

WOSSAC: 22340 631 474 (678)

8649



**HUNTING** Technical Services

**THE UNITED REPUBLIC OF TANZANIA**

**MINISTRY OF NATURAL RESOURCES AND TOURISM**

**THE WORLD BANK**

**National Reconnaissance Level Land Use  
and  
Natural Resources Mapping Project**

**DRAFT FINAL REPORT**

**VOLUME 2 : DATA DICTIONARY**

**June 1997**

**Hunting Technical Services Limited**

Thamesfield House, Boundary Way, Hemel Hempstead, Hertfordshire, United Kingdom. HP2 7SR  
Tel: +44 (0) 1442 231800 Fax: +44 (0) 1442 219886 Email: hts\_uk@compuserve.com

# **NATIONAL RECONNAISSANCE LEVEL LAND USE AND NATURAL RESOURCES MAPPING PROJECT**

**(A component of the World Bank-assisted Forest Resources Management Project)**

A DATA DICTIONARY COMPRISING THE DESCRIPTION AND QUANTIFICATION OF THE DISTRIBUTION OF LAND COVER AND ASSOCIATED LAND USE THROUGHOUT THE UNITED REPUBLIC OF TANZANIA, AS MAPPED AT 1 : 250,000 SCALE AND PUBLISHED AS A NATIONAL SERIES.

JUNE, 1997

Hunting Technical Services Limited, on behalf of the  
Ministry of Natural Resources and Tourism,  
Government of the United Republic of Tanzania.

**DATA DICTIONARY**

**INTRODUCTION AND USER GUIDE**

## **INTRODUCTION AND USER GUIDE**

### **Introduction**

This Data Dictionary accompanies the Land Cover and Land Use series of thematic maps covering the whole of the United Republic of Tanzania and published at 1:250,000 scale. The series comprises a total of 64 map sheets which correspond in layout to the existing 1:250,000 topographic series, as published by Surveys and Mapping Division, Ministry of Lands, Housing and Urban Development.

The thematic maps have been generated from the interpretation of scale-controlled image maps which were derived from the mosaicing of Landsat TM and SPOT image scenes acquired during the period May 1994 to July 1996, and then edited to match the topographic series. The layouts of the satellite scene coverage and the corresponding 1:250,000 map series layout are illustrated on the following pages.

The interpretation of the scale-controlled imagery was supported by extensive field verification and by reference to relevant supporting secondary data, including the national archive of aerial photography. Details of the technical approach, methodology, inputs to and outputs from the Project are described in detail in Volume 1, the Main Report.

The purpose of the thematic series is to provide a baseline statement of the distribution of land cover and indicative land use in both cartographic and statistical form. These outputs should serve partially as an immediately useful tool in planning for the future development of a number of natural resource sectors (Forestry and Agriculture, in particular) but also as a benchmark against which future selected monitoring programmes may be compared, with a view to assessing the location and rates of land cover change over time.

In addition, there are many research and development initiatives both on-going and planned in Tanzania. These initiatives operate under different agencies, sometimes with the benefit of donor assistance, in different parts of the country, within different time-scales and with varying technical terms of reference. The accumulation of natural resource data and their analysis is therefore a continuing and, currently, escalating process. In such an environment, any publication is almost out-of-date as soon as it is produced.

The accumulation of land resource data is therefore dynamic and, in recognition of this, the Data Dictionary has been compiled in a loose-leaf format. This will facilitate any future refinement of the data included, or the addition of further sections should this seem appropriate. One instance might be the inclusion of output from future sector-relevant studies conducted at a more detailed scale (mapping for Forest Management in Tabora and Mwanza, for example), or perhaps the inclusion of soils and land capability data that might allow future land use planning from a comparison with the land cover spatial distribution and area statistics.

The Land Cover and Land Use thematic map series has been produced at the required scale of 1:250,000. This necessarily means that there is a physical limit to the areal extent of discrete land cover units that may be expressed cartographically. In general this equates to mapped areas of about 4mm square, equivalent to a ground area of 100ha. Units much smaller than this are unlikely to appear on the maps as individual units and would usually be aggregated into the matrix unit (say a woodland or bushland community) with an appropriate qualification. These combined units are described in the section Land Cover Types.

The content of this Data Dictionary is summarised below with a view to assisting users to find their way around the document.

### **User Guide**

In accordance with the loose-leaf format of the Data Dictionary, pagination has been omitted. The main sections of the document, however, are clearly identified by section dividers. These sections are briefly introduced in order, below :

### **THE DERIVATION OF CLASSIFICATION AND LEGEND**

It is recognised that the classification of Land Cover and Land Use should be such as to maximise the usefulness to the end-user, and yet remain sufficiently uncomplicated to maximise reliability. The Classification (and the map legend to be derived from it) are therefore driven by at least the following :

- The information content of the imagery. This a function of both the presentation scale (in this case 1:250,000 scale) and of the system resolution, which limits the recognition of small or narrow infrastructure features (such as rural roads) particularly when they are constructed of natural materials similar to the surrounding land surface.
- The season of acquisition also impacts upon information content. In order to narrow the data baseline to an optimum of about two years, it has been necessary to accept imagery from both of the two dry seasons experienced by most of the country (generally, July - October and January/February). The two sets of imagery possess different characteristics (reflecting different leaf status; different land use; and different land management practices) and accurate interpretation depends very much upon local knowledge, field work and reference to secondary data.
- The preferences of various potential end-users for the types of information to be presented.
- The academic debate regarding the nature of the classification.

The consideration of these issues and the conclusions arrived at are related in this section. Concentration is upon the latter issue. Existing regional classifications are referred to and the argument as to whether to adopt an hierarchical, physiognomic or ecological approach is explored.

### **CLASSIFICATION FOR LAND COVER AND LAND USE**

This section presents the results of the above debate and describes the nomenclature and codings used in the finally approved classification and legend.

### **CRITERIA, AND DEFINITION OF THE MAP UNITS**

Each land cover mapping unit may be described partially from its signature as represented upon the satellite imagery and (perhaps more importantly) by its composition and character on the ground. For example Forest is normally stratified, whereas Woodland is not. Closed Woodland possesses a range of canopy closure that differs from that of Open Woodland. These characteristics are described in this section.

## **THE MAPPING UNITS, ILLUSTRATIONS AND VARIETY**

Here, examples are given for each of the mapping units appearing within the map legend. The map legend is comprehensive and not all units appear upon any one map sheet. The mapping units of the entire classification / legend are organised primarily at Type (Formation) level, with divisions according to Sub-Type (Sub-Formation). The units are described in terms of their physiognomy and are illustrated by specimen photographs and stand observations recorded during field verification.

## **THE DISTRIBUTION OF LAND COVER BY MAP SHEET**

For each of the 64 map sheets comprising the thematic series, the area of each unit appearing upon a given map sheet is tabulated by Sub-Type (in Hectares) and as a percentage of the total sheet area lying within Tanzania. For those maps sheets lying across the border of Tanzania with a neighbouring country, the area for that country appearing on the sheet is also given. This serves to complete the area statement for each map sheet, whilst still identifying that portion which lies wholly within Tanzania.

## **THE DISTRIBUTION OF LAND COVER BY ADMINISTRATIVE AREA**

In this section the area statements for the distribution of land cover are given for :

- The territorial area of Tanzania.
- Each of the Regions comprising the United Republic.
- Each of the Districts comprising each Region.

## **REFERENCES**

Much secondary data have been researched during the course of these studies and some of this material has been used to supplement primary data collected during the extensive field work carried out by the Project team. Occasional reference is given to these earlier works in the main text. This final section, however, gives due credit to secondary sources that supplement the overall output.

**THE DERIVATION OF CLASSIFICATION AND LEGEND**

## **THE DERIVATION OF CLASSIFICATION AND LEGEND**

### **Distinction Between Classification and Legend**

The production of the Land Cover and Land Use thematic map series has targetted the discrimination of the principal land cover types of Tanzania and the land uses that are either specifically or generally associated with these types. Such an exercise requires the division and sub-division of the overall environment into recognisably homogeneous units to which boundaries and names may be applied in order that they may be mapped with reliability and understanding. Classification, therefore, requires an agreed approach; a set of criteria that may be used to consistently discriminate one class from another; and a system of nomenclature that is unambiguous to the end-user.

It is these decisions that guide the interpretation of the base data sources (in this case satellite imagery and supporting aerial photography) and - arguably even more importantly - the confirmation of classification during the process of field verification, when sample ground-truth information is collected.

Classifications, in any context, set limits. In the case of land cover mapping, however, nature does not oblige with the provision of such clear limits, or finite boundaries. The vast majority of natural vegetation communities (with a few notable exceptions - such as the Itigi Thickets) intergrade, and boundary decisions need to be made during the interpretation and mapping process. Thus, for a classification system to be as useful and reliable as possible it should be targetted at minimising the decision-making required at the margin of adjoining classes. The process and debate used to acheive this are descibed below.

The Legend (map legend) is a reflection of the agreed classification. It identifies the mapping units and topographic features appearing upon the map sheets, but the ability to provide comprehensive information is naturally limited by space available within the map border and herein lies the main reason for this Data Dictionary.

### **General Considerations in Establishing the Classification and Legend**

The Classification, and thereby the information presented upon the thematic maps is driven by a number of considerations, most of which are inter-related to various degrees. These are :

- The expectation of potential end-users for certain types of information to be presented on the finished maps.
- The information content of satellite imagery at the presentation scale.
- Constraints to the above brought about by the need to acquire multi-seasonal imagery in order to minimise the time frame over which data are collected.
- The selection of the approach to classification, the discriminative criteria to be applied, and the system of nomenclature to be used.

The first two issues are considered here briefly, but are covered in more detail in Volume 1, the Main Report. The approach to classification is addressed more thoroughly in the following section.

The information to be presented upon the thematic map series is clearly stated in the Project's Terms of Reference but the aspirations of potential end-users (IRA, SMD, Forestry, Agriculture, Water Resources, NEMC, etc.) were canvassed at an early stage in order to

maximise the final value of the map series. The nature of the imagery is such that infrastructural up-dates are only possible where visible on the imagery and this is not entirely consistent. It has, however, been possible to add missing topographic information or to update alignments of, particularly, some new roads or railway lines. Surface hydrology has been mapped, but only where channels are reliably tracable from the imagery. Disruptions in the drainage network, however, are completed by riparian-associated land cover units.

The required presentation scale of 1:250,000 intrinsically limits the detail of information presentable. The ground area equivalent of the Minimum Mapping Unit at this scale is between 50 and 100ha. This means that small farms are not shown individually, but will be acknowledged within one of the "mosaic" units (eg Woodland with Scattered Cultivation).

The need to acquire imagery from different seasons in order to reduce the time-frame of the baseline survey to a reasonable maximum (two years) also caused some problems for interpretation and unit identification. The practice of broad-scale burning of traditional grazing areas prior to the on-set of the main rains, for example, serves to confuse land cover discrimination because the dark signatures from recently burned land tend to dominate the reflectance from a leafless bushland or woodland. This problem is only overcome through assiduous use of local knowledge, field verification, interpreter experience, and reference to archival aerial photography.

The above considerations suggested a "user friendly" approach to classification and legend. This conclusion was supported by an earlier decision, taken at a very early stage in the work, that the thematic maps should be prepared in full colour. Each Land Cover Type (Formation) would be represented in a particular colour and Sub-Types (Sub-Formations) would be discriminated by overlain symbols, thereby avoiding the need for potentially confusing alpha-numeric annotations.

The remaining decision concerned the general approach to the classification and the nomenclature to be applied. This debate is related below.

## **Approach to Classification**

### **Sources**

The approach adopted for the classification of the vegetation of Tanzania was based upon a thorough review of relevant botanical, ecological and geographic literature held principally in four major libraries: the Herbarium and Library of the Royal Botanical Society at Kew, the School of Oriental and African Studies and University College - both at the University of London and the University Library in Dar es Salaam. The library at the headquarters of Hunting Technical Services also proved to be a useful source of relevant reference material.

Three fundamentally different approaches to the classification of vegetation have previously been used in the East African context.

### **The Hierarchical Approach**

Grunblatt *et al.*, (1989) have attempted to apply a hierarchical system to the classification of vegetation in Kenya. They proposed four nested levels of vegetation description in their classification system which is summarised below.

Level 1 names were designed to be descriptive of the primary vegetation lifeform found at the site, with a modifying statement relating to the observed canopy cover. Hence use of the terms 'forest', 'woodland', 'shrubland' or 'grassland' with the modifiers 'closed', 'dense', 'open' and 'sparse' for varying degrees of canopy cover. Thus the term 'open woodland' would constitute a Level 1 description under the proposed system. Level 1 descriptions represent general information available from reconnaissance level satellite image interpretation.

Level 2 names provide a description of lifeforms of secondary importance, leading to the use of terms like 'open shrubbed woodland' for those sites of open woodland in which there is also a significant shrub cover. Level 2 names were designed to be descriptive of information that could be obtained from more detailed satellite image or aerial photo interpretation.

The third level of classification, Level 3, incorporated a modifier descriptive of vegetation height, for instance, 'tall open shrubbed woodland' where tree height is 10 metres or more. The use of Level 3 names would be appropriate for detailed aerial photo-interpretation or general ground survey.

The most detailed level of classification, Level 4, identifies the dominant species within the lifeforms being described, for instance *Acacia tortillis* tall open shrubbed woodland'. Level 4 names would be appropriate for very detailed aerial photo interpretation or ground survey.

The primary objective of the hierarchical approach was to enable the determination of vegetation type from a variety of data sources, including satellite information, aerial photographs and ground survey. While this objective is worthy of praise, the actual classification system described relates only to 'natural' vegetation, with no concession to induced vegetation types like forest plantations or cultivation. This approach could be modified to encompass all of the vegetation types to be found in Tanzania, but the Level 1 and Level 2 descriptions recommended for reconnaissance mapping are only just detailed enough to be useful, and the intrinsic scheme is insufficiently flexible. If Level 3 and Level 4 descriptions were adopted, the resulting classification scheme would be too complicated to be practically achievable, especially given the probable necessity to include 'mosaic' classes where there may be an intimate mix of different vegetation types occurring in units which are too small to be mapped as individual polygons.

