;5 5 1 2 1 9 2 15CHVD 1 XYZ 08 01 1 1 2 1 1 14 99 1
CODENR. 44901	1 2 1 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 2 221222 3 222 20 00 0 0 0 0 0 2 99 2
MALIGONI	49 4 2 3 00 3 3 104 0 2 3 4 1 C8 3 1 1;5 4 2 2 1 9 2 MBCHVD 1 XYZ 08 01 1 1 2 1 1 104 4 1
CODENR. 44902	1 2 1 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 2 2 222222 2 222 20 00 0 0 0 0 0 1 99 2
SAKWE	49 4 2 4 00 3 1 999 999 2 3 7 1 C5 2 1 1;4 4 3 2 3 1 2 MBCHVD 1 XYZ 08 01 1 1 3 1 1 999 99 1
CODENR. 44903	1 2 2 2 2 2 2 2 2 2 1 2 2 2 2 1 2 1 222221 3 121 20 00 0 0 0 0 0 9 99 2
SAKWE-UJAMAA	49 4 1 1 00 3 2 69 414 2 3 2 1 C5 2 1 5;5 1 1 1 1 9 1 MBCHVD 1 XYZ 08 03 1 1 2 1 1 345 99 1
CODENR. 44904	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 1 222221 1 121 20 00 0 0 0 0 0 2 98 2

Kanadi division

NANGA	61 4 2 1 00 3 2 21 0 2 3 2 1 12 1 1 1;5 3 3 1 1 9 3 MBCHVD 1 XYZ 01 01 1 1 1 1 1 21 5 1
CODENR. 46103	2 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 2 1 222222 2 222 20 00 0 0 0 0 0 1 99 2
NDILELEZI	61 4 2 3 00 3 1 0 C 2 3 9 1 13 3 1 1;6 2 3 1 3 3 2 MBCHVD 1 XYZ 01 01 1 1 1 1 2 0 0 1
CODENR. 46105	2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 1 2 1 221222 1 222 20 00 0 0 0 0 0 3 0 2
MHUNZE	61 4 2 3 00 3 3 0 21 2 3 1 1 12 3 1 1;4 2 3 2 1 9 2 MBCHVD 1 XYZ 01 01 1 1 1 1 1 21 99 1
CODENR. 46106	2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 1 2 2 222222 1 222 20 00 0 0 0 0 0 2 2 2
GASWA	62 4 2 3 00 3 3 21 28 2 3 4 1 C6 3 1 1;5 2 3 3 1 9 3 MBCHVD 1 XYZ 01 01 1 1 1 1 1 7 99 1
CODENR. 46201	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 1 222222 2 222 20 00 0 0 0 0 0 2 1 2
SAGATA	62 4 2 3 00 3 1 48 7 2 3 4 1 C4 3 1 1;5 2 3 3 1 9 3 MBCHVD 1 XYZ 01 01 1 1 2 1 1 41 2 1
CODENR. 46207	1 2 2 1 2 2 2 2 2 1 2 2 1 2 2 2 2 2 1 2 1 222222 3 222 20 00 0 0 0 0 0 1 99 2

COLUMN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

Kanadi division (continued)

NHESHA	63	4	2	3	00	2	3	124	124	2	3	6	1	C6	3	1	1;5	4	1	2	1	5	3	MPCHVC	1	XYZ	01	01	1	1	1	1	1	0	0	1
CODENR. 46306	1	2	2	2	22	2	2	2	1	2	2	1	2	1	1	2	2	2	1	2	1	221222	3	122	20	00	0	0	0	0	0	3	0	2
MWAMKUMBO	63	4	2	3	00	3	1	0	28	2	3	9	1	C6	3	1	1;5	2	1	2	1	5	3	MPCHVC	2	XYZ	01	01	1	1	3	1	1	28	59	1
CODENR. 46307	2	2	2	2	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	2	2	2

MWAMNGESHA	64	4	1	1	00	2	2	6	0	2	3	2	1	C6	2	1	1;5	1	3	2	1	7	2	MPCHVC	1	XYZ	01	01	1	1	1	1	1	6	33	1
CODENR. 46401	2	2	2	2	22	2	2	2	2	2	1	2	2	2	2	2	2	1	2	222222	1	122	20	00	0	0	0	0	0	1	99	2			
NKULOGOMA	64	4	2	3	00	3	3	0	0	5	3	1	1	C7	2	1	1;5	2	4	1	1	9	2	MPCHVC	1	XYZ	01	01	1	1	3	1	2	0	0	1
CODENR. 46404	2	2	2	2	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	223222	1	222	20	00	0	0	0	0	0	3	0	2			
MWABUKI-UJAMAA	64	4	1	4	00	3	1	35	104	2	3	9	1	C6	3	1	1;5	4	3	2	1	5	2	MPCHVC	2	XYZ	01	01	1	1	2	1	2	69	99	1
CODENR. 46406	1	2	2	2	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	1	122	20	00	0	0	0	0	0	2	99	2			
NYABULEGI	64	4	2	3	00	3	1	0	0	2	1	9	1	C7	3	1	1;4	5	1	2	1	9	2	MPCHVC	2	XYZ	08	01	1	1	1	1	2	0	0	1
CODENR. 46409	1	2	2	1	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	222222	9	222	20	00	0	0	0	0	0	3	0	2			

Appendix 8.   WARD CODES
             Code numbers as applied in app. 7.