### **The Physiognomic Approach**

One alternative to the hierarchical system of classification of East African vegetation is the physiognomic approach adopted by several researchers since the early 1940s. This approach involves the categorisation of vegetation into a series of physiognomic types according to visible (or physical) attributes, notably the height and canopy cover (or density) of the dominant life forms of those plant associations which actually occur. Special consideration is given to the relative contributions of woody plants and grass, with sub-types being defined by species composition of the dominant life form, and grassland type.

In 1956, the Scientific Council for Africa South of the Sahara held a Specialist Meeting on Phytogeography at Yangambi, Zaire, with a view to developing an internationally acceptable, physiognomical system for the classification of African vegetation. Following the conference, a detailed classification scheme was published. However, both the East African and Southern African regions were under-represented at the conference, with the result that the vegetation of these regions was not given adequate consideration. Therefore, the Yangambi scheme has been considered by many to be inappropriate for application in the context of East Africa, referring as it does to such terms as 'steppe' and 'savannah' which are rarely considered to

be correctly applied to East Africa and too much abused to be any longer of service for exact purposes, (Pratt *et al.*, 1966).

Several authors, led (in 1943), by Greenway, have applied a strictly physiognomic approach to the classification and mapping of the vegetation of East Africa. The scheme proposed by Greenway was stimulated by the Inter-territorial Pasture Research Conference at Nairobi in 1940 which appointed a committee to draw up a classification of East African vegetation types. Greenway's scheme, as outlined in his 1943 publication, constitutes the Second Draft Report of the Vegetation Classification Committee.

The proposed approach was itself an evolution of an earlier scheme devised by Burtt-Davy, (1938), and was based upon seven 'Main Types', with an additional consideration being given to Induced vegetation types. Each Main Type or 'Formation' can be further described at the Type level, Sub-type level and Association level as the example below illustrates :

**Main Type:** for example - Forests,  
**Type:** for example - Groundwater Forests,  
**Sub-type:** for example - Riverine Forest,  
**Association:** for example - *Acacia xanthophylla* Forest.

The seven Main Types as proposed by Greenway (1943), are given below :

- I. Forest
- II. Woodland
- III. Wooded Grassland
- IV. Grassland
- V. Permanent Swamp Vegetation
- VI. Bushland, Thicket and Scrub
- VII. Semi-desert Vegetation

Greenway concedes that different types, often belonging to different Main Types, frequently occur in close conjunction, sometimes in a manner predictable according to topography and ground water conditions. This fact raises difficulties in description when the description has to take a generalised form, as in the case of reconnaissance level mapping. There are several kinds of vegetation 'complex' that may call for recognition in this way. In Tanzania, a simple example of such a complex might be a two-member catena where Woodland and Grassland occur in conjunction, the vegetation being influenced by edaphic factors which are, in turn controlled by topography. The simplest description of such a complex might take the form; '*Brachystegia* Deciduous Woodland - Valley Grassland, Catena', with the indication that the grassland occupied the smaller area.

The classification scheme proposed by Greenway has been used as the basis for Gillman's classic vegetation map of Tanganyika, (Gillman, 1949) which is still regarded as being superior to many more recent maps, (Lovett, 1992). The importance of Greenway's scheme is further reinforced by the fact that this classification is the one used by the workers on the Flora of Tropical East Africa at Kew, (Turill & Milne-Redhead eds., 1952 -.) as their source of habitat terminology, as well as providing the basis for the classification of East African rangelands adopted by the East African Agriculture and Forestry Research Organisation (E.A.A.F.R.O.), (Pratt *et al.*, 1966). Additionally, it is the scheme used by Lind and Morrison, (1974) in their book on, 'East African Vegetation'.

## **The Ecological Approach**

As well as a purely physiognomic scheme, Pratt *et al.* (1966) propose a complementary ecological approach to the classification of vegetation in particular to define the production potential of rangelands. The recognition of ecological land-units, in which the major combinations of climate, soil and topography are isolated and equated with their basic vegetation types, is considered to be the best approach to the classification of land potential. This approach recognises six broad ecological zones throughout the East African region, defined primarily by climate but incorporating vegetation and land-use descriptions. Each of the six ecological zones could be further subdivided according to soils and topography as new survey data becomes available.

In Tanzania, the relationships between climate, vegetation and land-use were not as clearly defined as in other parts of East Africa, so the boundaries which define the ecological zones were derived principally from direct climatic data. Since there were relatively few meteorological recording stations in Tanzania at the time Pratt *et al.* were defining their ecological zones, much subjective extrapolation was necessary in drawing up the climatic boundaries.

In a later work, (Pratt & Gwynne, 1977), it is recommended that for the purposes of mapping with a view to development planning, there is an advantage in separating the description of land potential, as indicated by the ecological approach, from the physiognomic description of the present vegetation. The former is permanent, but may have to be inferred, while the latter, although it can be observed directly, may be changeable - as when fire converts bushland to grassland, or when bush encroachment occurs.

The derivation of the broadly physiognomic approach to the classification and mapping of vegetation under the current Forest Resources Management Project is discussed below.

## **A Provisional Classification Framework for Land Cover**

The above analysis of historical attempts to rationalise the classification of East African vegetation leads one to prefer a physiognomic approach, particularly as a main purpose of the Project is to provide a baseline statement of land cover and land use, nationwide, for the purpose of future monitoring. It is important, therefore, that the map legend (and the classification upon which it is based) is unambiguously a statement of the present nature of land cover and use units, and is not confused in any way by considerations of ecological succession, or possible future development.

It was recognised at an early stage during discussions with specialists from the Institute of Resource Assessment (IRA) that the classification for land cover should be initially considered to be provisional, in the sense that the classification should possess an intrinsic flexibility that would allow it to evolve. Whilst the volume of vegetation and land use survey documentation is certainly sufficient to confidently predict the majority of vegetation / land cover types to be encountered across Tanzania, the relationship of these to the satellite imagery would only be fully explored as the work progressed. It has certainly proved easier, during image interpretation, to discriminate between some units than between others, and limitations imposed by a minimum mapping unit size at 1 : 250,000 scale have, on occasion, introduced the necessity to map "mosaic units". Further, there occurs variation in floristic composition within the same physiognomic unit. For example, Wooded Grassland will possess a consistent shape (physiognomy) across the country. This consistency is implicit for any unit within the classification. It is to be known, however, that species composition does

vary from place to place across the country as a consequence of variations in climate. The map legend is not structured to accommodate this, and such variations, where recorded, are referred to in this Data Dictionary.

At this point a framework for the land cover classification was developed by the IRA in consultation with the consultants, the essential objective being to establish a framework which allows such future fine-tuning and also demonstrates the potential to provide the information required by end-users of the map series.

The framework for the classification was developed logically via a progressive sub-division of Total Land Cover under the influences of moisture regime, altitude and pressure from Man's activities. An example of this sub-division train might be as follows :

- Total Land Cover may be divided into Vegetation, Water and Others,
- If Vegetation, this may be Woody, Non-woody or a Mixture of the two
- If Woody, this may be Natural, Cultivated or Mixed
- Natural Woody Vegetation may comprise Trees, Shrubs or a combination
- Communities dominated by Trees, are Forests and Woodland
- Forests may be classified according to the influence of moisture and altitude. Montane Forest; Groundwater Forest and Mangrove are examples.

This logic train lead to the identification of the basic range of land cover types to be encountered, and thereby the provisional classification, as shown below :

LAND COVER TYPE	SUB-TYPE	DISTINCTION
FOREST	Humid Montane Forest	Closed / Open
	Groundwater Forest	
	Mangrove	
WOODLAND	Forest Plantation	Species
	Dense Woodland	
	Open Woodland	
BUSHLAND	Woodland with Scattered Cultivation	Species
	Thicket	
	Dense Bushland	
	Open Bushland	
MIXED TREES AND BUSHLAND	Bushland with Scattered Cultivation	Species
	Thicket with Emergent Trees	
	Bushland with Emergent Trees	
GRASSLAND	Wooded Grassland	Species
	Bushed Grassland	
	Open Grassland	
	Grassland with Scattered Cultivation	
CULTIVATED LAND	Cultivation with Tree Crops	Species
	Cultivation with Bushy Crops	
	Cultivation with Herbaceous Crops	
	Mixed Cropping	
WATER	Ocean	
	Lake	
	Reservoir	

(Continued)

BARE LAND	Bare Soil Salt Crusts Rock Outcrops
OTHERS	Urban / Industrial Built-up Area

The above classification was the result of considerable debate. Throughout the interpretation and field work of the Project it has stood-up very well to interregation and has been subjected to only minor adjustment before acquiring its final form. These adjustments have been confined very largely to a reduction in discrimination of Forest Sub-Types (because of unreliable image discrimination) and an occasional change of nomenclature.

The final classification for land cover is presented in the following section **CLASSIFICATION FOR LAND COVER AND LAND USE.**

### **Classification for Land Use**

This issue was the subject of protracted debate, especially as the discrimination of land use and its presentation within a cartographic medium is far more problematic than is the case for land cover.

First, there is the consideration of present land use or potential land use. Whilst it is useful to know how land is used at present, the planner is perhaps more interested in information that will allow the optimisation of future land use. This potential - or land capability - is a quality that can be mapped given the required data. A boundary may be drawn to land areas evaluated according to a pre-determined set of criteria. This Project, however, has been more concerned with a statement of how land is used at present. This is much more difficult to map because, whilst certain land uses (such as estate farming or plantation forestry) may have recognisable and mappable boundaries, many land uses (such as grazing, hunting and recreation) do not.

The second point concerns the presentation of land use information, even in those cases where a boundary to such use may be recognised and defined. Land use boundaries in many instances will not coincide with the land cover boundaries to be mapped. Land use for grazing, for example, is likely to embrace grassland, bushland and woodland land cover units. Any attempt to present both land cover and present land use boundaries upon one map would be bound to lead to confusion.

This notwithstanding, clear associations may be drawn between mapped land cover and implied land use based upon observation, for example :

- Areas mapped as Natural Forest may be open to concessionary exploitation
- Areas mapped as Forest Reserve are largely managed as a protected strategic reserve, but may be exploited under licence.
- Areas mapped as Forest Plantation may be expected to be managed legitimately for production forestry.
- Areas mapped as Game Reserve may attract both tourist and hunting trade.
- Areas mapped as National Parks should ostensibly be used only for conservation, game management and the tourist trade.
- All areas mapped as Cultivated Lands are almost exclusively devoted to agriculture (although irrigated lands are not discriminated within the map legend)

- Other Grassland, Bushland and Woodland areas may be subjected to varying degrees of grazing, minor forest product collection, beekeeping, hunting and recreation.
- All Inland Water areas and Ocean, together with portions of Permanent Swamp, may attract fisheries, aquaculture and recreational activities.

**CLASSIFICATION FOR LAND COVER AND LAND USE**

## **CLASSIFICATION FOR LAND COVER AND LAND USE**

This section tabulates the finally agreed classification for land cover.

The table indicates nomenclature used for Land Cover Type (Formation) and Land Cover Sub-Type (Sub-formation), together with the codes used during the compilation of master overlays to the scale-controlled image maps.

The table also indicates the principal land use normally associated with each class.

This is followed by an abbreviated illustration of the Land Cover and Land Use Legend as it appears upon each of the map sheets in the thematic series, indicating the colours chosen to represent each Land Cover Type and the symbolisation chosen to discriminate between Sub-Types. (Note : for the purpose of this draft, these are photocopies. It is intended that final versions will be in colour).

## CLASSIFICATION FOR LAND COVER AND IMPLIED LAND USE

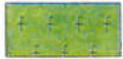
LAND COVER TYPE	SUB-TYPE	Code	IMPLIED LAND USE
FOREST	Natural Forest	Fn	Conservation, Logging
	Mangrove	Fm	MFPs, Fish Farming
	Plantation	Fp	Commercial Forestry
WOODLAND	Woodland (unspecified Density)	Wu	Wood Gathering &
	Closed Woodland	Wc	Bee-Keeping &
	Open Woodland	Wo	Hunting / Recreation
	Woodland with Scattered Cropland	WSc	Above & Shifting Farming
BUSHLAND	Bushland(unspecified Density)	Bu	Hunting / Recreation
	Dense Bushland	Bd	and Grazing, otherwise
	Open Bushland	Bo	All as for Woodland
	Bushland with Scattered Cultivation	BSc	Above & Shifting Farming
	Bushland with Emergent Trees	B(et)	None observed
	Thicket Thicket with Emergent Trees	Bt Bt(et)	None Observed
GRASSLAND	Wooded Grassland	Gw	For all these sub-types, Land use mostly confined to grazing (in Tse-tse free areas) plus wood gathering
	Bushed Grassland	Gb	
	Open Grassland	Go	
	Grassland with Scattered Cropland	GSc	
	Wooded Grassland(Seasonally Inundated)	Gws	
	Bushed Grassland(Seasonally Inundated)	Gbs	
Open Grassland(Seasonally Inundated)	Gos	Cropping on residual waters	
CULTIVATED LAND	Mixed Cropping	Cm	Grain, vegetables, Fruit
	Cultivation with Tree Crops	Ctc	Coconut, Mango, Cashew
	Cultivation with Tree Crops(& Shade Trees)	Ctc(st)	Coffee
	Cultivation with Bushy Crops	Cbc	Tea, Cotton, Cloves
	Cultivation with Herbaceous Crops	Chc	Maize, Wheat, Rice, Bananas
OPEN LAND	Bare Soil	BSL	Residual grazing ?
	Salt Crusts	SC	Mining for salt
	Rock Outcrops	RO	Recreation
	Ice-Cap / Snow	ICE	Recreation
WATER FEATURES	Ocean	Ocean	Fishing & Recreation
	Inland Water	IW	Fishing & Recreation
	Swamp / Marsh (Permanent)	S/M	Aquaculture
OTHERS	Urban Area / Airfields		Residence / Industrial

# LEGEND

## FOREST



Natural Forest



Mangrove



Plantation

## WOODLAND



Woodland (unspecified density)



Closed Woodland



Open Woodland



Woodland with Scattered Cropland

## BUSHLAND



Bushland (unspecified density)



Dense Bushland



Open Bushland



Bushland with Scattered Cropland



Bushland with Emergent Trees

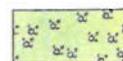


Thicket

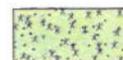


Thicket with Emergent Trees

## GRASSLAND



Wooded Grassland



Bushed Grassland



Open Grassland



Grassland with Scattered Cropland



Wooded Grassland (seasonally inundated)



Bushed Grassland (seasonally inundated)



Open Grassland (seasonally inundated)

## CULTIVATED LAND



Mixed Cropping



Cultivation with Tree Crops



Cultivation with Tree Crops (with shade tre



Cultivation with Bushy Crops

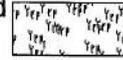


Cultivation with Herbaceous Crops

## OPEN LAND



Bare Soil



Salt Crusts



Rock Outcrops



Ice-cap, Snow

## WATER FEATURES



Ocean



Inland Water



Swamp/Marsh (permanent)

## OTHERS



Urban Areas/Airfields

**CRITERIA, AND DEFINITION OF THE MAPPING UNITS**

## CRITERIA, AND DEFINITION OF THE MAP UNITS

The Classification embraces eight Land Cover Types, four of which may be regarded as being dominated by natural vegetation and it is these classes that occupy the majority of the land area of Tanzania. Only the Land Cover Type for Cultivated Land rivals this occupancy.

The eight Land Cover Types are sub-divided into 34 Sub-types, 21 of which may be regarded as being dominated by natural vegetation. 5 are sub-divisions of Cultivated Land, the remainder being largely un-utilised areas or water features.

The preferred and final classification for land cover is purely physiognomic in nature. Essentially, this means that discrimination between Types and Sub-Types is directed by relative appearance in terms of stature, stratification, canopy closure and the relative composition of the the three major layers of trees, shrubs/bushes, and grasses/herbs.

In this section, the distinction between the eight Land Cover Types is addressed first. This level of discrimination is very clear in most cases. The margins between Sub-Types are less distinct (both upon the satellite imagery and on the ground), but these will be dealt with subsequently.

Each Type will be described in terms of its natural physiognomy and representative signature upon the satellite imagery. Noted variations, particularly in terms of dominant species associations will be addressed in the following section.

## LAND COVER TYPES

### FOREST :

**Physiognomy** : A continuous stand of trees many of which may attain a height of 50m. Species composition is quite different to that of Woodland, except perhaps in those area where Forest has been disturbed and pioneer species dominate temporarily. These instances, however, are occasional and localised. The most important discrimination concerns the structure of the stand. True High Forest generally exhibits three recognisable strata. The main canopy of semi-mature and mature trees dominates the structure, with a regenerative canopy beneath. Occasional emergents or "rogues" provide the uppermost, but fragmented third canopy. These layers are ecologically important. They constitute the diversity of the Type and provide a wide variety of habitat for many species of mammals, birds, insects and herpetaria. Forests are further characterised by the common presence of lianas, climbers and creepers, and also epiphytes including ferns and, occasionally, orchids.

Forest is normally regarded as an ecological climax, but this is not universally so. Certain climatic and (to some extent) edaphic conditions are required for its full development. In Tanzania, Forest normally occurs at altitude, where received precipitation and the recycling of nutrients under conditions of rapid detritus decomposition are sufficient to sustain the structure. Forest also occurs at lower elevations, however, where water table levels and micro-climatic conditions allow the persistence of forest species. It has not been possible from image signature alone, however, to discriminate between these two types, or map them as separate units.

**Image Signature** : A deep and rich red on the false-colour image. Not always continuous, as Forest often occurs at altitude and in broken country where the aspect of steep slopes or the

occasional outcrop of rock or skeletal soils bearing alpine vegetation may lead to a speckling of the signature.

#### **WOODLAND :**

**Physiognomy :** An assemblage of trees with canopy cover ranging from 20 per cent to 80 per cent but which may, on rare occasions, be closed entirely. The distinction between Closed Woodland and Open Woodland is made at a perceived canopy closure of about 40 per cent. Stature is generally in the range 5m to 20m, but may on occasion be taller. One essential feature is that the majority of the arboreal component should possess recognisable stems, normally single, that may be measured for both girth and height. This infers the presence of a marketable timber product, which may be important for future development planning.

Woodland is characterised by only two main strata - the main canopy itself, which may vary widely in species composition but is generally uniform in stature, and a shrub / herb layer beneath, which often contains regenerating saplings of the species comprising the main canopy. The density of this understorey layer is closely dependent upon the closure of the upper canopy and light penetration to ground level. In areas of Closed Woodland, the ground cover layer may be almost absent.

**Image Signature :** For Woodland this is variable, partially by virtue of the dual seasonality of the imagery acquired in the attempt to minimise the temporal baseline of the data capture. In the case of imagery acquired after the main rains, discrimination is straightforward and reliable - the trees are still in full leaf and the signature is an even red with a smooth texture when the canopy is closed. More open stands appear in much the same tone, but with a slight speckle. For those images acquired during the cloud-free periods just prior to the onset of the main rains, discrimination may be more problematic. Many of the woodland stands at this time of the year are either leafless or just beginning to flush. The canopy reflectance contributes little to the overall signature and, if the land beneath has been burned to encourage new grass growth, this may dominate the picture totally. On these occasions, reference to ground truth information and supporting aerial photography becomes critical.

#### **BUSHLAND :**

**Physiognomy :** Bushland differs from Woodland in two principal ways. Stature is less, rarely exceeding 5m and normally between 1m and 3m tall. More significantly, single-stemmed plants are almost entirely absent (except in the "with Emergent Trees" Sub-Type, to be discussed later). Bushland is fundamentally defined as being predominantly comprised of plants that are multi-stemmed from a single root base.

Bushland is one of the most varied Types within the classification, having seven sub-divisions, some of which are commonly associated with seasonally inundated areas. It also occurs in a wide range of densities. As Dense Bushland it may be arguably a local climax. Certainly, this is the case for Thicket (a Sub-Type of Bushland) where, ecologically, there is no foreseeable future seral stage. In the case of Open Bushland, however, the condition may be merely temporary, as it often forms little more than a fallow stage in a shifting agricultural cycle.

**Image Signature :** Very varied. When combined with Scattered Cropland - a pinkish tone with a white or pale-blue speckle. When present as the Itigi Thickets, a dark greenish-brown, with very clear boundaries. Field knowledge is essential in discriminating within this Type.

## **GRASSLAND :**

**Physiognomy :** Grassland is another Type possessing marked variety - again, there are seven Sub-Types in all. Open Grassland, (dryland) is relatively rare in distribution, being confined, at this scale, mostly to the plains of the Serengeti and the Masai Steppe, or to alpine areas where exposure and edaphic conditions do not allow the development of anything more than a grass / herb sward. For the most part, this Type occurs as its Sub-Types in combination with either a limited Wooded or Bushed component, or with scattered subsistence cultivation. In addition, many areas mapped as Grassland are associated with seasonally inundated areas (locally referred to as "Mbuga", but a term deliberately avoided within the classification and legend).

So far as the Sub-Types are concerned, the above-mentioned percentage componentency is adhered to. Wooded Grassland and Bushed Grassland both comprise an assessed ground cover per cent of trees or bushes below 20 per cent of total.

**Image Signature :** In dryland areas Open Grassland registers in light blue-green tones with an even texture, but when seasonally inundated (in the Mbuga communities) the tones are much darker (a dark blue-grey). For the Bushed and Wooded Sub-Types, the signature takes on an increasingly pinkish hue as the importance of the woody component increases. However, the practise of burning may complicate interpretation enormously.

## **CULTIVATED LAND :**

**Physiognomy :** Five Sub-Types have been mapped within the Cultivated Land Type and physiognomy varies widely in accordance with the significance of the tree component associated with each unit. Cultivation with Herbaceous Crops (eg maize, sorghum, millet, sugar cane) where the tree component may be reduced to the occasional fruit tree, or remnant woodland trees retained to demarcate field boundaries, is physiognomically similar to an open or lightly wooded grassland. At the other extreme, Cultivation with Tree Crops, where Mango, Cashew, Citrus and Coconut may be grown in close proximity (annual crops being reduced to subsistence grain and vegetable patches) possesses a physiognomy that approaches a Closed Woodland, or Woodland with Scattered Cropland.

**Image Signature :** In accordance with the above, image signature may vary markedly. Rainfed Mixed Cropping registers generally in light tones - often creamy or pale grey-blue, but with a brown-red speckle when crops are on, or when tree crops such as Mango form a significant component of the mixture. Discrimination for Cultivation with Tree Crops (with or without shade trees) is more problematic as the signature is reddish and may be easily confused with woodland units in the absence of good ground truth knowledge. The agriculture of commercial estates (tea, sugar, rice, etc.) is usually readily recognisable because, although the tonal signature may be variable (eg reddish tones for mature crops, or blue-grey tones for land in preparation) there is often a geometric appearance to the unit that allows boundaries to be identified with relative ease. This is particularly true for large irrigation schemes.

## **OPEN LAND :**

**Physiognomy :** Four Sub-Types are included in the classification - Bare Soil; Salt Crusts; Rock Outcrops; and Ice-Cap / Snow. The common feature is that vegetation cover is almost

or entirely absent in each case, although many rock outcrops often bear small pockets of xerophytes that are botanically very interesting. These units are not represented extensively upon the maps. Bare Soil is the more widely represented, but is generally confined to the draw-down margin of the larger lakes and coastal littoral.

**Image Signature :** Bare Soil registers consistently in pale tones, but the hue may vary from pale pink, through pale green to pale blue. Salt Crusts produce a similar signature, but with a mauve tinge. Rock outcrops do not register well at the presentation scale, but may appear in light brown tones, normally associated with a surrounding ring of woodland or bushland (which appears in reddish tones). Ice and Snow appear white.

#### **WATER FEATURES :**

**Physiognomy :** Water Features as mapped include the Indian Ocean and the great lakes of Tanzania. Inland water bodies are mapped to the level of the Minimum Mapping Unit (equivalent to about 100ha). The third Sub-Type is Permanent Swamp/Marsh, and this unit is quite extensive, particularly in the west of the country (in the shallow catchments feeding Lakes Tanganyika and Rukwa) and in the east, in the floodplains of the Ruvu and Ruaha Rivers. Such swamps may bear varied vegetation. Grasses may be present, but sedges and rushes predominate. Occasionally, *Papyrus* occurs in almost pure stands. The physiognomy, therefore, is generally that of a seasonally inundated grassland.

**Image Signature :** Water bodies appear black upon the imagery, but shallows with sandbanks register as turquoise. Permanent Swamp usually registers as a vibrant red.

#### **OTHERS :**

**Urban Areas and Airfields :** Only the larger conurbations register well upon the imagery, generally in light grey / mauve hues. Airfields and airstrips are usually readily identifiable as linear features.

## CRITERIA FOR LAND COVER DISCRIMINATION

LAND COVER TYPE	SUB-TYPE	COVER %	IMAGE SIGNATURE
FOREST	Natural Forest	near 100	Deep Red, speckled
	Mangrove	near 100	Maroon
	Plantation	near 100	Red, smooth
WOODLAND	Woodland (unspecified Density)	20 to 80	Red
	Closed Woodland	40 to 80	Red, smooth
	Open Woodland	20 to 40	Red, speckled
	Woodland with Scattered Cropland	variable	Red with pale blue speckle
BUSHLAND	Bushland(unspecified Density)	20 to 80	Pinkish
	Dense Bushland	40 to 80	Pinkish
	Open Bushland	20 to 40	Pinkish, speckled
	Bushland with Scattered Cultivation	variable	Pink with pale blue speckle
	Bushland with Emergent Trees	20 to 80	Darker Pink
	Thicket Thicket with Emergent Trees	near 100 near 100	Brown Brown
GRASSLAND	Wooded Grassland	10 to 20	Blue-green plus red speckle
	Bushed Grassland	10 to 20	Blue-green plus pink speckle
	Open Grassland	0 to 10	Blue-green
	Grassland with Scattered Cropland	variable	Speckled pale blue-green
	Wooded Grassland(Seasonally Inundated)	10 to 20	Darker blue plus red speckle
	Bushed Grassland(Seasonally Inundated)	10 to 20	Darker blue plus pink speckle
	Open Grassland(Seasonally Inundated)	0 to 10	Variable blue-green
CULTIVATED LAND	Mixed Cropping	near 100	Pale, cream, speckled
	Cultivation with Tree Crops	near 100	Red
	Cultivation with Tree Crops(& Shade Trees)	near 100	Red
	Cultivation with Bushy Crops	near 100	Red
	Cultivation with Herbaceous Crops	near 100	Pale, cream or reddish
OPEN LAND	Bare Soil	N/A	Pale blue, green, cream
	Salt Crusts	N/A	Pale cream, mauve
	Rock Outcrops	N/A	Cream or pale brown
	Ice-Cap / Snow	N/A	White
WATER FEATURES	Ocean	N/A	Black
	Inland Water	N/A	Black
	Swamp / Marsh (Permanent)	near 100	Bright red
OTHERS	Urban Area / Airfields		Grey / Mauve

Note : Image Signatures are indicative only and represent generalities.  
 Seasonality of the imagery and the effects of grass burning may markedly alter these.  
 Field verification and reference to secondary data is essential.

**THE MAPPING UNITS, ILLUSTRATIONS AND VARIETY**

**LAND COVER TYPE : FOREST**

Natural Forest

Mangrove

Plantation

**TYPE : FOREST**

**Sub-Type : Natural Forest**

**Classification code : Fn**



**Photo 1** : Groundwater Forest on the pediplain of the escarpment north-west of Lake Manyara. Composition is of Forest species, but the formation is not well stratified. It is sub-humid. Epiphytes are present but not common.



**Photo 2** : Climatic altitudinal Forest in the northern Mbeya Range at the western end of the Southern Highlands, along the Mbeya to Chunya road. Well - stratified with occasional emergents. Epiphytes are common and climbers and creepers are abundant on the exposed margins.

**TYPE : FOREST**

**Sub - Type : Mangrove**

**Classification code : Fm**



**Photo 3 :** A narrow fringe of Mangrove alongside the Pangani River, with cultivation for tree crops in the background. This approaches the inshore limit of mangrove, in accordance with the tidal behaviour of the river.