8.1. <u>Shinyanga District</u>

Negezi division

IBADAKULI	11
ITILIMA	12
UKENYENGE	13
MWAMASHELE	14
KILOLELI	15
LAGANA	16
TALAGA	17
NGOFILA	18

Itwangi division

USULE	21
DIDIA	22
IMESELA	23
TINDE	24
ILOLA	25
ITWANGI	26

Mondo division

BUBUKI	31
BUNAMBIYU	22
BUGURO	33
MONDO	34
SONGWA	35
LOHUMBO MWADUI	37
MAGANZO	38

Kishapu division

UCHUNGA	41
MWAKIDOYA	42
SHAGIHILU	43
MASANGA	44
MWAMALASA	45
SOMAGEDI	46
KISHAPU	47

Mjini division

CHIBE   51
KIZUMBI   '   52
Shinyanga has a separate status

Nindo division

SOLWA   61
SALAWE   62
MWANTINI   63
ISELAMAGAZI   64
LYABUKANDE   65
NYANG'OMBE   66

Samuye division

MWAMALA   71
USANDA SINGITA   72
SAMUYE   73

8.2. Maswa District

Nung'hu division

BUCHAMBI   12
MASELA   13
ISANGA   14

Sengerema division

MALAMPAKA   31
BADI   32
KULIMI   33
NYABUBINZA   34
SHISHIYU   35

Meatu division

ITINJE   51
MWANBUZO   53
IMALASEKO   54
SEMU-KIMALI   55
KISESA   56
BUKUNDI   57
NKOMA (Meatu division)   58

Mwagala division

SUKUMA	73
BUSILILI	74
MPINDO	75
DAKAMA	76
IPILILIO	77
LALAGO	72

8.3. Kahama District

Kahama division

ISAGEHE	12
ISAKA/JANA	13
MHONGOLO	15
ZONGOMERA	16

Dakama division

UKUNE	21
UKAMBA	22
MPUNZE	23

Mweli division

ULEWE	31
USHETU	32
UYOGO	33

Siloka division

RUNZEWE	41
USHIROMBO	42
MASUMBWE	43
MBOGWE	44

Msalala division

NGOGWA	51
BUSANGI	52
NGAYA	53
LUNGUYA	54

8.4. Bariadi District

Itilima division

LUGURU	21
ZAGAYU	22
NKOMA (Itilima division)	23
MWAMAPALALA	24
MBITA	25

Ntuzu division

SOMANDA	41
NKOLOLO	42
MHANGO	43
BARIADI	44
BUNAMHALA	45
NYAKABINDI	46
MWABUBINGI	47
DUTWA	48
GABU	49

Kanadi division

CHINAMILI	61
SAGATA	62
LAGANGABILILI	63
BUMERA	64

Appendix 9.   NUMBER AND POPULATION OF CONCENTRATED
                SETTLEMENTS 1972

district or division	number of concentrated settlements in rural areas		total population of concentrated settlements (*)
	pop. 400–800	pop. > 800	
Kahama District	22 (pop. 12,100)	7 (pop. 6,600)	18,700
Dakama	8	2	6,800
Kahama	5	2	4,600
Msalala	5	1	3,300
Mweli	2	1	2,000
Siloka	2	1	2,000
Bariadi District	11 (pop. 7,100)	27 (pop. 50,900)	58,000
Itilima	5	11	26,100
Kanadi	0	3	3,300
Ntuzu	6	13	28,600
Maswa District	20 (pop. 11,900)	20 (pop. 31,600)	43,500
Meatu	9	6	14,300
Mwagala	2	8	15,000
Nung'hu	4	4	8,800
Sengerema	5	3	5,400
Shinyanga District	59 (pop. 35,300)	33 (pop. 43,700)	79,000
Itwangi	16	3	12,800
Kishapu	9	9	19,700
Mondo	6	6	10,200
Negezi	7	8	15,800
Nindo	8	3	8,200
Samuye	9	2	7,500
Mjini	4	2	4,800
Region	112 (pop. 66,400)	87 (pop. 132,800)	199,200

(*) not included: Shinyanga, Bariadi, Maswa & Kahama towns and Mwadui

Appendix 10.   CENSUS SHINYANGA TOWN   (13-15 June 1972)

10.1. Total population

Men of 16 years and older	3,808	33%
Women of 16 years and older	3,711	32%
Children 0-15 years	3,983	35%
Total population 1972	11,502	100%

10.2. Population growth 1967-1972

Total population 1972	11,502
Correction for new boundaries established after 1967	1,191
Total population 1972 within 1967 boundaries	10,311
Total population 1967	5,135
Population growth	5,176

10.3. Water distribution Shinyanga town

Estimated number of people using water from private tap	5,410
Estimated number of people using water from public tap	2,615
Estimated number of people using other water	1,399
Number of people with no response	2,078
Total	11,502

10.4. Population of adjacent urban area in Kizumbi Ward

Men of 16 years and older	895	29%
Women of 16 years and older	851	28%
Children 0-15 years	1,295	43%
	3,041	100%

10.5. Water distribution urban area in Kizumbi Ward

Estimated number of people using water from private tap	160
Estimated number of people using water from public tap	712
Estimated number of people using other water	1,683
Number of people with no response	486
Total	3,041

Appendix 11. POPULATION 1967 ACCORDING TO TYPE OF SETTLEMENT AND ECONOMIC ACTIVITY

district or division	total population	population district capitals (incl. Bariadi and Mwadui)	total rural population	population concentr. settlements rural areas	non-farmers total	non-farmers concentr. settlements rural areas	farmers in concentr. settlements rural areas	farmers scattered	farmers total
1	2	3	4	5	6 = 0.044 total (2)	7 **	8 = 5−7	9 = 4−5	10 = 8 + 9
Kahama District	147,628	3,211	144,417	16,170		1,696	14,474	128,247	142,721
Dakama	44,601	0	44,601	5,858		615	5,243	38,743	43,986
Kahama town	3,211	3,211	0	0		0	0	0	0
Kahama	38,403	0	38,403	3,940		413	3,527	34,463	37,490
Msalala	27,280	0	27,280	2,857		300	2,557	24,423	26,980
Mweli	11,219	0	11,219	1,777		186	1,591	9,442	11,033
Siloka	22,914	0	22,914	1,738		182	1,556	21,176	22,732
Bariadi District	206,304	1,095	205,209	50,065		5,251	44,814	155,144	199,958
Itilima	58,986		58,968	22,568		2,367	20,201		56,619
Kanadi	41,628		41,628	2,845		298	2,547		41,330
Ntuzu	105,690	1,095	104,595	24,652		2,586	22,066		102,009
Maswa District	224,612	4,726	219,886	37,502		3,935	33,567	182,384	215,951
Meatu-North*	34,390	0	34,390	6,670		700	5,970	27,720	33,690
Meatu-South*	49,284	0	49,284	5,656		593	5,063	43,628	48,691
Mwagala	60,883	388	60,495	12,970		1,361	11,609	47,525	59,134
Nung'hu	35,287	4,338	30,949	7,549		792	6,757	23,400	30,157
Sengerema	44,768	0	44,768	4,657		489	4,168	40,111	44,279
Shinyanga District	320,924	12,518	308,406	68,106		7,145	60,961	240,300	301,261
Itwangi	45,389	0	45,389	10,990		1,153	9,837	34,399	44,236
Kishapu-North*	21,871	0	21,871	5,659		594	5,065	16,212	21,277
Kishapu-South*	27,395	0	27,395	11,286		1,183	10,103	16,109	26,212
Mondo	44,012	0	44,012	8,823		926	7,897	35,189	43,086
Negezi-North*	47,347	0	47,347	7,328		768	6,560	40,019	46,579
Negezi-South*	20,064	0	20,064	6,319		663	5,656	13,745	19,401
Nindo	45,115	0	45,115	7,089		744	6,345	38,026	44,371
Samuye	24,493	0	24,493	6,431		675	5,756	18,062	23,818
Mjini	32,720	0	32,720	4,181		439	3,742	28,539	32,281
Shinyanga-town	5,135	5,135	0	0		0	0	0	0
Mwadui	7,383	7,383	0	0		0	0	0	0
Region	899,468	21,550	877,918	171,843	39,577	18,027	153,816	706,075	859,891

* Technical Annex E differentiates between the northern and southern parts of the Meatu, Kishapu and Negezi divisions for calculations on future population distributions.
The boundary line is indicated on fig. V.1, see Technical Annex E.