**Photo 4 :** Extensive and well-preserved mangrove. Mafia Island.

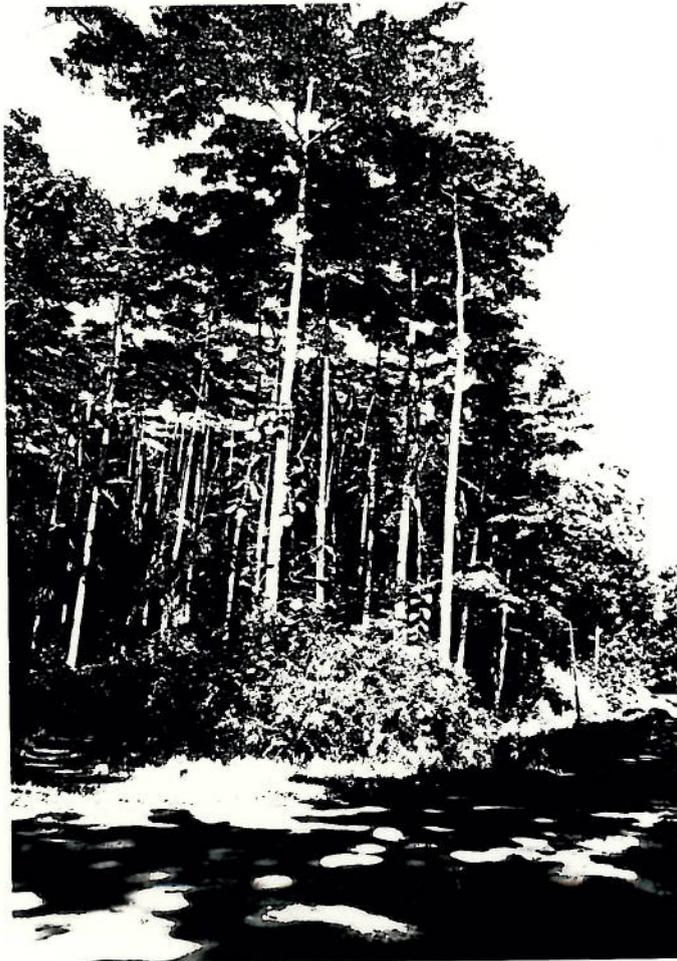
**TYPE : FOREST**

**Sub - Type : Plantation**

**Classification code : Fp**



**Photo 5 : A young plantation of teak (*Tectona grandis*) between Ifakara and Utete.**



**Photo 6 : Longuza  
Forest  
Project,  
Usambara.**

**LAND COVER TYPE : WOODLAND**

Closed Woodland

Open Woodland

Woodland with Scattered Cropland

**TYPE : WOODLAND**

**Sub -Type : Closed Woodland**

**Classification Code : Wc**



**Photo 7 :** Closed broadleaved woodlands on clay soils, Arusha National Park.



**Photo 8 :** Very typical closed woodland of the "Miombo" type along the road from Iringa to Mbeya. Species composition is dominated by *Brachystegia species* and *Julbernardia species*. The character of the woodland changes abruptly at the base of the escarpment.

TYPE : WOODLAND

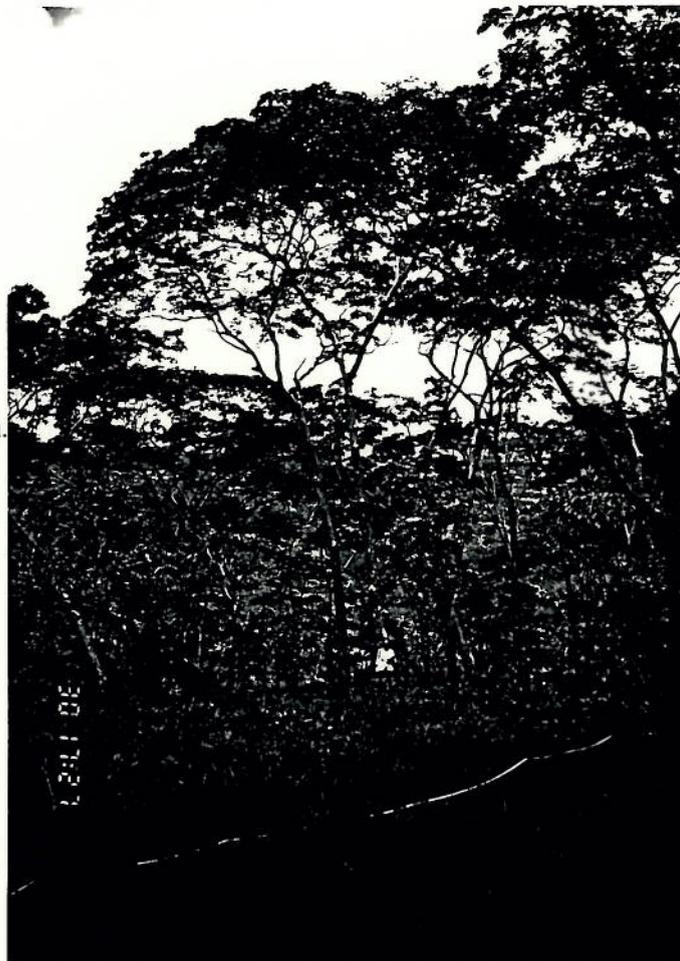
Sub -Type : Open Woodland

Classification Code : Wo



Photo 9: Rather stunted *Combretaceous* Open Woodland, representative of many of the drier, rocky areas of Tanzania. Karagwe (Rwanda border).

Photo 10 : *Brachystegia*  
Open Woodland, Chunya.



**TYPE : WOODLAND**

**Sub - Type Woodland with Scattered Cropland**

**Classification Code : WSc**



**Photo 11:** No crops on, but fields evident. The remnants of a mature *Acacia* Woodland provides shade on field margins. Near Njora in Arusha Region.



**Photo 12:** These hills would be covered naturally with predominantly Closed Woodland. Now, they have been opened for subsistence cultivation, often on dangerously steep slopes. Eastern shore of Lake Tanganyika.

## **LAND COVER TYPE : BUSHLAND**

Dense Bushland

Open Bushland

Bushland with Scattered Cropland

Bushland with Emergent Trees

Thicket

Thicket with Emergent Trees

**TYPE : BUSHLAND**

**Sub - Type : Dense Bushland**

**Classification Code : Bd**



**Photo 13:** Marginal with Bushland with Emergent Trees. Despite the occurrence of individual stems, the stature is insufficient to qualify as Woodland. North Serengeti.



**Photo 14:** Fairly typical of this unit. There are no real trees. Bush density may occasionally approach Thicket. Near Naberera.

**TYPE : BUSHLAND**

**Sub - Type : Open Bushland**

**Classification Code : Bo**



**Photo 15:** Open *Combretum* Bushland, marginal with a stunted woodland.

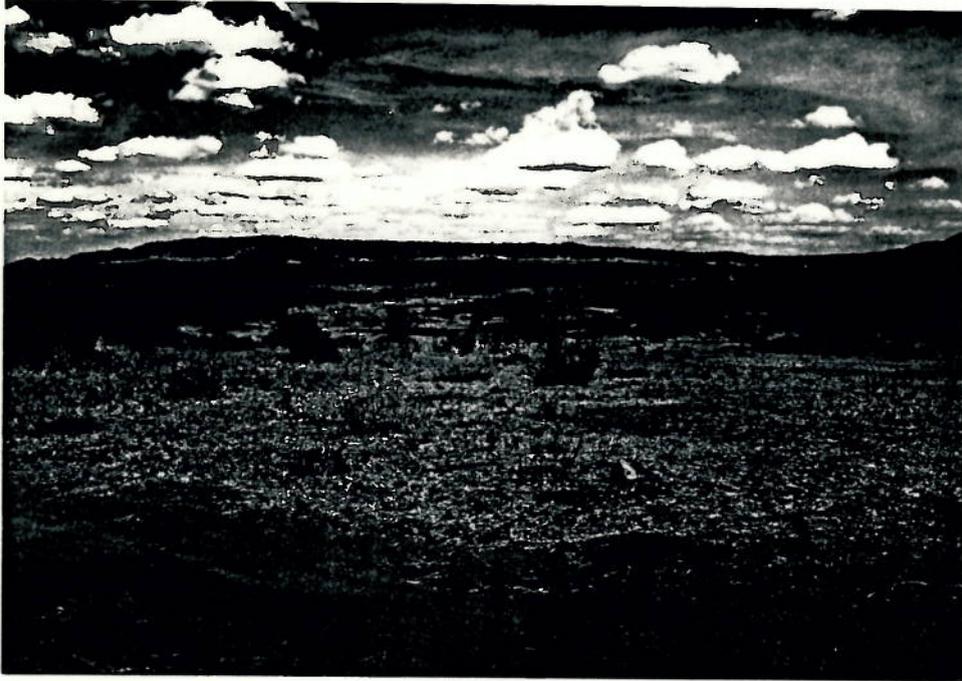


**Photo 16:** Open Bushland near Landanai, south of Moshi. A few emergents, but not enough to classify as B(et).

**TYPE : BUSHLAND**

**Sub - Type : Bushland with Scattered Cropland**

**Classification Code : BSc**



**Photo 17:** A good example of this unit. Crops evident in mid-ground, but fallow and field margins are bushed. Itoro (Naberera).

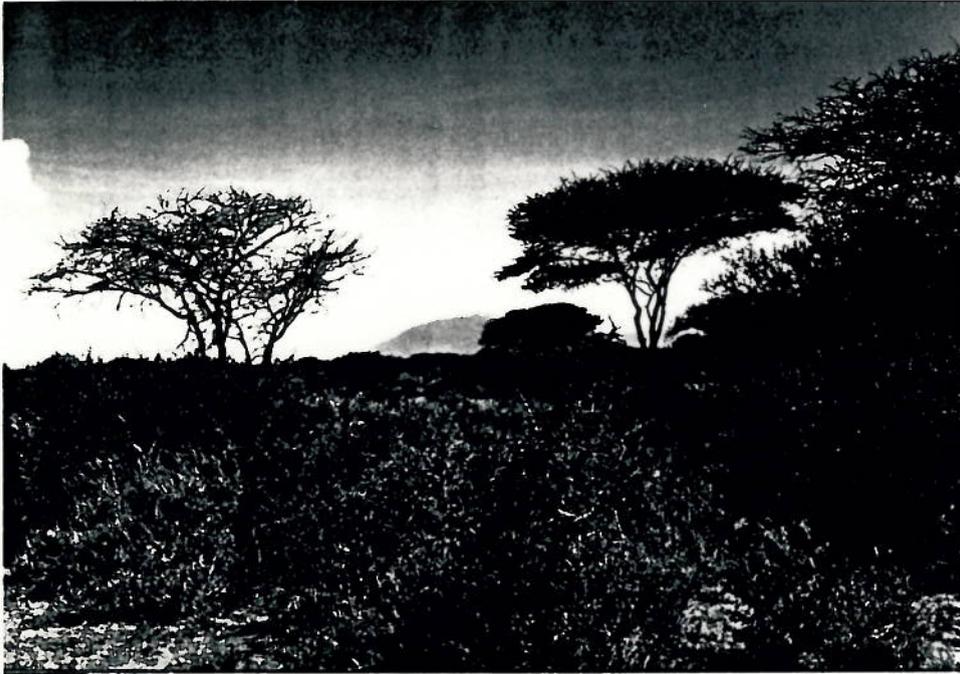


**Photo 18:** Low density cultivation with fallow reduced to bush. Very few trees remain. East Usambara.

**TYPE : BUSHLAND**

**Sub - Type : Bushland with Emergent Trees**

**Classification Code : B(et)**



**Photo 19:** Thorn bush + thorn emergents. Arusha to Namanga road.



**Photo 20:** Broad-leaved variant, North Selous.

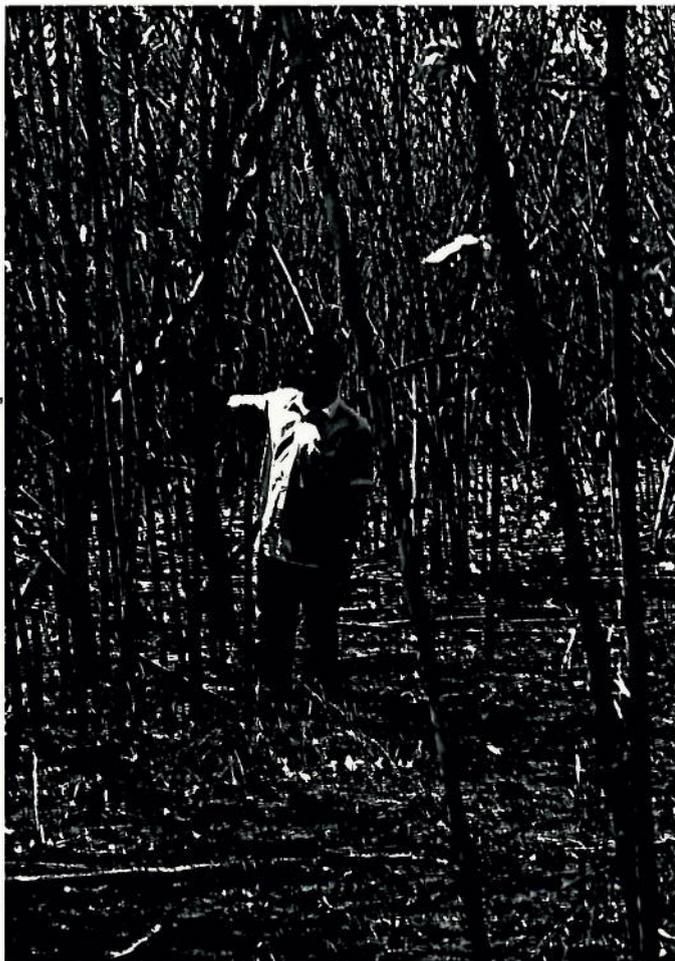
**TYPE: BUSHLAND**

**Sub - Type : Thicket**

**Classification code: Bt.**



**Photo 21:** Core example. The eastern edge of the Itigi thickets. Kigungu, near Naberera



**Photo 22:** Bamboo thicket, South Selous.

**TYPE: BUSHLAND**

**Sub - Type: Thicket with Emergent Trees**

**Classification code: Bt(et).**



**Photo 23:** Impenetrable, largely mono-specific understorey with stemmed emergents. Naberera - Kinjingu



**Photo 24:** This example is marginal with woodland, as overstorey canopy becomes more significant. Njora, near Kibaya.

## **LAND COVER TYPE : GRASSLAND**

Wooded Grassland

Bushed Grassland

Open Grassland

Grassland with Scattered Cropland

Wooded Grassland (Seasonally Inundated)