** $7 = \dfrac{tot(6) \cdot tot(3)}{tot(5)} \cdot (5)$

Appendix 12.   PRELIMINARY WATER DEVELOPMENT PRIORITY
                RANKING

```
FACTOR     INDICATOR
-------    ---------
  1        INSUFFICIENT SUPPLY IN WET AND/OR DRY SEASON
  2        OFFICIAL REQUEST FOR IMPROVEMENT OF WATER SUPPLY
  3        DISTANCE TO SOURCE
  4        INFRASTRUCTURAL SIGNIFICANCE
  5        POPULATION SIZE
  6        MIGRATION
  7        TYPE OF SETTLEMENT
  8        LOCATION
  9        TYPE OF CULTIVATION
 10        USE OF MANURE
 11        REGULAR SELLING OF CATTLE
 12        SOIL QUALITY
 13        AVAILABILITY OF LAND
```

NAME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
NYASHIMBI				20	5	3	15	5	3	5	5	0	7	4	0	1	69
MAHEMBE		4		8	5	11	20	5	3	5	0	7	0	0	0	1	68
SAPIWI		4		0	5	11	20	5	5	5	0	7	0	0	2	0	68
MAGANZU				20	5	0	20	5	4	5	5	1	7	4	0	0	66
BARIADI		4		20	5	0	7	5	2	5	5	7	7	0	0	1	64
MIHAMA				20	5	7	15	5	3	5	0	1	0	1	0	0	62
KASOLI		4		0	5	12	20	5	5	5	0	1	0	0	2	1	62
ISEMBU				8	5	11	16	5	5	5	0	1	0	4	1	0	61
NTOMA				8	5	7	15	5	5	5	5	0	2	4	1	1	61
NKULULU		4		8	5	3	20	5	1	5	5	7	0	0	1	1	61
KINANG'WIGULU		2		0	5	3	19	5	3	5	0	7	2	0	0	1	60
MALAMPAKA		2		3	5	0	19	3	5	5	3	7	3	0	1	0	60
MWAMADULU				20	5	11	5	5	5	5	0	1	0	1	1	0	59
BUNAMHIYU				8	5	11	16	5	3	5	0	1	0	1	1	1	59
BUSOMBO				8	5	3	20	5	5	5	5	0	0	1	1	1	59
IGWATA		2		8	5	15	5	3	5	5	5	7	0	0	1	0	59
ITILIMA ITUMBILI				0	5	11	14	5	5	5	0	1	0	4	1	0	59
MWALUSHU		4		8	0	11	17	5	3	5	0	7	0	1	1	1	59
MWAMALYFLY		2		20	5	7	6	5	0	0	5	7	0	0	1	1	57
SINGITA				8	5	3	17	5	4	5	5	1	2	1	0	1	57
MWAMHITA				8	5	11	16	5	4	5	0	7	0	0	1	1	57
MALIMONI		4		8	5	0	19	5	5	5	0	7	0	1	1	1	57
MWAMADULU-UJAMAA				20	0	15	5	5	5	0	0	2	0	4	2	0	56
NGOFILA				20	5	3	16	5	0	5	0	1	0	0	0	1	56
KASHGILI				20	5	2	10	3	0	5	5	0	2	1	2	1	56
BUBIKI				8	5	0	17	3	5	5	5	7	0	1	0	0	56
NISHITULEJA				8	5	3	16	3	5	5	5	1	2	1	2	1	56
NGEGEMO		2		8	5	7	14	5	1	5	5	1	2	1	1	1	56
SESEKU				20	5	0	15	3	2	5	0	1	2	1	0	1	55
MWAMAPALALA		4		8	5	0	19	5	5	5	5	0	2	0	1	0	55
NYAKABINDI	46	4		20	5	0	10	0	5	3	5	7	0	0	0	0	55
KASHISHI	37			8	5	7	15	3	5	5	0	1	0	4	0	1	54
MPUNZE				8	5	3	17	3	5	5	5	0	2	0	0	1	54
LUGURU GINNERY		4		8	5	0	20	5	5	5	5	0	0	0	1	0	54
IGEGU		4		8	5	11	9	5	3	5	0	7	0	1	1	0	54
SAGATA		4		8	5	3	20	5	4	0	0	7	0	0	1	1	54
TINDE				8	0	0	17	5	3	5	5	1	7	1	0	1	53
MWADANHYA		2		8	5	11	17	3	0	3	0	0	2	0	1	1	53
MWAMHITI		2		8	5	15	5	3	5	5	0	7	0	0	0	0	53
MWALUSHU-UJAMAA		4		8	0	11	15	3	5	3	0	7	0	0	1	0	53
MWALUKWA				3	5	3	15	3	4	5	5	1	0	1	1	0	52
IMALASEKO				8	5	3	20	0	5	3	5	1	0	1	1	0	52
NGEMO		4		3	5	7	0	2	5	5	0	7	0	0	2	1	52
BARIADI-UJAMAA	44	4		3	0	0	17	3	5	5	5	7	0	0	1	1	52
IBADAKULI				0	5	0	14	5	4	5	5	1	2	1	0	1	51
IDUKIRO	17	1		8	0	7	18	3	5	5	0	1	0	4	0	0	51
NDOLELEJI	43	1		8	0	7	14	5	2	5	0	1	7	1	0	1	51
KIDEMA	14	2		3	5	7	7	5	5	5	0	7	0	1	1	0	51
MASANGA				8	0	7	15	3	5	5	0	1	0	4	1	0	51
NGOGWA	51	3		0	5	3	16	3	3	5	5	0	7	4	0	0	51
LUNGUYA	54	3		8	5	0	15	0	5	3	5	0	7	1	2	1	51
LUGURU		4		8	5	3	15	5	4	5	5	0	0	0	1	0	51
ZANZUI		4		20	0	7	7	0	5	3	0	7	0	1	1	0	51
KINAMWELI		4		8	5	7	8	5	4	5	0	7	0	0	0	1	51
ISANGA	40	4		8	5	3	15	3	5	5	5	1	0	0	1	0	51