Bushed Grassland (Seasonally Inundated)

Open Grassland (Seasonally Inundated)

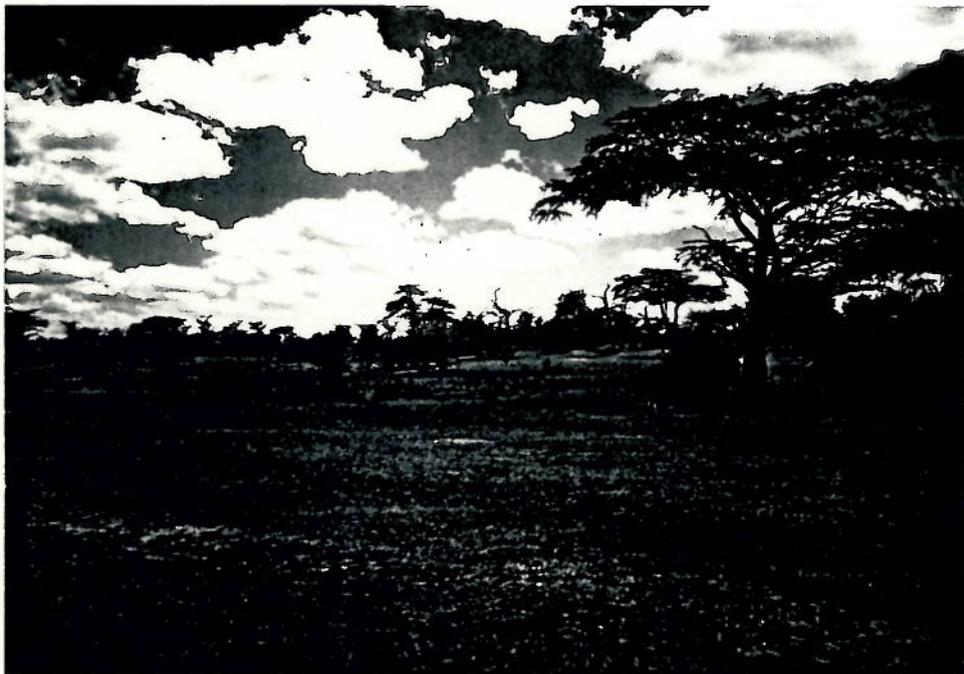
**TYPE: GRASSLAND**

**Sub - Type : Wooded Grassland**

**Classification code: Gw**



**Photo 25:** Classic example of broadleaved type, Northern Serengeti.



**Photo 26:** Wooded Grassland marginal with Bushed Grassland. Northern Selous Game Reserve.

**TYPE: GRASSLAND**

**Sub - Type: Bushed Grassland**

**Classification code: Gb**



**Photo 27:** Classic example of this unit. Near Naberera.



**Photo 28:** A rather strange variant. Stunted, festigate gall acacia (possibly *A. drepanolobium*). North West of Kahama.

**TYPE: GRASSLAND**

**Sub - Type: Open Grassland**

**Classification code: Gb**



**Photo 29:** Natural grasslands at altitude. The arboreal component is almost entirely absent due to either the elevation, or to a persistent grazing and burning regime. North of Mbeya.



**Photo 30:** Typical tall Open Grassland. *Hyparrhenia spp.* dominate in foreground. Central Serengeti.

**TYPE: GRASSLAND**

**Sub - Type: Grassland with Scattered Cropland**

**Classification code: GSc**



**Photo 31:** Partially cultivated grass plain. Near Liviseki, south of Arusha.



**Photo 32:** Cultivation for maize at altitude within montane open grassland. Near Namanga (Kenyan border).

**TYPE: GRASSLAND**

**Sub - Type: Wooded Grassland (Seasonally Inundated)**

**Classification code: Gws**



**Photo 33:** Typical example of a seasonally wet depression bearing a light thorn overstorey. Mombo.



**Photo 34:** An interesting variant common in the northern Selous Game Reserve. The overall formation is Grassland, but with wet depressions and drainage channels dominated by *Hyphaene spp.*

**TYPE: GRASSLAND**

**Sub - Type: Bushed Grassland (Seasonally Inundated)**

**Classification code: Gbs**



**Photo 35:** A wide, seasonally inundated area between Makuyuni and Lake Manyara. Overall it is a mosaic of Open Grassland and Bushed Grassland, the bush component being in patches. The Manyara escarpment is in the background.



**Photo 36:** A unique sub-formation found on Mafia Island, occurring in seasonally wet depressions characterised by a shallow peaty upper soil over occasionally deep clayey sands. The bush component is from the ERICACEAE, almost pure, and at a density that approaches Thicket.

**TYPE: GRASSLAND**

**Sub - Type: Open Grassland (Seasonally Inundated)**

**Classification code: Gos**



**Photo 37:** Typical of the unit. A broad area carrying coarse tussock grasses and sedges. Trees-less and virtually bush-less. Near Lariboro, Arusha Region.



**Photo 38:** Taller grassland in the depression with riparian Closed Woodland in the background. Near Sibwesa, Rukwa Region.

## **LAND COVER TYPE : CULTIVATED LAND**

Mixed Cropping

Cultivation with Tree Crops

Cultivation with Tree Crops (with Shade Trees)

Cultivation with Bushy Crops

Cultivation with Herbaceous Crops

**TYPE: CULTIVATED LAND**

**Sub - Type: Mixed Cropping**

**Classification code: Cm**



**Photo 39:** Maize, vegetables, and occasional fruit trees, combined with sisal on field margins and *Eucalyptus sp.* woodlots. Near Karatu, Arusha Region.



**Photo 40:** Mostly annual crops - grain and vegetables - with fruit trees as a minor component. Marginal with Cultivation with Herbaceous Crops. Natural Forest in the background. Near Lushoto.

TYPE: CULTIVATED LAND

Sub - Type: Cultivation with Tree Crops

Classification code: Ctc



Photo 41: Smallholder cultivation for cashewnut (*Anacardium occidentale*); Newala.



Photo 42: Extensive plantation for coconut (*Cocos nucifera*). Mafia Island.

**TYPE: CULTIVATED LAND**

**Sub - Type: Cultivation with Tree Crops (with Shade Trees)**

**Classification code: Ctc(st)**

**Photo 43: Satisfactory photograph not-available.**

**Photo 44: Satisfactory photograph not available.**

**TYPE: CULTIVATED LAND**

**Sub - Type: Cultivation with Bushy crops**

**Classification code: Cbc**



**Photo 45:** Young tea (*Camellia sinensis*) tables. Natural Forest on hill in background. Karimi Tea Estate, East Usambara.

**Photo 46:** Satisfactory photograph not available.

**TYPE: CULTIVATED LAND**

**Sub - Type: Cultivation with Herbaceous Crops**

**Classification code: Chc**



**Photo 47:** Locally intensive cultivation for maize (*Zea mays*). Lokisale, Arusha Region.



**Photo 48:** Smallholder cultivation for rice (*Oryza sativa*) utilising residual water in seasonally inundated depressions. The palms are *Borassus sp.* Between Mpanda and Uruwira, Rukwa Region.

**LAND COVER TYPE : OPEN LAND**

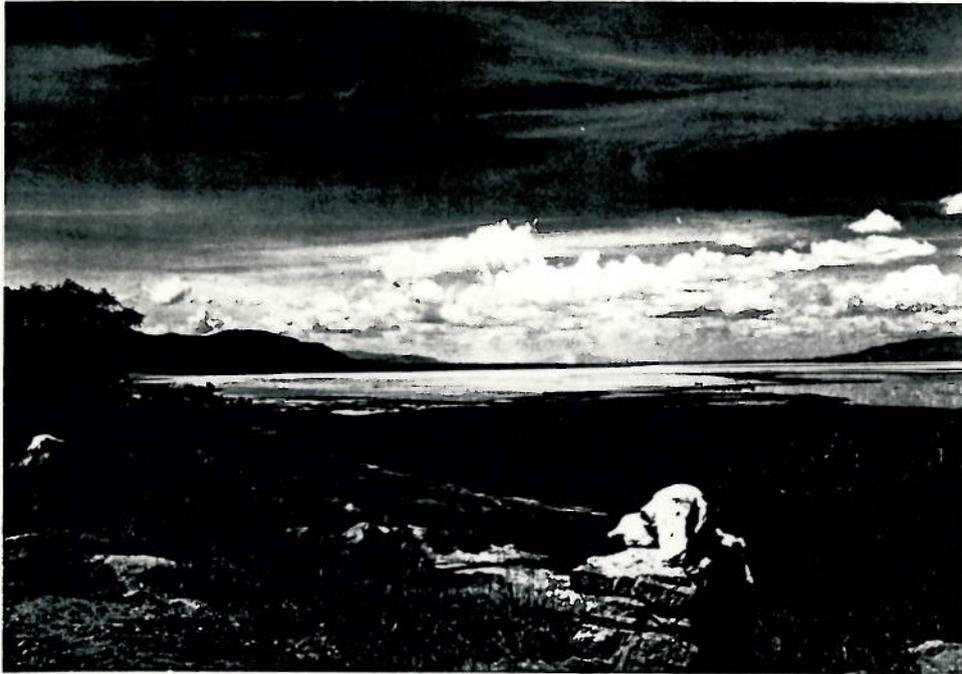
Bare Soil

Salt Crusts

Rock Outcrops

Ice Cap / Snow

**TYPE: OPEN LAND**  
**Sub - Type: Bare Soil**  
**Classification code: BSL**



**Photo 49:** This unit is represented mostly by the draw-down margin of Inland water, or coastal beach strand. Lake Manyara.

**Sub-Type: Salt crusts**  
**Classification Code: SC**



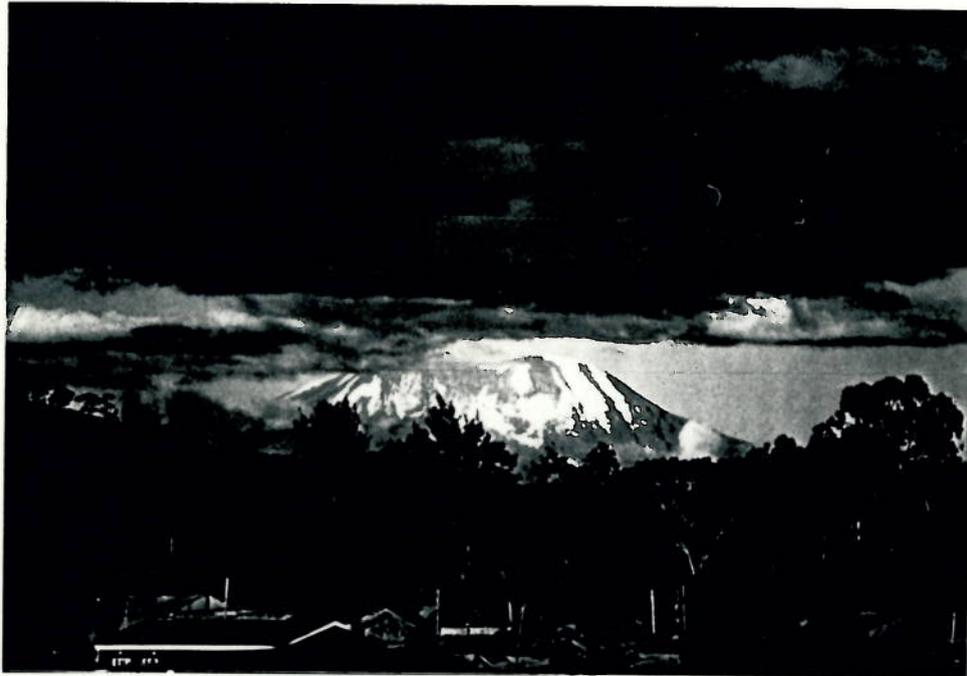
**Photo 50:** When evaporation is high, salt crusts may form on the draw-down margin. Lake Magadi, Ngorongoro Crater.

**TYPE: OPEN LAND**  
**Sub - Type: Rock Outcrops**  
**Classification Code: RO**



**Photo 51:** Outcrops of this nature are common in the more arid zones of Tanzania, but are not widely represented on the maps at the presentation scale, unless in clusters, or forming a distinct scarp slope. Naberera.

**Sub-Type: Ice Cap/Snow**  
**Classification Code: ICE**



**Photo 52:** Within Tanzania, only the peaks of Mt. Kilimanjaro and Mt. Meru are at sufficient elevation to allow the formation of a recognizable snow cap, and these vary markedly in extent according to season. Kilimanjaro from Arusha.

**LAND COVER TYPE : WATER FEATURES**

Ocean / Inland Water

Swamp / Marsh (Permanent)

**TYPE: WATER FEATURES**  
**Sub - Type: Ocean / Inland Water**  
**Classification code: Ocean / IW**



**Photo 53:** Within the map legend, Ocean is distinguished from Inland Water only for the purpose of area statement computation. Most are large water bodies with a surface area in excess of 100 ha. Lake Victoria at Bukoba.

**Sub - Type: Swamp/Marsh (Permanent).**  
**Classification code: S/M**



**Photo 54:** Papyrus swamp on the Kisinga River. Rulenge, Kagera Region

**THE DISTRIBUTION OF LAND COVER BY MAP SHEET**

## THE DISTRIBUTION OF LAND COVER BY MAP SHEET

In this section is presented the distribution of the land cover units appearing upon each of the map sheets in the 64 sheet series.

The data are tabulated by individual map sheet, identified by both series code (eg SA-36-5) and by the Project numbering (in this instance, map sheet No 1). The layout of these sheets, with their numbers and codes, is illustrated in the introductory section to this Data Dictionary.

The land cover units represented upon each sheet are expressed in terms of the codes used during interpretation, and included in the Classification. Land Cover units not appearing upon a given map sheet are not included in the table for that sheet.

The total area for each Land Cover unit is expressed in hectares.

Percentage areas are also given, in terms of the total area of Tanzania represented upon each map sheet. Tanzania has borders with seven countries and many of the map sheets within the series overlap these borders. In these instances the gross area upon the map sheet of the neighbouring country is given, but area percentages for land cover relate to Tanzanian territory only.

1. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-5 (KABALE)

Classification code	Hectares	Percentage cover
B(et)	86858.15	8.85
Bd	1413.38	0.14
BSc	151018.35	15.38
Chc	150246.97	15.30
Cm	157010.43	15.99
Fn	38688.16	3.94
Gb	149076.08	15.18
Gbs	6295.13	0.64
Go	1385.16	0.14
Gos	7938.84	0.81
GSc	9414.30	0.96
Gw	33743.27	3.44
IW	12753.98	1.30
S/M	42183.90	4.30
Urban	693.05	0.07
Wo	16263.21	1.66
WSc	116850.59	11.90
<b>Total - Tanzania</b>	<b>981832.97</b>	<b>100.00</b>

RWANDA	865305.60
Sheet Total	1847138.57

## 2. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-6 (BUKOBA)

Classification code	Hectares	Percentage cover
Bd	1359.81	0.07
BSc	25354.10	1.37
BSL	63.60	0.00
Chc	80368.16	4.36
Cm	128155.79	6.95
Ctc(st)	315.56	0.02
Fn	18537.14	1.00
Fp	435.78	0.02
Gb	8225.42	0.45
Gbs	19814.66	1.07
Go	1938.83	0.11
Gos	3181.61	0.17
GSc	9407.38	0.51
Gw	7545.23	0.41
Gws	19946.74	1.08
IW	1498635.52	81.24
S/M	12763.57	0.69
Urban	724.62	0.04
Wc	178.71	0.01
Wo	289.52	0.02
WSc	7350.07	0.40
<b>Sheet Total</b>	<b>1844591.82</b>	<b>100.00</b>

### 3. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-7 (MUSOMA)

Classification code	Hectares	Percentage cover
B(et)	50580.06	2.87
Bd	72.81	0.00
Bo	8041.97	0.46
BSc	219393.90	12.43
Chc	25188.85	1.43
Cm	182574.28	10.35
Ctc(st)	45.82	0.00
Fn	9138.88	0.52
Fp	64.95	0.00
Gb	10578.24	0.60
Gbs	20197.40	1.14
Go	9726.26	0.55
Gos	9297.77	0.53
GSc	187104.98	10.60
Gw	3741.78	0.21
Gws	15335.46	0.87
IW	885014.31	50.15
S/M	29747.42	1.69
Urban	1219.64	0.07
Wo	19961.57	1.13
WSc	77682.59	4.40
<b>Total - Tanzania</b>	<b>1764708.94</b>	<b>100.00</b>

KENYA	79859.19	
Sheet Total	1844568.13	

#### 4. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-8 (NAROK)

Classification code	Hectares	Percentage cover
B(et)	46962.59	7.78
Bd	73374.62	12.16
Bo	79453.07	13.17
BSc	43507.09	7.21
Cm	14651.19	2.43
Gb	43324.23	7.18
Gbs	1871.44	0.31
Go	35713.46	5.92
Gos	6220.31	1.03
GSc	34607.79	5.73
Gw	25784.72	4.27
Gws	5479.67	0.91
Urban	45.41	0.01
Wo	135311.10	22.42
WSc	57158.40	9.47
<b>Total - Tanzania</b>	<b>603465.08</b>	<b>100.00</b>

KENYA	1243405
Sheet Total	1846870.08

5. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-9 (BIHARAMULO)

Classification code	Hectares	Percentage cover
B(et)	331209.74	31.09
Bd	1186.91	0.11
BSc	52562.22	4.93
Chc	48037.70	4.51
Cm	173972.36	16.33
Fn	7111.65	0.67
Gb	22682.52	2.13
Gbs	11878.94	1.12
Gos	17179.73	1.61
GSc	5430.85	0.51
Gw	74127.66	6.96
IW	21959.63	2.06
S/M	14941.83	1.40
Urban	488.79	0.05
Wc	58442.04	5.49
Wo	156843.11	14.72
WSc	67137.70	6.30
<b>Total - Tanzania</b>	<b>1065193.36</b>	<b>100.00</b>

BURUNDI	780846.60
Sheet total	1846039.96

## 6. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-10 (MWANZA)

Classification code	Hectares	Percentage cover
B(et)	59228.21	3.21
BSc	116888.69	6.34
Cbc	28292.73	1.53
Chc	23719.02	1.29
Cm	525499.62	28.51
Fn	34891.00	1.89
Fp	3138.58	0.17
Gb	2383.02	0.13
Gbs	21285.82	1.15
Go	987.86	0.05
Gos	43.41	0.00
GSc	27858.34	1.51
Gw	4239.63	0.23
Gws	3128.25	0.17
IW	751991.35	40.79
S/M	28713.03	1.56
Urban	2168.36	0.12
Wc	73400.44	3.98
Wo	43549.04	2.36
WSc	92044.56	4.99
Sheet Total	1843450.94	100.00

7. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-11 (MALYA)

Classification code	Hectares	Percentage cover
B(et)	175692.40	9.53
Bd	337.46	0.02
Bo	13686.20	0.74
BSc	201281.88	10.92
BSL	1659.94	0.09
Cbc	10835.33	0.59
Chc	139603.61	7.57
Cm	236575.14	12.83
Ctc	196.55	0.01
Fn	2354.32	0.13
Fp	53.54	0.00
Gb	88271.58	4.79
Gbs	38983.46	2.11
Go	120879.20	6.56
Gos	10797.69	0.59
GSc	407307.04	22.09
Gw	40628.04	2.20
Gws	4751.50	0.26
IW	307066.59	16.66
S/M	18436.45	1.00
Urban	581.39	0.03
Wo	11718.54	0.64
WSc	11802.83	0.64
Sheet Total	1843500.68	100.00

8. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-12 (SERENGETI)

Classification code	Hectares	Percentage cover
B(et)	153139.80	8.35
Bd	26996.33	1.47
Bo	130784.15	7.13
BSc	1639.60	0.09
BSL	5134.51	0.28
Bt(et)	10601.85	0.58
Cm	4747.41	0.26
Fn	10776.79	0.59
Gb	183777.70	10.02
Gbs	13495.85	0.74
Go	999597.38	54.51
Gos	29399.26	1.60
GSc	25602.27	1.40
Gw	91355.77	4.98
IW	31298.09	1.71
S/M	7024.47	0.38
Urban	133.95	0.01
Wc	6222.46	0.34
Wo	102156.50	5.57
<b>Total - Tanzania</b>	<b>1833884.15</b>	<b>100.00</b>

KENYA	12160.94	
Sheet Total	1846045.09	

9. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-37-9 (AMBOSELI)

Classification code	Hectares	Percentage cover
B(et)	90660.71	10.12
Bd	144043.82	16.07
Bo	144977.11	16.18
BSc	10723.98	1.20
Chc	10254.99	1.14
Cm	4624.06	0.52
Fn	44623.68	4.98
Fp	8258.96	0.92
Gb	121765.96	13.59
Gbs	22433.68	2.50
Go	149066.51	16.63
Gos	23178.15	2.59
GSc	15016.92	1.68
Gw	12466.38	1.39
IW	47785.17	5.33
RO	167.64	0.02
S/M	3335.23	0.37
Urban	225.01	0.03
Wc	1219.76	0.14
Wo	41408.47	4.62
<b>Total - Tanzania</b>	<b>896236.19</b>	<b>100.00</b>

KENYA	1112121.00	
Sheet Total	2008357.19	

10. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-13 (KIBONDO)

Classification code	Hectares	Percentage cover
B(et)	18138.69	1.56
BSc	93453.66	8.01
Chc	59.50	0.01
Cm	26149.81	2.24
Gb	58962.81	5.06
Gbs	59443.13	5.10
Go	9994.84	0.86
Gos	39884.32	3.42
GSc	7056.40	0.61
Gw	20292.18	1.74
Gws	116500.87	9.99
S/M	29332.40	2.52
Urban	158.35	0.01
Wc	260209.09	22.32
Wo	291504.59	25.00
WSc	134922.57	11.57
<b>Total - Tanzania</b>	<b>1166063.21</b>	<b>100.00</b>

BURUNDI	678375.90	
Sheet Total	1844439.11	

11. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-14 (KAHAMA)

Classification code	Hectares	Percentage cover
B(et)	51839.75	2.81
BSc	304654.23	16.54
Chc	121478.40	6.60
Cm	279616.56	15.18
Gb	164.33	0.01
Gbs	28446.77	1.54
Go	2.12	0.00
Gos	15519.83	0.84
GSc	129995.23	7.06
Gw	10263.97	0.56
Gws	10388.92	0.56
IW	596.12	0.03
S/M	25196.32	1.37
Urban	297.30	0.02
Wc	191876.85	10.42
Wo	306815.38	16.66
WSc	364707.41	19.80
Sheet Total	1841859.51	100.00

12. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-15 (SHINYANGA)

Classification code	Hectares	Percentage cover
B(et)	31738.41	1.72
Bd	912.57	0.05
Bo	7267.29	0.39
BSc	136868.49	7.43
BSL	978.60	0.05
Cbc	16675.62	0.91
Chc	524345.59	28.47
Cm	640920.80	34.80
Fp	49.94	0.00
Gb	241.75	0.01
Gbs	16378.00	0.89
Go	725.60	0.04
Gos	11830.88	0.64
GSc	338158.67	18.36
Gw	655.64	0.04
Gws	3994.74	0.22
IW	1319.17	0.07
RO	106.89	0.01
S/M	11833.72	0.64
Urban	1239.28	0.07
Wc	317.55	0.02
Wo	54876.43	2.98
WSc	40434.05	2.20
Sheet Total	1841869.68	100.00

13. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-36-16 (LAKE MANYARA)

Classification code	Hectares	Percentage cover
B(et)	152382.04	8.26
Bd	14899.82	0.81
Bo	32506.57	1.76
BSc	220859.08	11.97
BSL	18907.23	1.03
Bt	619.36	0.03
Bt(et)	3612.52	0.20
Chc	21601.00	1.17
Cm	35604.58	1.93
Fn	154833.94	8.39
Fp	45.42	0.00
Gb	55243.51	3.00
Gbs	69545.95	3.77
Go	218220.97	11.83
Gos	28181.95	1.53
GSc	115913.15	6.28
Gw	83297.55	4.52
Gws	35413.94	1.92
IW	156234.47	8.47
S/M	21907.01	1.19
Urban	166.51	0.01
Wc	21877.78	1.19
Wo	345105.25	18.71
WSc	37416.29	2.03
<b>Sheet Total</b>	<b>1844395.90</b>	<b>100.00</b>

14. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-37-14<sup>13</sup> (ARUSHA)

Classification code	Hectares	Percentage cover
B(et)	280640.36	15.22
Bd	60678.33	3.29
Bo	33169.79	1.80
BSc	40539.10	2.20
BSL	1831.73	0.10
Chc	190885.30	10.35
Cm	223491.24	12.12
Ctc(st)	66684.41	3.62
Fn	96180.45	5.21
Fp	8720.52	0.47
Gb	255128.45	13.83
Gbs	42422.02	2.30
Go	88692.33	4.81
Gos	56057.37	3.04
GSc	110804.33	6.01
Gw	156728.09	8.50
ICE	1551.85	0.08
IW	13267.60	0.72
S/M	23859.09	1.29
Urban	5327.60	0.29
Wo	71639.33	3.88
WSc	16099.04	0.87
Sheet Total	1844398.33	100.00

15. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SA-37-14 (VOI)

Classification code	Hectares	Percentage cover
B(et)	96616.29	27.00
Bd	2808.26	0.78
Bo	3030.81	0.85
BSc	39317.98	10.99
Chc	20867.89	5.83
Cm	37577.14	10.50
Ctc(st)	25575.80	7.15
Fn	43684.81	12.21
Fp	2656.22	0.74
Gb	9113.36	2.55
Gbs	21118.39	5.90
Go	556.75	0.16
Gos	1293.32	0.36
GSc	6403.30	1.79
Gw	14457.48	4.04
IW	1299.41	0.36
S/M	4568.37	1.28
Urban	378.39	0.11
Wo	6635.08	1.85
WSc	19884.27	5.56
<b>Total - Tanzania</b>	<b>357843.32</b>	<b>100.00</b>

KENYA	1484017	
Sheet Total	1841860.32	

16. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-35-4 (KIGOMA)

Classification code	Hectares	Percentage cover
Airstrip	30.96	0.01
B(et)	27225.76	6.85
BSc	48166.75	12.12
Chc	505.45	0.13
Cm	38908.44	9.79
Ctc	4996.57	1.26
Gb	2738.76	0.69
Gbs	3821.75	0.96
Go	367.06	0.09
GSc	22052.75	5.55
Gw	22281.77	5.61
Gws	308.16	0.08
IW	128578.95	32.35
S/M	4130.69	1.04
Urban	1310.45	0.33
Wc	12360.55	3.11
Wo	43007.24	10.82
WSc	36665.65	9.23
<b>Total - Tanzania</b>	<b>397457.73</b>	<b>100.00</b>

BURUNDI	1444472.00	
Sheet Total	1841929.73	

17. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-1 (KASULU)

Classification code	Hectares	Percentage cover
B(et)	64552.57	3.50
BSc	133678.40	7.26
Bt	2934.55	0.16
Chc	2540.06	0.14
Cm	32572.08	1.77
Ctc	196.00	0.01
Gb	7302.71	0.40
Gbs	342601.59	18.60
Gos	39117.75	2.12
GSc	32127.24	1.74
Gw	9738.49	0.53
Gws	240182.47	13.04
IW	5943.75	0.32
S/M	112468.11	6.11
Urban	211.37	0.01
Wc	199500.89	10.83
Wo	502412.39	27.27
WSc	114020.75	6.19
Sheet Total	1842101.17	100.00

18. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-2 (BUKENE)

Classification code	Hectares	Percentage cover
B(et)	25529.60	1.39
Bd	569.80	0.03
Bo	1048.95	0.06
BSc	86918.86	4.72
Chc	565.52	0.03
Cm	454426.63	24.70
Gbs	67062.24	3.65
Gos	36041.05	1.96
GSc	63289.15	3.44
Gws	86941.99	4.73
IW	936.34	0.05
RO	123.37	0.01
S/M	44563.78	2.42
Urban	782.20	0.04
Wc	343654.30	18.68
Wo	492534.26	26.77
WSc	134663.69	7.32
<b>Sheet Total</b>	<b>1839651.74</b>	<b>100.00</b>

19. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-3 (NZEGA)

Classification code	Hectares	Percentage cover
Airport	40.47	0.00
B(et)	14451.90	0.79
Bo	7734.03	0.42
BSc	273977.68	14.90
BSL	1083.66	0.06
Bt	25340.00	1.38
Cm	446571.74	24.28
Fp	831.12	0.05
Gb	2441.21	0.13
Gbs	85752.69	4.66
Go	9842.47	0.54
Gos	126639.39	6.89
GSc	141678.91	7.70
Gw	53591.15	2.91
Gws	415.91	0.02
IW	5849.68	0.32
RO	271.86	0.01
S/M	165072.64	8.98
Urban	405.46	0.02
Wc	73905.91	4.02
Wo	216033.34	11.75
WSc	187063.22	10.17
Sheet Total	1838994.43	100.00

20. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-4 (SINGIDA)

Classification code	Hectares	Percentage cover
B(et)	20944.57	1.14
Bd	159.22	0.01
Bo	9035.62	0.49
BSc	369594.94	20.06
BSL	2493.05	0.14
Bt	9613.29	0.52
Bt(et)	13050.51	0.71
Chc	213144.69	11.57
Cm	94778.75	5.14
Ctc(st)	4909.99	0.27
Fn	38198.48	2.07
Fp	1143.29	0.06
Gb	11479.55	0.62
Gbs	11393.16	0.62
Go	2948.64	0.16
Gos	15606.81	0.85
GSc	371259.32	20.15
Gw	61368.88	3.33
Gws	1744.10	0.09
IW	12325.57	0.67
S/M	13168.16	0.71
Urban	586.22	0.03
Wc	36026.12	1.96
Wo	280491.29	15.23
WSc	246724.18	13.39
Sheet Total	1842188.41	100.00

21. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-1 (NABERERA)

Classification code	Hectares	Percentage cover
B(et)	189894.10	10.31
Bd	2026.49	0.11
Bo	2479.00	0.13
BSc	196558.55	10.67
Bt(et)	66170.45	3.59
Chc	29935.57	1.63
Cm	61903.56	3.36
Fn	1252.19	0.07
Gb	32164.77	1.75
Gbs	38458.30	2.09
Go	8418.80	0.46
Gos	79189.04	4.30
GSc	34262.04	1.86
Gw	93800.03	5.09
Gws	17716.62	0.96
IW	367.22	0.02
S/M	12633.09	0.69
Urban	498.89	0.03
Wc	67170.43	3.65
Wo	614667.44	33.37
WSc	292614.38	15.88
Sheet Total	1842180.97	100.00

22. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-2 (LUSHOTO)

Classification code	Hectares	Percentage cover
B(et)	339053.19	21.27
Bd	47279.91	2.97
Bo	43854.40	2.75
BSc	68301.15	4.28
Bt(et)	29694.25	1.86
Cbc	4046.95	0.25
Chc	66619.26	4.18
Cm	154839.52	9.71
Ctc(st)	29.80	0.00
Fn	99605.53	6.25
Fp	8539.23	0.54
Gb	27068.54	1.70
Gbs	82122.76	5.15
Go	703.12	0.04
Gos	6478.36	0.41
GSc	19628.31	1.23
Gw	10914.73	0.68
IW	2681.48	0.17
RO	185.18	0.01
S/M	6797.69	0.43
Urban	759.60	0.05
Wc	45719.13	2.87
Wo	409057.52	25.66
WSc	120285.13	7.54
<b>Total - Tanzania</b>	<b>1594264.74</b>	<b>100.00</b>

KENYA	245404.70	
Sheet Total	1839669.44	

23. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-3 ( MOMBASA)

Classification code	Hectares	Percentage cover
B(et)	39153.94	35.54
Bd	1750.78	1.59
BSc	952.71	0.86
Bt(et)	2528.56	2.30
Chc	9196.23	8.35
Cm	5620.67	5.10
Ctc	8554.73	7.77
Fm	7182.96	6.52
Fn	1357.48	1.23
IW	425.27	0.39
Wo	14988.02	13.61
WSc	18449.63	16.75
<b>Total - Tanzania</b>	<b>110160.97</b>	<b>100.00</b>

KENYA	415250.19	
Ocean	1312791.00	
Sheet Total	1838202.16	

24. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-5 (UVINZA)

Classification code	Hectares	Percentage cover
B(et)	104741.27	4.92
Bd	9018.07	0.42
Bo	12003.63	0.56
BSc	43916.98	2.06
BSL	670.85	0.03
Bt	2515.11	0.12
Bt(et)	31.44	0.00
Cm	59274.30	2.79
Fn	28443.93	1.34
Gb	926.45	0.04
Gbs	27374.67	1.29
Go	810.37	0.04
Gos	17144.13	0.81
GSc	5777.61	0.27
Gw	6445.77	0.30
Gws	158499.86	7.45
IW	128512.28	6.04
RO	3257.41	0.15
S/M	66951.20	3.15
Urban	736.03	0.03
Wc	649672.04	30.55
Wo	718000.35	33.76
WSc	82142.51	3.86
<b>Sheet Total</b>	<b>2126866.30</b>	<b>100.00</b>

25. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-6 (TABORA)

Classification code	Hectares	Percentage cover
B(et)	2517.43	0.14
Bd	2600.06	0.14
Bo	922.11	0.05
BSc	17905.28	0.97
Bt	222.98	0.01
Chc	32467.61	1.77
Cm	75603.20	4.12
Gb	3588.39	0.20
Gbs	106167.61	5.78
Go	3378.43	0.18
Gos	8154.70	0.44
GSc	1784.94	0.10
Gw	8276.64	0.45
Gws	253274.65	13.79
IW	20.94	0.00
S/M	987.04	0.05
Urban	1136.72	0.06
Wc	10180.03	0.55
Wo	981581.27	53.44
WSc	325913.46	17.74
Sheet Total	1836683.50	100.00

26. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-7 (IGALULA)

Classification code	Hectares	Percentage cover
B(et)	12847.24	0.70
Bd	6866.51	0.37
Bo	15181.23	0.83
BSc	50367.38	2.74
Bt	227638.61	12.40
Bt(et)	806.33	0.04
Cm	33585.15	1.83
Gbs	108014.07	5.88
Go	209.96	0.01
Gos	62200.54	3.39
GSc	115.87	0.01
Gw	2123.06	0.12
Gws	146354.62	7.97
IW	43.74	0.00
RO	155.86	0.01
S/M	7692.65	0.42
Wc	1727.38	0.09
Wo	1080121.13	58.84
WSc	79738.60	4.34
Sheet Total	1835789.95	100.00

27. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-8 (MANYONI)

Classification code	Hectares	Percentage cover
B(et)	108871.05	5.92
Bd	50553.59	2.75
Bo	106817.01	5.81
BSc	781356.63	42.48
BSL	752.30	0.04
Bt	193789.36	10.54
Bt(et)	20458.83	1.11
Chc	1242.53	0.07
Cm	57293.99	3.11
Gb	9021.70	0.49
Gbs	83659.59	4.55
Go	62.59	0.00
Gos	36039.63	1.96
GSc	61518.90	3.34
Gw	8807.97	0.48
Gws	4667.74	0.25
IW	1246.28	0.07
S/M	510.43	0.03
Urban	212.43	0.01
Wc	39847.42	2.17
Wo	202338.51	11.00
WSc	70380.42	3.83
Sheet Total	1839448.90	100.00

28. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-5 (KIBAYA)

Classification code	Hectares	Percentage cover
B(et)	326688.46	17.76
Bo	3331.06	0.18
BSc	309121.84	16.81
Bt	12258.54	0.67
Bt(et)	90204.11	4.90
Chc	2284.13	0.12
Cm	110041.96	5.98
Fn	44539.20	2.42
Gb	36377.81	1.98
Gbs	79348.08	4.31
Go	521.43	0.03
Gos	33462.37	1.82
GSc	194322.22	10.56
Gw	60550.35	3.29
Gws	7006.52	0.38
IW	155.67	0.01
RO	72.54	0.00
S/M	9739.85	0.53
Urban	1023.06	0.06
Wc	160055.33	8.70
Wo	169266.99	9.20
WSc	189086.92	10.28
Sheet Total	1839458.42	100.00

29. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-6 (KOROGWE)

Classification code	Hectares	Percentage cover
B(et)	69558.97	3.95
Bd	7357.63	0.42
Bo	500.31	0.03
BSc	269184.37	15.29
BSL	225.63	0.01
Bt(et)	14447.16	0.82
Cbc	1120.63	0.06
Chc	51242.13	2.91
Cm	116680.47	6.63
Ctc	1638.24	0.09
Ctc(st)	818.41	0.05
Fm	8141.77	0.46
Fn	40682.27	2.31
Fp	2119.08	0.12
Gb	44486.95	2.53
Gbs	4933.97	0.28
Go	2364.78	0.13
Gos	2078.31	0.12
GSc	53095.04	3.02
Gw	157059.31	8.92
Gws	8253.30	0.47
IW	406.00	0.02
Urban	1442.30	0.08
Wc	126572.50	7.19
Wo	585012.77	33.24
WSc	190780.91	10.84
<b>Total - Tanzania</b>	<b>1760203.21</b>	<b>100.00</b>

Ocean	76733.73	
Sheet Total	1836936.94	

30. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-7 (PEMBA)

Classification code	Hectares	Percentage cover
B(et)	265.99	0.15
BSc	25120.37	14.24
BSL	6421.31	3.64
Bt(et)	203.94	0.12
Chc	54611.57	30.96
Cm	37130.37	21.05
Ctc	4526.72	2.57
Fm	18162.70	10.30
Fn	6463.17	3.66
Gbs	93.98	0.05
GSc	1076.81	0.61
RO	1876.84	1.06
Urban	1884.61	1.07
Wo	375.63	0.21
WSc	18190.52	10.31
<b>Total - Tanzania</b>	<b>176404.54</b>	<b>100.00</b>

Ocean	1660534.00	
Sheet Total	1836938.54	

31. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-9 (MPANDA)

Classification code	Hectares	Percentage cover
B(et)	189231.99	9.12
Bd	959.10	0.05
Bo	1356.50	0.07
BSc	4834.21	0.23
BSL	379.91	0.02
Cm	78082.43	3.76
Fn	7427.46	0.36
Gb	6715.89	0.32
Gbs	72797.44	3.51
Go	20291.04	0.98
Gos	52083.05	2.51
GSc	4664.95	0.22
Gw	81132.77	3.91
Gws	34691.86	1.67
IW	355032.88	17.11
S/M	34799.36	1.68
Urban	214.40	0.01
Wc	220307.62	10.62
Wo	858528.41	41.37
WSc	51852.12	2.50
<b>Total - Tanzania</b>	<b>2075383.38</b>	<b>100.00</b>

ZAIRE	181216.30	
Sheet Total	2256599.68	

**32. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-10 (NYONGA)**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	286.19	0.02
Bt	692.17	0.04
Cm	26888.07	1.47
Gb	1216.51	0.07
Gbs	379258.39	20.68
Go	1411.60	0.08
Gos	129387.14	7.06
Gw	11247.93	0.61
Gws	139278.51	7.60
S/M	23.49	0.00
Wc	18370.55	1.00
Wo	1124445.94	61.32
WSc	1123.33	0.06
<b>Sheet Total</b>	<b>1833629.83</b>	<b>100.00</b>

33. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-11 (RUNGWA)

Classification code	Hectares	Percentage cover
B(et)	4588.38	0.25
Bt	426.63	0.02
Cm	21253.28	1.16
Gbs	142210.76	7.76
Gos	59589.57	3.25
Gw	1127.09	0.06
Gws	103356.45	5.64
Wc	40774.47	2.22
Wo	1460012.13	79.62
WSc	321.26	0.02
Sheet Total	1833660.02	100.00

34. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-12 (DODOMA)

Classification code	Hectares	Percentage cover
B(et)	290814.01	15.64
Bd	61757.39	3.32
Bo	127851.35	6.88
BSc	524267.68	28.20
BSL	4.42	0.00
Bt	41092.24	2.21
Bt(et)	2044.91	0.11
Chc	106.62	0.01
Cm	47212.05	2.54
Gb	340.41	0.02
Gbs	94083.71	5.06
Go	267.50	0.01
Gos	78598.20	4.23
GSc	86920.94	4.68
Gw	16010.33	0.86
Gws	17743.89	0.95
IW	17981.73	0.97
S/M	20117.78	1.08
Urban	2304.79	0.12
Wo	328764.11	17.69
WSc	100577.29	5.41
Sheet Total	1858861.34	100.00

35. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-9 (KILOSA)

Classification code	Hectares	Percentage cover
B(et)	18594.14	1.01
Bd	4971.87	0.27
Bo	287.02	0.02
BSc	283310.91	15.43
BSL	145.50	0.01
Bt	313.64	0.02
Bt(et)	6377.43	0.35
Chc	125549.44	6.84
Cm	33828.28	1.84
Fn	39064.87	2.13
Fp	1911.98	0.10
Gb	38600.63	2.10
Gbs	3865.63	0.21
Go	7968.19	0.43
Gos	22740.55	1.24
GSc	270553.83	14.73
Gw	92793.05	5.05
Gws	15251.96	0.83
IW	180.19	0.01
S/M	65.16	0.00
Urban	1161.63	0.06
Wc	234560.03	12.77
Wo	313159.42	17.06
WSc	320911.45	17.48
<b>Sheet Total</b>	<b>1836166.80</b>	<b>100.00</b>

36. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-10 (MOROGORO)

Classification code	Hectares	Percentage cover
B(et)	198873.23	11.40
Bo	1273.15	0.07
BSc	294215.73	16.87
BSL	249.10	0.01
Bt	2181.06	0.13
Bt(et)	35980.80	2.06
Chc	99831.52	5.72
Cm	92786.39	5.32
Ctc	140940.16	8.08
Fm	3090.51	0.18
Fn	52711.31	3.02
Fp	7483.61	0.43
Gb	31519.88	1.81
Gbs	13701.91	0.79
Go	676.08	0.04
Gos	9440.00	0.54
GSc	37107.53	2.13
Gw	33770.64	1.94
IW	291.83	0.02
S/M	3477.97	0.20
SC	604.46	0.03
Urban	3065.53	0.18
Wc	81364.40	4.67
Wo	426059.29	24.43
WSc	173351.29	9.94
<b>Total - Tanzania</b>	<b>1744047.38</b>	<b>100.00</b>

Ocean	89600.46	
Sheet Total	1833647.84	

37. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-11 (DAR-es-SALAAM)