NAME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
EKU			3?0?	8	5	12	6	5	2	5	5	1	0	0	.	1	50
IWASE...				8	5	13	6	3	5	5	5	0	0	0	1	1	50
JUBULA	7			20	5	3		3		5	5	0	0	0		2	50
ELEMI	7		17?08	20	5	12	5			5	0	0	0	1	0	1	50
IWABAYANDA			235?5	8	5	15	6	5	5	5	0	0	0			1	50
IATJUGO	4	4	4461?	8	5	15		5	5	5	0	1	0	1		1	50
IWAMURITE			1604	8	5	15	6	5	5	5	0	1	0		1	0	49
IIPA			235?4	8	5	2	7	5	5	5	5	1	2		1	1	49
ISAYU			15??	8	5	11	8	5	4	5	0	0	0	1		1	49
ILO-...NYANGA			15133	8	5	0	18		4	5	5	0	0	0	1	0	49
IASUNGWA	7		773?	8	0	7	16			5	0	7	0	1		1	49
IWASITA	7		270??	8	5	11	8		3	5	0		0	1		1	49
MITSHA			4620?	8	5	0	10	5	2	5	5	7	0	0	1	1	49
TWANSI			2605	8	5	0		0	5	5	5	0	7	0	0	0	48
SADI			322?	8	5	2	15		0	5	0	7	0	0	1	1	48
JUDEKWA	74		27405	8	0	0	17	5	3	5	5	1	0	4	0	0	48
JUDEKWA-UJAMAA	7		274??	8	0	0	15	3	0	5	5	7	0	4	1	0	48
ESIYA	73		2750?	8	5	0	17		4	5	0	1	0	4	1	0	48
KULELI-UJAMAA		4	44??	0	0	3	16	2	5	5	0	7	0	0	1	0	48
TONGOTTALE			??	8	5	11	3	5	5	5	0	1	0	0	1	1	47
ISIKPU	47		1470?	8	5	2	13	2	2	5	5	1	0	1	1	0	47
YADAGICHIZA	5		1512?	8	5	7	5		5	5	5	0	2		1	0	47
YARUMBE			760?	20	5	11	3	3	2	0	0	0	0	1	1	1	47
IWANDU	51		2520?	8	5	11	5	5	4	5	0	1	0	4	1	0	47
IWABAYANDA	72		2730?	8	5	7	7	5	2	0	0	7	0	2	0	0	47
KILAGU			5220?	8	5	3	15	5	3	5	0	0	0	0	1	1	47
NYANGWALE			352??	8	5	3	7	5	2	5	5	0	2	4	1	0	47
SHILELA	54		15?0?	8	5	7	6	2	3	5	5	0	2	1	1	1	47
NHOBOLA		4	4250?	8	5	11	1	5	5	0	0	7	0	1	1	1	47
KIDALATA		4	44?4?	8	5	3	16	5	0	5	0	1	0	1	1	0	47
SAKWE			449??	8	5	15	10	0	0	0	0	7	0	1	1	0	47
MALAMBUPINA			1627	8	5	15	5	0	0	0	0	7	0	4	1	0	46
NHUILE GIMBUKY	47		147??	8	5	0	16	5	1	5	5	2	0	0	0	0	46
ZUMA	23		320??	8	5	0	15	3	2	5	5	0	2	0	0	1	46
MASUMBWE			340??	8	5	3	15	0	5	3	5	0	0	0	1	1	46
NEGEZI			113??	8	5	0	16	3	0	5	5	2	0	1	1	0	45
BUGWIGWA		1	2317?	8	5	7	5	5	4	5	5	1	0	1	1	0	45
MASANZA	44		2440?	8	5	0	10	5	5	5	0	1	0	4	1	1	45
IWANGACHIMBA	44		2440?	20	5	11	0	3	0	0	0	1	0	4	1	0	45
IWALUKULIKO		2	2340?	8	5	7	4	3	3	5	0	7	0	1	1	1	45
IDAGO	58		258?4	20	5	11	0	5	1	0	0	1	0	0	1	1	45
NHUMBI			215??	8	5	11	5	5	5	0	5	0	0	1	1	1	45
ISAKA			152?	8	5	3	4	3	5	5	5	0	7	0	0	0	45
MBULU			1452?	0	5	2	14	5	4	5	5	0	2	1	0	1	45
BUGALAMA	54		254?5	8	5	0	17	0	5	2	0	0	7	0	0	0	45
DASINA		4	4230?	8	5	7	9	5	3	5	0	1	0	0	1	1	45
DUTWA		4	4454?	6	0	0	18	5	1	5	5	1	0	0	1	1	45
MWALALADI	43		344??	8	5	3	19	0	0	0	0	7	0	1	1	1	45
KULANDOTO			112?	8	0	0	16	5	2	5	5	0	0	1	1	1	44
INULELE		1	1160?	20	5	11	0	5	0	0	0		0	0	1	1	44
KIGIANG'HIGA-UJAMAA	22		2220?	8	0	3	5	5	5	0	5	7	2	4	0	0	44
ZOBOGO	26	1	22604	8	5	3	0	3	4	5	5	0	7	4	0	0	44
NYAMANGA-UJAMAA	3		2510?	8	5	7	1	0	5	3	5	7	0	2	1	1	44
MALITA-UJAMAA			2148?	8	0	3	7	5	2	5	5	7	0	1	1	0	44
KULIMI	75		2750?	20	5	7	4	5	1	0	0	1	0	0	1	0	44

NAME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
MBITI	43	4	44303	8	5	3	10	5	1	5	0	7	0	0	0	0	44
WELEZO	24	1	12401	8	5	7	6	3	1	5	5	0	2	1	0	0	43
UNYANYEMBE	42	1	14201	8	5	3	13	3	0	5	5	1	0	0	0	0	43
NZIMA	62	1	16212	8	5	3	10	0	0	5	5	0	2	1	0	1	43
LYABUKANDE	65	1	16502	8	5	0	14	3	5	5	0	0	0	1	1	1	43
KANYENYE	72	1	17203	8	5	3	4	5	4	5	3	2	2	3	0	0	43
ISULI	73	1	17302	3	5	3	16	3	2	0	5	1	0	0	0	0	43
KIZUMBI	17	2	21716	8	5	3	3	5	3	3	0	7	7	0	1	1	43
MASELA	37	2	23103	8	5	3	18	3	0	5	0	1	0	0	0	0	43
SHISHIYU	35	2	23503	8	5	3	17	0	5	3	0	1	0	0	0	1	43
IGUNYA	35	2	23502	8	5	11	6	0	0	5	0	7	0	0	1	0	43
KISESA	54	2	23601	8	0	3	16	3	5	5	0	1	0	1	1	0	43
IKUNGULYABYSHASHI	46	4	44501	0	5	0	18	5	3	3	0	7	0	0	1	1	43
IDUTA	24	1	12413	8	5	3	1	3	4	5	5	0	7	1	0	0	42
GIMBU1	43	1	14306	8	5	7	12	3	0	5	0	1	0	0	1	0	42
IBINZAMATA	53	1	15205	8	0	3	15	5	0	5	5	0	0	0	1	0	42
ILAMATA	33	2	23805	8	5	0	7	5	5	5	0	7	0	1	0	1	42
NTUNGULU	13	3	31330	0	0	0	13	0	2	5	5	0	7	1	1	0	42
IGUNGA	21	3	32134	8	5	0	17	3	0	5	0	0	2	1	1	0	42
IBANZA	54	3	35422	8	5	0	6	3	5	5	5	0	2	1	1	1	42
KASILI	24	4	42403	8	5	3	7	5	2	3	0	7	2	0	0	0	42
NHESA	42	4	44209	8	5	11	0	3	1	5	0	7	0	0	1	1	42
ISANGA	45	4	44502	8	5	3	10	5	4	5	0	0	0	1	0	1	42
MALWA	13	1	11301	8	5	15	4	3	4	0	0	0	0	1	1	0	41
MWABAGIMU	14	2	22408	20	5	7	0	0	5	0	0	1	0	1	1	1	41
SHAMATALE	15	1	22502	8	5	3	4	3	1	5	5	0	2	4	1	0	41
KILULULI	47	1	14707	20	5	7	0	3	0	0	0	0	0	4	1	1	41
NGARA	14	2	21405	8	5	0	6	5	4	0	0	1	7	4	1	0	41
NGULIGULI	77	2	27703	8	5	3	8	3	5	5	0	2	0	1	1	1	41
KABUHIMA	43	3	34310	8	0	0	19	0	5	3	5	0	0	0	1	0	41
USHIRUMBU	47	3	34203	0	5	0	16	3	2	5	5	0	0	4	1	0	41
KABALE	22	4	42204	8	5	3	13	0	0	3	0	7	0	1	1	0	41
NG'WANG'WALI	43	4	44113	8	5	3	3	3	5	5	0	7	0	0	1	1	41
MALIMONI	44	4	44401	8	5	3	2	5	5	5	5	1	0	0	1	1	41
ITUMBULU	22	1	11209	8	5	15	0	3	0	5	0	1	0	1	1	1	40
NDEMA	34	1	13409	8	5	15	0	3	0	0	0	7	0	0	1	1	40
IGAGA	42	1	14204	20	5	3	0	5	5	0	0	1	0	0	1	0	40
UKIRIGURU	65	1	16510	8	5	15	3	3	4	0	0	0	0	0	1	1	40
MWAKITOLYO	66	1	16601	8	5	0	13	3	4	5	0	0	0	1	1	0	40
MWANYOMBA	57	2	25714	8	0	0	16	3	5	5	0	1	0	1	0	1	40
MWAMAPUI	75	2	27509	8	5	3	3	5	5	5	0	1	0	4	1	0	40
LUHALA	45	3	34512	8	5	7	4	3	5	5	0	1	0	0	1	1	40
IBUYA	44	3	34426	8	5	3	14	0	3	3	0	0	0	3	1	0	40
GAMBASINGU	23	4	42504	8	5	0	9	5	3	0	0	7	0	1	1	1	40
GASWA	62	4	46201	8	5	3	4	5	1	5	0	7	0	0	1	1	40
BUHOLA-KASELA	21	1	12207	8	0	3	3	3	3	5	5	0	2	4	0	1	39
ILUMILU	33	1	12310	8	5	0	3	3	5	5	5	0	2	1	0	0	39
MWANGONGO	42	1	14208	8	5	15	0	3	0	0	5	1	0	0	1	1	39
MWABUSALU	56	2	25609	8	5	3	9	3	5	0	0	1	0	4	1	0	39
SHOKASHOKA	73	2	27503	0	5	7	7	5	5	0	5	3	2	0	1	1	39
MASAIWA	74	2	27408	0	0	0	18	5	0	5	5	1	0	4	1	0	39
LALAGO	72	2	27201	0	0	0	20	5	2	5	5	1	0	1	0	0	39
IBUJA	21	3	32101	8	0	0	17	3	0	3	5	0	0	1	1	1	39

ME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
				6	5	3	15	0	0	3	0	0	0	0	0	0	39
				0	5	0	16		2	5	5	0	2	0	0	1	39
				0	5	0	5		5	3	5	0	0	2			39
				0	5	0	4	0	5	2	5	7				0	39
				9	0	0	14	5	2	5	0		0		1	1	38
				8	5	0	9	3	2	5	5	0		0	0	0	38
				6	5	0	13		1	5	0	1	0	0		2	38
				3	5	11	1	0	4	0	0	7	0	1	0	1	38
ADI				0	0	3	16	5	5	5	2		0	0	0	0	38
					5	7	4	5	0	5	5	1	0	0	0	0	38
				0	5	3	4	5	5	0	5	0	0	1	1	1	38
				5	5	11	0	3	5	0	0	0	0	4		1	38
AYU-SAYU				0	5	0	14	3	2	5	0	0	0		0	0	38
				5	0	7	3	5	5	0	0	7	0	1	1	1	38
				8	5	7	5		5	5	0		0		1		38
				8	5	0	3	3	2	5	5	0	7	0	0	0	38
				0	5	3	4	3	2	5	0	0	7	0	1	0	38
				8	5	0	5	5	5	0	0	0	7	1		1	36
				8	5	0	4	5	2	5	0	7	0	0	1	1	38
				3	5	7	10	0	2	2	0	0	0	1	1	1	38
				8	5	2	14	5	3	0	0		0	1	0	0	38
				8	5	0	15	3	0	5	0	0	0		1	0	38
				8	0	7	3	5	2	0	0	0	0			1	38
SAGALA				6	5	3	3	3	2	5	5	1	0		1	0	37
SAYU				0	5	11	3	5	2	0	0	2	0	0	1	1	37
				8	5	3		0	0	3	5	7	0	4		0	37
				0	5	3	0	3	4	5	0	1	0	1	1	1	37
SINGU				3	0	0	15	0	2	5	5		2	1	0	0	37
				0	5	0	17	3	5	5	0	1	0	0	1	0	37
PILIPI				0	5	3	10	5	5	5	0		0	1	1	1	37
				0	0	0	17	5	5	5	5	0	0	0	0	0	37
UKWIMBA				0	5	3	15	0	3	3	5	0	0	1	1	1	37
UNDU				8	5	3	6	3	5	0	0	3	0	4	1	1	37
SAYA				0	0	0	17	3	4	5	5	0	2	0	0	2	37
				8	5	11	1	1	4	0	0	1	2	0	1	2	37
				5	0	3	2	5	5	5	0	7	0	3	1	0	37
ASEA				8	0	7	4	0	5	3	0	7	0	1	1	1	37
				8	0	3	4	3	4	5	5	1	0	2	1	1	36
NAMASHELE				0	0	0	16	3	2	5	5	1	0	1	1	0	36
ZANZA				8	5	3	0	3	1	5	5	0	2	4	0	0	36
SUPELI				8	5	3	4	0	2	0	5	0	7	1	1	0	36
				8	5	11	1	3	5	0	0	0	0	1	1	1	36
ILU				0	0	3	15	3	3	5	5	0	2	0	1	0	36
YASHIMBA					5	11	0	5	3	0	0	0	2	1	1	0	36
				8	5	7	5	5	4	0	0	3	0	1	1	1	36
NAGWILA				0	0	0	13	5	2	5	0	1	0	0	1	1	36
HINYANGA				8	0	3	14	3	5	5	0	1	0	1	1	0	36
JUZULA				0	5	0	8	5	3	3	0	7	0	1	1	1	36
USHI				8	5	3	5	5	1	5	0	0	0	3	1	1	36
ANGA				8	5	3	4	0	5	5	0	7	0	0	1	0	36
HUNZI				8	5	0	3	5	0	5	0	7	0	3	1	1	36
JAMALA				0	5	3	18	3	1	5	0	0	0	0	0	1	35
				8	5	15	1	3	0	0	0	1	0	1	1	1	35
				0	5	11	0	3	2	5	0	0	0	0	1	2	35
ALI				8	5	3	0	3	2	0	5	7	0	0	1	1	35

NAME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
NG'WABULIMBU	14	4	0440	8	5	3	0	5	4	0	0	7	0	1	1	1	25
MWABUZE	5			8	5	0	8	5	0	5	7	7	0	5	3	1	35
MWAMBEYA	16	2	5630	8	0	3	8	5	5	0	0	1	0	4	1	0	35
UYOGO	13	2	2330	9	0	2	4	3	4	5	5	0	0	0	0	1	35
NYAMILAMA	2	4	4210	8	0	7	0	3	2	5	0	7	0	1	3	1	35
BANDI	47	4	4717	0	0	3	15	3	1	0	5	7	0	0	0	1	35
KIJUNGU	15	1	1540	8	5	7	3	0	4	3	0	3	0	1	1	2	34
IGUGUGUTU	14	2	2400	8	5	3	0	5	3	0	0	0	7	1	3	1	34
BUGOKE	17	1	1704	4	5	11	4	2	0	0	0	0	0	3	1	1	34
LYAMBU	50	3	5205	8	5	3	13	3	0	0	0	0	0	0	1	3	34
MISHEPU	53	2	5503	0	0	3	17	5	2	5	0	0	0	1	1	0	34
MWAMKALANGA	14	2	2405	8	0	7	0	5	5	0	5	0	0	4	1	1	34
MWANYATE	25	2	2502	5	5	3	0	5	3	0	0	7	0	1	3	3	34
NYABULINZA-UJAMAA	34	2	3419	8	5	3	0	3	5	5	5	0	0	1	1	0	34
MWABALATULU	74	2	7403	8	5	3	5	5	2	0	0	3	0	4	1	0	34
IWELIMI	77	2	7700	2	5	3	0	3	4	0	0	2	0	1	1	0	34
KINISHIHA	23	2	2353	8	0	0	5	5	5	5	5	0	0	1	1	1	34
BUKINGWANIMI	22	4	4250	8	0	3	5	3	0	3	0	7	0	3	1	1	34
NKOLOGWA	64	4	4640	8	0	3	3	5	3	5	0	7	0	1	3	0	34
CHEMBELI	12	2	1209	8	5	0	3	3	0	5	5	0	2	1	0	3	33
MATINA	13	2	2509	0	0	3	3	3	5	0	0	0	0	3	0	0	33
ITUNANILO	26	2	2505	8	0	3	4	5	3	0	0	0	7	1	1	1	33
KAKOLA	42	1	4107	8	0	0	3	3	5	5	0	7	0	0	1	3	33
OLD MHUNZE	47	1	4702	0	5	3	5	5	2	5	5	1	0	1	0	0	33
KABALE	64	1	6447	8	0	11	0	3	5	0	0	0	0	4	3	1	33
TUPENDANE	73	2	7305	8	5	12	0	0	0	3	0	1	0	4	3	0	33
KABUNDU	54	2	5440	0	0	0	3	3	5	5	0	0	3	4	1	1	33
MWAMBETE	76	2	7600	0	5	3	14	0	0	0	0	3	0	0	1	1	33
KISUKE	41	1	2353	8	0	3	6	3	0	5	5	0	0	3	1	1	33
ULOWA	32	3	3209	8	5	3	5	3	0	5	0	0	2	0	1	1	33
ULOWA-UJAMAA	32	3	3204	8	5	0	5	3	5	5	3	0	0	0	1	1	33
NG'WAMOTO	41	4	4410	0	0	0	4	5	5	5	5	7	0	0	1	1	33
NGULYATI	43	4	4350	0	5	0	7	3	5	5	0	7	0	0	1	0	33
MWAMALA	11	1	1109	0	5	0	2	3	5	5	5	0	0	1	0	0	32
ILINGILO	17	1	1307	8	5	7	1	5	1	0	0	2	2	1	0	2	32
ISHEGEHYA	23	1	2302	8	5	0	3	3	5	5	0	0	2	1	0	0	32
NSHISHINOLU	24	2	2405	8	5	7	2	5	1	0	0	0	3	1	1	0	32
PAMBI	13	2	1303	8	5	7	0	5	2	0	0	0	0	1	1	1	32
HILISHI	45	2	4503	8	5	3	13	0	0	0	0	3	0	0	1	1	32
MWAMAGEMBE	47	1	4705	0	5	3	1	5	3	5	0	1	0	0	0	3	32
MHUGI	65	2	6502	8	5	3	0	3	5	0	5	0	0	1	1	1	32
SHATIMBA	71	1	7111	8	5	3	0	3	3	5	0	1	2	1	0	1	32
KULIMI	22	2	2206	9	0	0	0	0	5	3	0	7	0	1	3	1	32
LUBYIGA	52	2	5207	8	5	3	7	3	0	0	0	0	0	4	3	0	32
MBUSHI	57	2	5712	8	5	7	4	5	0	0	0	1	0	0	1	1	32
KINAMHUNDU	33	3	3304	8	5	0	11	3	2	0	0	0	0	1	1	3	32
IKOMBA	15	1	1505	0	5	0	12	0	2	3	0	1	0	0	1	1	31
KALANGALI	13	1	1351	0	5	11	2	0	2	0	0	3	0	1	0	0	31
IKOMBADUKI	37	2	3707	8	5	0	1	0	5	0	5	3	0	2	3	3	31
KITYILU	63	1	6307	0	0	3	12	5	1	5	0	0	2	1	1	1	31
MWABUNDALA	64	1	6412	8	5	7	0	5	0	0	0	0	0	4	1	1	31
MWAMASIGILI	53	2	5507	8	5	7	0	3	4	0	0	1	0	3	1	3	31
LUGUNU	55	2	5512	8	5	0	3	3	5	5	0	3	0	0	1	0	31

AME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
SUI.				0	0	0	10	0	4	5	0	0	0	0	0	1	30
JO...				8	5	0	5	3	4	5	0	0	0	0	0	1	30
SAT.				8	5	0	0	0	5	5	5	0	0	0	0	1	30
HA...	6.		46.7	8	0	0	5	3	2	5	5	0	0	1	0	1	30
DURI..	7.		27203	8	5	0	5	5	0	0	0	3	7	0	0	0	30
ANG.-...LUU.SHA	75	2	27523	0	5	0	4	5	0	5	5	7	0	1	0	0	30
JTI...	7.	3	34420	0	5	0	7	3	2	5	5	0	0	3	0	1	30
ER...		4	42434	8	0	7	0	0	5	5	0	0	0	0	0	0	30
AL...	4.	4	44243	8	0	7	0	5	0	5	0	0	0	1	3	1	30
ETA	27	4	44213	8	0	7	0	0	4	3	0	1	0	1	1	1	30
TAKA.....DA	45	4	44506	8	0	0	0	5	0	5	0	7	0	1	0	0	30
UU...I.I	4.	4	46705	8	0	3	0	5	0	0	0	7	0	0	3	1	30
TIL...	7.	4	21704	8	0	3	4	5	1	5	0	0	0	1	0	1	29
HA...	0.	1	0.507	8	0	3	0	0	5	0	5	0	0	0	0	2	29
MAM.....DA	7.	2	.550.	8	5	7	0	5	3	0	0	0	0	0	3	1	29
JTU..J.	4.	2	34600	8	5	7	0	3	2	0	0	3	0	1	1	1	29
JLU.AL.	5.	2	....	3	5	3	0	3	0	5	0	0	0	0	1	3	29
IM..	1.		...	0	0	0	15	0	5	5	0	3	0	1	0	0	29
WA...I..GU	5.	2	..5.3	0	0	7	7	5	5	5	0	3	0	0	0	1	29
WA.IYA..MA	5.		.550.	0	0	0	26	0	5	5	0	0	0	0	0	1	29
UN...	7.		.750.	0	0	0	4	0	5	5	0	3	0	4	0	0	29
SA..GU	4.	2	24.05	0	0	13	0	0	5	0	0	0	0	0	3	1	29
AM.U..	4.	4	44.0.	0	0	0	1	5	2	5	5	7	0	0	0	3	29
AM...SI	4.	4	44502	8	0	3	5	5	3	0	0	0	0	0	3	1	29
KU.GUL.YA..	47	4	44720	0	5	3	0	5	5	0	0	0	0	0	0	0	29
SUM...KUL.	7		2.70.	8	5	11	0	0	0	0	0	0	0	0	3	1	28
ASK..TI	5.		..50.	0	0	0	7	2	0	5	5	0	7	3	0	0	28
HU...I.I	7.		...15	8	5	0	5	5	3	0	0	0	2	1	0	1	28
IW...	46	2	44604	8	0	3	3	3	3	3	0	0	0	1	3	1	28
WA..NDA	5.	2	..1.2	8	5	7	1	3	2	0	0	0	0	3	3	1	28
U....	7.	3	.71..	8	0	3	3	3	3	5	0	3	0	3	0	0	28
YA..I..A	7.	3	2...	8	5	3	0	0	5	0	5	1	0	0	0	3	28
KU..	5.	2	2.50.	8	0	0	7	3	3	5	0	3	0	0	3	0	28
H.N..	7.		3....	8	5	0	3	3	2	5	0	0	0	0	1	1	28
AH...GA-UJ.MA	3.		..507	8	5	3	0	0	5	3	0	0	2	1	0	0	28
WA.K..GA	4.		..4..	8	5	0	3	5	3	0	0	0	2	1	0	0	27
EN..	5.		..5..	8	5	3	0	0	3	0	0	0	2	1	1	1	27
WA..LASA	45	4	.450.	0	5	0	8	3	2	5	0	3	0	1	1	1	27
IZA..ZA	4.	4	.46..	5	5	0	0	3	2	5	0	3	0	0	1	0	27
JI...	6.	4	.630.	8	5	3	0	3	5	0	0	0	2	1	0	0	27
IM...G.L.I	6.		.650.	8	5	7	0	0	5	0	0	0	0	0	1	1	27
AW..ILU	65		..61.	8	5	0	4	2	5	0	0	0	0	0	3	1	27
AZI..	7.		.7...	8	0	3	4	3	0	5	0	0	2	3	0	0	27
WA...N.-UJ.MA.	7.	2	2.5..	8	5	3	5	0	0	3	0	3	0	0	3	0	27
WA.A.H..IN.	74	2	27...	8	5	0	0	2	5	0	0	3	0	4	1	0	27
A.GI...A	4.	3	3.23.	3	0	0	4	3	1	5	5	0	0	0	0	1	27
UT.J.L.	4.	3	3.3..	8	5	3	0	0	2	3	0	3	2	3	1	3	27
GN..M..A	4.	3	32.09	8	5	0	1	0	2	3	5	0	2	0	0	1	27
IHA..PUL.	7.	3	3.12.	0	5	0	0	0	0	3	0	0	2	0	1	1	27
GU..	5.	3	3.31.	8	5	0	3	0	0	3	0	0	7	0	1	0	27
ULU.AL.	44		.4407	8	5	0	3	3	5	0	0	1	0	0	1	1	27
UZI.A	54		36402	8	5	0	3	0	0	3	5	0	2	0	0	1	27
AKW.-UJAM..	4.	4	44904	0	5	0	7	0	0	3	0	7	0	4	1	0	27
WAMKUM..	6.		46307	8	5	0	0	5	0	0	0	7	0	0	1	1	27
HU..L.	5.	3	..7..	8	0	3	13	0	0	0	0	0	0	1	1	0	26

NAME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
BUTUMBA	23	1	12019	8	5	0	3	0	2	3	0	0	2	2	1	1	26
ZUNZULI	25	1	12505	8	0	3	0	3	4	0	0	0	2	4	3	1	26
MWASHINONG'HELA	33	1	13315	8	5	3	0	5	3	0	0	0	0	0	1	1	26
GONG'HOMA	53	1	15224	5	0	11	0	3	3	0	0	0	0	1	0	0	26
KITONGO	71	1	17102	8	0	0	5	3	0	5	5	0	0	0	1	1	26
NG'WANHEGELE	34	2	23417	8	5	3	2	3	4	0	0	0	0	1	0	0	26
MBOGWE	44	2	24402	0	5	0	4	3	2	5	5	0	0	0	1	2	26
MANGU	47	2	14700	0	0	3	3	3	5	0	5	1	0	4	0	1	25
MWAMSILI	72	2	17207	8	5	0	0	2	3	3	0	1	0	1	2	0	25
MALINDI	16	3	31620	8	5	0	0	0	5	3	0	0	2	1	1	0	25
BULUNGWA	33	3	33203	8	5	3	4	0	0	3	0	0	0	0	1	1	25
BUKOMBE	42	3	34206	8	0	0	4	3	0	0	5	0	0	4	2	0	25
KIBAMBA	53	3	35203	0	0	0	6	0	5	3	3	0	2	4	0	0	25
MHUGI	23	1	12214	8	5	0	0	0	2	3	5	0	0	0	1	0	24
NGUNDANGALI	41	1	14111	0	0	3	5	3	4	5	0	1	0	1	1	1	24
IBILA	62	1	16211	8	0	7	0	5	1	0	0	0	0	1	1	1	24
MWASINGU	64	1	16406	8	0	7	0	3	0	0	0	0	0	4	1	1	24
ITUGUNHU	32	2	22225	3	5	0	0	0	0	3	5	0	2	0	0	1	24
ILEMVE	22	2	31750	3	5	0	3	0	5	0	0	0	0	1	1	1	24
CHAMBU	22	3	32231	0	5	0	5	3	5	5	0	0	0	0	2	0	24
ITULAMASHIKI	32	3	33209	8	0	3	3	3	5	0	0	0	0	0	1	1	24
SHILILELI	21	1	12115	8	0	3	3	3	1	5	0	0	0	0	0	0	23
IMALANGUZU	25	1	12503	8	5	3	0	3	0	0	0	0	2	1	0	1	23
KAKOLA	62	1	16203	0	0	0	12	3	3	5	0	0	0	0	0	0	23
MWANASI	15	3	31521	8	5	7	0	0	0	0	0	0	0	2	1	1	23
KISUKE-UJAMAA	21	3	32153	8	0	0	4	0	2	3	5	0	0	0	1	1	23
NYENYELA	32	3	35207	0	5	0	3	0	4	3	5	0	2	0	0	1	23
BUSINGU	14	1	31409	8	5	0	3	0	0	3	0	1	0	3	2	0	22
NDUGUTI	26	1	12601	0	5	0	0	5	1	5	0	0	2	4	0	0	22
MWANG'HALATSA	47	1	14210	8	0	3	0	0	2	0	5	0	2	0	3	0	22
MWALATA	43	1	14303	0	5	3	0	5	1	5	0	1	0	0	1	1	22
MALENDI	45	1	14507	8	0	11	0	0	0	0	0	1	0	0	1	1	22
MUNGE	72	1	17215	0	5	0	3	0	3	3	5	1	0	1	0	1	22
MHONGOLO	15	3	31530	0	0	0	2	2	3	5	5	0	2	1	1	0	22
SABA-SABTNI	21	3	32122	0	5	3	4	0	0	2	5	0	0	0	1	1	22
UYOVU	41	3	34134	0	0	0	12	0	0	3	5	0	0	0	1	1	22
NZEGA	42	1	14204	8	0	0	0	3	3	0	0	1	0	4	1	1	21
SHAGIHILU	43	1	14304	0	0	0	5	5	2	5	0	1	0	1	1	1	21
MWAMIHANZA	33	2	23304	8	0	3	5	0	0	3	0	0	0	1	0	1	21
SEKE	16	3	31608	0	5	0	3	0	2	2	0	0	7	0	0	0	21
BUTINAMBUGU	22	3	32223	8	5	0	1	0	2	3	0	0	0	0	1	1	21
ULEWE	31	3	33105	0	0	3	14	0	0	3	0	0	0	0	0	1	21
NYASATU	44	3	34419	8	0	0	2	3	3	3	0	0	0	0	1	1	21
NANGA	23	4	42258	0	0	0	1	3	2	5	0	7	0	1	1	1	21
NGULYATI-UJAMAA	43	4	44325	0	0	0	2	3	3	5	0	7	0	0	1	0	21
MWABUKI-UJAMAA	64	4	46406	8	0	0	3	0	0	0	0	7	0	1	1	1	21
UKENYENGE	12	3	31314	0	0	0	6	0	5	3	5	0	0	0	1	0	20
INYANGA	12	3	31232	0	0	3	0	3	0	0	5	0	7	2	1	0	20
IGUSA	22	3	32320	0	0	3	4	5	5	0	0	0	2	0	0	1	20
KANYENYE-UJAMAA	33	3	33305	0	5	3	3	0	5	3	0	0	0	0	0	1	20
KANINA	41	3	34117	0	0	0	15	0	0	3	0	0	0	0	1	1	20
NGULU	51	3	35101	0	5	0	3	2	2	0	0	0	2	4	1	0	20
BUGAYANJIGU	12	1	11105	8	5	3	0	0	0	0	0	1	0	1	0	1	19

ME	WARD	DISTRICT	CODENR.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
																	19
									4	5							19
											5		7	4			19
											3						18
																	18
								5		3						1	17
					5						1						17
											5		7	3			17
					5				4			3	0				17
												1			0		17
				8						3		1		0	1	1	17
				5						3	0		2				16
				0	5							0		4	1		16
				0	5						5	1	0	0			16
										3	5	0	0	0			15
				8				5						0	1	1	15
				8		3	0	0					0		1	1	15
						3		5					2	4	0	0	14
								5				0		1	1	1	14
								0		3	5		0			1	14
								0					7				14
							5				5				0	1	14
					5	0	4	0			0			1	0	0	12
					0		1	5	5							1	13
				0	5		3	0		3					1	1	13
				8		3	1	0			0				0		13
					5											0	13
						5	3	5	5						3	0	13
				0			7	0		3							12
				8			0	0			0	0	2		1	1	12
							0	0		3		0	0		0		11
							2	0		3	5				0	0	10
						0	3	3	4	0		0	0	1	0		10
				0	0		0	0	0	3	5				1	0	9
				8			0	0						0		1	9
				0			0	0		3					1	1	7
				0	5		0	0				0	0	0			7

Appendix 13.   PREI.IMINARY PRIORITY RANKING FOR WARDS

district	division	ward	priority score				priority category
			factor water need	factor facilities	factor infrastructure	total	
Kahama	Dakama	Ukune	20	0	15	35	III
		Ukamba	40	15	15	70	I
		Mpunze	0	30	15	45	II
	Kahama	Isagehe	0	0	30	30	III
		Isaka	0	15	30	45	II
		Mhongolo	0	15	15	30	III
		Zongomera	20	0	30	50	II
	Msalala	Ngogwa	0	30	30	60	II
		Busangi	20	30	15	65	I
		Ngaya	20	30	15	65	I
		Lunguya	40	30	15	85	I
	Mweli	Ulewe	40	30	0	70	I
		Ushetu	20	30	0	50	II
		Uyogo	20	15	15	50	II
	Siloka	Runzewe	20	30	0	50	II
		Ushirombo	0	30	15	45	II
		Masumbwe	0	30	0	30	III
		Mbogwe	20	30	15	65	I
Shinyanga	Itwangi	Usule	40	0	30	70	I
		Didia	0	15	30	45	II
		Isemela	20	0	30	50	II
		Tinde	0	30	30	60	II
		Ilola	20	0	15	35	III
		Itwangi	0	0	30	30	III
	Kishapu	Uchunga	20	0	30	50	II
		Mwakidoya	40	0	30	70	I
		Shagihilu	0	30	0	30	III
		Masanga	0	15	0	15	III
		Mwamalasa	0	15	0	15	III
		Somagedi	0	15	0	15	III
		Kishapu	0	15	30	45	II
	Mondo	Bubiki	20	0	30	50	II
		Bunambiyu	20	30	15	65	I
		Bugoro	20	15	30	65	I
		Mondo	0	30	30	60	II
		Songwa	20	30	30	80	I
		Lohumbo	40	30	30	100	I
		Maganzo	0	30	30	60	II
	Negezi	Ibadakuli	0	15	30	45	II
		Itilima	40	0	15	55	II
		Ukenyenge	0	15	30	45	II
		Mwamashele	0	15	30	45	II
		Kiloleli	0	30	0	30	III
		Lagana	0	15	0	15	III
		Talaga	40	15	30	85	I
		Ngofila	40	0	0	40	III
	Nindo	Solwa	20	30	15	65	I
		Salawe	20	0	15	35	III
		Mwantini	20	0	15	35	III
		Iselemagazi	20	15	15	50	II
		Lyabukande	0	30	0	30	III
		Nyang'ombe	20	30	0	50	II
	Samuye	Mwamala	20	30	15	65	I
		Usanda/Singita	0	30	30	60	II
		Samuye	40	0	15	55	II
	Mjini	Chibe	0	0	30	30	III
		Kizumbi	0	15	30	45	II
Bariadi	Itilima	Luguru	20	0	30	50	II
		Zagayu	0	15	0	15	III
		Nkoma	20	15	0	35	III
		Mwamapalala	20	15	15	50	II
		Mbita	40	0	0	40	III

Appendix 13 continued

district	division	ward	priority score				priority category
			factor water need	factor facilities	factor infrastructure	total	
Bariadi	Kanadi	Chinamili	40	0	0	40	III
(continued)		Sagata	20	15	0	35	III
		Lagangabilili	40	0	15	55	II
		Bumera	40	0	15	55	II
	Ntuzu	Somanda	20	15	30	65	I
		Nkololo	20	0	30	50	II
		Mhangu	40	15	0	55	II
		Bunam'hala	40	30	15	85	I
		Nyakabindi	0	0	15	15	III
		Mwabubingi	40	15	15	70	I
		Dutwa	20	15	15	50	II
		Gabu	40	15	15	70	I
Maswa	Meatu	Itinje	40	30	0	70	I
		Mwabuzo	40	0	0	40	III
		Imalaseko	40	30	0	70	I
		Semu-Kimali	20	0	0	20	III
		Kisesa	40	0	0	40	III
		Bukundi	40	15	0	55	II
		Nkoma	40	15	0	55	II
	Mwagala	Lalago-Mjini	0	30	30	60	II
		Sukuma	40	0	15	55	II
		Busilili	20	30	15	65	I
		Mpindo	40	0	0	40	III
		Dakama	40	15	15	70	I
		Ipililo	40	0	0	40	III
	Nung'hu	Buchambi	0	30	30	60	II
		Masela	40	30	0	70	I
		Isanga	0	0	15	15	III
	Sengerema	Malampaka	0	30	30	60	II
		Badi	40	15	30	85	I
		Kulimi	20	15	0	35	III
		Nyabubinza	40	0	15	55	II
		Shishiyu	20	15	0	35	III

Appendix 14.   WATER METER READINGS OF USIA SCHEME

Meter nr.	Location	Month	Average daily water consumption (m3)
7650454	in pipeline to Tinde	February	31.172
		March	32.695
7666014	Kituli Upper Primary School	January	1.198
		February	1.270
		March	1.424
		April	1.504
		May	2.025
7666017	in pipeline to cattle trough between Kisumani and Tinde P.S.	February	1.949
		March	2.218
7650406	in discharge pipe from Tinde storage tank	January	27.303
		February	25.320
		March	24.693
		April	24.067
		May	28.160
7666016	in pipeline to Imenya/ Igomelo	February	4.009
		March	4.657
		April	4.278
		May	4.326
7666015	in pipeline to Uwela	February	0.425
		March	1.433
		April	2.006
		May	1.038
7650453	in pipeline to pump sump of Itwangi P.S.	February	
7650409	in pipeline to Didia	February	11.410
		March	14.098
		April	11.981
		May	13.344
7650407	in pipeline to Didia	February	10.997
		March	13.114
		April	10.486
		May	12.585
7650408	in pipeline to Bugisi mission near Didia	February	5.156
		March	6.677
		April	5.148
		May	5.760