Classification code	Hectares	Percentage cover
B(et)	13726.87	4.57
BSc	33036.82	11.00
BSL	768.34	0.26
Bt(et)	353.51	0.12
Chc	1557.44	0.52
Cm	88075.85	29.32
Ctc	37966.94	12.64
Fm	6539.20	2.18
Fn	28780.44	9.58
Fp	8695.75	2.89
Gbs	1755.15	0.58
GSc	15511.56	5.16
SC	820.49	0.27
Urban	14864.46	4.95
Wc	8282.50	2.76
Wo	5746.32	1.91
WSc	33920.45	11.29
<b>Total - Tanzania</b>	<b>300402.06</b>	<b>100.00</b>

Ocean	1533243.26
Sheet Total	1833645.32

38. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-13 (KIPILI)

Classification code	Hectares	Percentage cover
B(et)	24845.53	2.02
Bd	1064.83	0.09
Bo	16858.37	1.37
BSc	139491.35	11.34
BSL	5889.77	0.48
chc	273.23	0.02
Cm	26909.78	2.19
Fn	1930.36	0.16
Gb	45702.63	3.72
Gbs	17347.86	1.41
Go	20797.29	1.69
Gos	14683.13	1.19
GSc	81417.40	6.62
Gw	69158.11	5.62
Gws	6221.12	0.51
IW	196482.24	15.98
S/M	7774.26	0.63
Wc	231341.83	18.81
Wo	230777.02	18.77
WSc	90729.99	7.38
<b>Total - Tanzania</b>	<b>1229696.12</b>	<b>100.00</b>

ZAIRE	602606.30	
Sheet Total	1832302.42	

39. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-14 (SUMBAWANGA)

Classification code	Hectares	Percentage cover
B(et)	17232.18	0.94
Bo	113.53	0.01
BSc	6341.81	0.35
BSL	12500.28	0.68
Chc	893.92	0.05
Cm	6721.71	0.37
Fn	7133.28	0.39
Gb	20060.56	1.10
Gbs	68143.38	3.72
Go	223.60	0.01
Gos	29160.29	1.59
GSc	25704.95	1.40
Gw	7309.88	0.40
Gws	34190.14	1.87
IW	311167.50	17.01
S/M	3845.48	0.21
Urban	450.20	0.02
Wc	137167.15	7.50
Wo	1120298.37	61.23
WSc	21146.49	1.16
Sheet Total	1829804.70	100.00

40. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-15 (KIPEMBAWE)

Classification code	Hectares	Percentage cover
B(et)	8845.70	0.48
Bo	829.74	0.05
Cm	34807.72	1.90
Fn	23859.01	1.30
Gb	113.15	0.01
Gbs	63653.92	3.48
Go	256.11	0.01
Gos	66701.59	3.65
Gw	6970.73	0.38
Gws	21296.76	1.16
RO	250.46	0.01
Wc	19229.06	1.05
Wo	1581010.08	86.40
WSc	2022.24	0.11
Sheet Total	1829846.27	100.00

41. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-36-16 (IRINGA)

Classification code	Hectares	Percentage cover
B(et)	371691.80	20.29
Bd	35972.14	1.96
Bo	91408.10	4.99
BSc	201488.60	11.00
BSL	690.11	0.04
Bt	4043.26	0.22
Bt(et)	13710.81	0.75
Cm	22074.76	1.20
Fn	18508.89	1.01
Fp	54.97	0.00
Gb	98782.20	5.39
Gbs	82356.50	4.49
Go	1443.27	0.08
Gos	24610.52	1.34
GSc	157160.32	8.58
Gw	112782.47	6.16
Gws	41133.47	2.24
IW	22339.08	1.22
S/M	4992.69	0.27
Urban	798.29	0.04
Wc	3246.15	0.18
Wo	428991.09	23.41
WSc	94022.98	5.13
Sheet Total	1832302.45	100.00

42. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-13 (MIKUMI)

Classification code	Hectares	Percentage cover
B(et)	76002.62	4.15
Bd	514.36	0.03
Bo	688.82	0.04
BSc	211456.54	11.54
Chc	14192.15	0.77
Cm	57841.71	3.16
Fn	217271.16	11.86
Gb	55645.75	3.04
Gbs	10013.42	0.55
Go	37513.79	2.05
Gos	4389.00	0.24
GSc	48833.91	2.67
Gw	310415.83	16.94
Gws	2968.12	0.16
IW	2540.01	0.14
S/M	960.77	0.05
Urban	661.16	0.04
Wc	46412.56	2.53
Wo	703453.52	38.39
WSc	30565.46	1.67
Sheet Total	1832340.65	100.00

43. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-14 (UTETE)

Classification code	Hectares	Percentage cover
B(et)	7008.24	0.38
BSc	137568.40	7.52
BSL	3086.34	0.17
Bt	547.04	0.03
Bt(et)	14733.52	0.81
Chc	46237.38	2.53
Cm	10785.32	0.59
Ctc	46190.97	2.52
Fn	80220.20	4.38
Gb	59082.25	3.23
Gbs	21356.75	1.17
Go	8579.47	0.47
Gos	70702.61	3.86
GSc	89083.47	4.87
Gw	267983.35	14.65
Gws	100226.54	5.48
IW	12957.70	0.71
S/M	28074.22	1.53
Urban	668.24	0.04
Wc	344334.03	18.82
Wo	368176.78	20.12
WSc	112226.73	6.13
Sheet Total	1829829.56	100.00

44. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SB-37-15 (MAFIA)

Classification code	Hectares	Percentage cover
BSc	37751.96	7.15
BSL	14283.73	2.71
Cm	15783.48	2.99
Ctc	85839.37	16.26
Fm	41224.47	7.81
Fn	3769.35	0.71
Gb	161.61	0.03
Gbs	4422.87	0.84
Go	475.73	0.09
GSc	144077.29	27.29
Gw	18.09	0.00
Gws	2737.13	0.52
IW	1409.90	0.27
S/M	9458.33	1.79
SC	526.45	0.10
Urban	289.50	0.05
Wc	57626.56	10.91
Wo	4968.35	0.94
WSc	103164.02	19.54
<b>Total - Tanzania</b>	<b>527988.18</b>	<b>100.00</b>

Ocean	1301861	
Sheet Total	1829849.2	

45. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-1 (MBALA)

Classification code	Hectares	Percentage cover
B(et)	829.28	0.17
BSc	12055.17	2.42
Cm	56094.28	11.27
Gb	5643.30	1.13
Gbs	19541.38	3.92
Go	1590.66	0.32
Gos	23959.61	4.81
GSc	44055.82	8.85
Gw	241.65	0.05
Gws	3790.63	0.76
IW	152195.20	30.57
S/M	8696.90	1.75
Wc	62473.79	12.55
Wo	75540.69	15.17
WSc	31184.25	6.26
<b>Total -Tanzania</b>	<b>497892.60</b>	<b>100.00</b>

ZAIRE and ZAMBIA	1330030.50	
Sheet Total	1827923.10	

46. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-2 (MWIMBI)

Classification code	Hectares	Percentage cover
B(et)	69143.41	3.95
BSc	363293.43	20.76
Chc	13199.98	0.75
Cm	91643.59	5.24
Fn	95.75	0.01
Fp	376.60	0.02
Gb	4755.91	0.27
Gbs	45755.16	2.61
Go	107.30	0.01
Gos	20026.94	1.14
GSc	149068.10	8.52
Gw	907.41	0.05
Gws	31474.08	1.80
IW	288038.41	16.46
RO	657.94	0.04
S/M	35434.87	2.02
Urban	163.42	0.01
Wc	88333.11	5.05
Wo	317055.63	18.12
WSc	230667.20	13.18
<b>Total - Tanzania</b>	<b>1750198.26</b>	<b>100.00</b>

ZAMBIA	75276.60	
Sheet Total	1825474.86	

47. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-3 (MBEYA)

Classification code	Hectares	Percentage cover
B(et)	65806.62	3.60
Bd	977.09	0.05
Bo	28254.48	1.55
BSc	250039.74	13.70
Cbc	28.18	0.00
Chc	11554.17	0.63
Cm	82548.74	4.52
Ctc	2422.70	0.13
Fn	11692.57	0.64
Fp	3919.42	0.21
Gb	1184.72	0.06
Gbs	121271.66	6.64
Go	18173.24	1.00
Gos	98948.27	5.42
GSc	33090.29	1.81
Gw	170755.79	9.35
Gws	33806.12	1.85
IW	547.47	0.03
S/M	22723.43	1.24
Urban	1734.32	0.10
Wc	53725.06	2.94
Wo	720073.16	39.45
WSc	92198.91	5.05
Sheet Total	1825476.16	100.00

48. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-4 (SAO HILL)

Classification code	Hectares	Percentage cover
B(et)	6883.28	0.38
BSc	337294.97	18.45
Cbc	16885.02	0.92
Chc	14948.83	0.82
Cm	78807.78	4.31
Ctc(st)	1467.61	0.08
Fn	253000.73	13.84
Fp	55080.15	3.01
Gb	39485.03	2.16
Gbs	16314.94	0.89
Go	11341.58	0.62
Gos	37226.59	2.04
GSc	371433.38	20.32
Gw	58442.55	3.20
Gws	24730.46	1.35
IW	4500.51	0.25
S/M	15605.22	0.85
Urban	1054.22	0.06
Wc	40938.59	2.24
Wo	176409.50	9.65
WSc	266033.22	14.55
Sheet Total	1827884.19	100.00

49. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-1 (MAHENGE)

Classification code	Hectares	Percentage cover
BSc	57144.50	3.13
BSL	457.87	0.03
Cm	49723.98	2.72
Ctc	411.59	0.02
Fn	186752.21	10.22
Fp	78.08	0.00
Gb	52940.59	2.90
Gbs	125555.17	6.87
Go	11338.17	0.62
Gos	251246.00	13.75
GSc	52856.23	2.89
Gw	312486.73	17.10
Gws	465.32	0.03
IW	6793.06	0.37
S/M	3162.47	0.17
Urban	201.26	0.01
Wc	5924.45	0.32
Wo	683782.45	37.41
WSc	26586.56	1.45
Sheet Total	1827906.70	100.00

50. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-2 (KIPATIMU)

Classification code	Hectares	Percentage cover
B(et)	10441.38	0.57
Bd	36352.43	1.99
Bo	6478.00	0.35
BSc	9193.36	0.50
BSL	2897.61	0.16
Bt(et)	184910.80	10.13
Cm	6078.17	0.33
Ctc	174.91	0.01
Fn	12274.60	0.67
Gb	1149.91	0.06
Gbs	30238.74	1.66
Gos	6828.67	0.37
GSc	11530.28	0.63
Gw	110276.19	6.04
Gws	126930.70	6.95
IW	4560.05	0.25
S/M	12261.81	0.67
Urban	19.95	0.00
Wc	60619.42	3.32
Wo	1102215.30	60.38
WSc	89991.26	4.93
Sheet Total	1825423.54	100.00

51. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-3 (KILWA)

Classification code	Hectares	Percentage cover
BSc	64528.34	13.95
BSL	5653.61	1.22
Bt	298.94	0.06
Bt(et)	3977.35	0.86
Cm	4267.02	0.92
Ctc	13410.80	2.90
Fm	34541.28	7.47
Fp	76.22	0.02
Gb	2402.92	0.52
Gbs	8590.36	1.86
Go	412.26	0.09
Gos	388.39	0.08
GSc	75429.83	16.30
Gw	32789.33	7.09
Gws	5590.51	1.21
IW	2203.13	0.48
S/M	439.02	0.09
Urban	157.88	0.03
Wc	79619.75	17.21
Wo	82410.45	17.81
WSc	45490.99	9.83
<b>Total - Tanzania</b>	<b>462678.39</b>	<b>100.00</b>

Ocean	1362873.00	
Sheet Total	1825551.39	

52. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-6 (TUNDUMA)

Classification code	Hectares	Percentage cover
B(et)	31952.26	11.25
BSc	43768.39	15.41
Cm	15830.41	5.58
Ctc	10177.52	3.58
Gb	93.80	0.03
Gbs	12313.88	4.34
Gos	16874.44	5.94
GSc	12296.22	4.33
Gw	251.73	0.09
Gws	1417.62	0.50
S/M	495.22	0.17
Urban	10.88	0.00
Wc	28445.18	10.02
Wo	41926.83	14.77
WSc	68093.03	23.98
<b>Total - Tanzania</b>	<b>283947.42</b>	<b>100.00</b>

ZAMBIA	1536502.00	
Sheet Total	1820449.42	

53. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-7 (TUKUYU)

Classification code	Hectares	Percentage cover
B(et)	1475.04	0.11
Bd	341.92	0.03
Bo	605.27	0.05
BSc	239557.72	18.11
BSL	71.85	0.01
Cbc	3842.52	0.29
Chc	9298.75	0.70
Cm	311932.57	23.58
Ctc	6769.68	0.51
Fn	74765.64	5.65
Fp	2530.63	0.19
Gb	20826.55	1.57
Go	28118.20	2.13
Gos	1190.85	0.09
GSc	93652.14	7.08
Gw	37841.42	2.86
IW	219975.57	16.63
RO	69.62	0.01
S/M	2067.07	0.16
Urban	1294.68	0.10
Wc	3375.84	0.26
Wo	103232.46	7.80
WSc	160115.29	12.10
<b>Total - Tanzania</b>	<b>1322951.29</b>	<b>100.00</b>

ZAMBIA	497508.90	
Sheet Total	1820460.19	

54. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-8 (NJOMBE)

Classification code	Hectares	Percentage cover
B(et)	45358.53	2.49
BSc	301154.52	16.52
Cbc	7507.27	0.41
Chc	1627.47	0.09
Cm	106408.53	5.84
Ctc	21196.03	1.16
Fn	354988.03	19.47
Fp	21097.29	1.16
Gb	29657.70	1.63
Gbs	1705.06	0.09
Go	14572.42	0.80
Gos	3062.85	0.17
GSc	340810.37	18.69
Gw	33277.38	1.83
IW	1616.88	0.09
S/M	1222.76	0.07
Urban	552.71	0.03
Wc	77468.90	4.25
Wo	330556.93	18.13
WSc	129179.18	7.09
Sheet Total	1823020.79	100.00

55. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-5 (KAZIMOTO)

Classification code	Hectares	Percentage cover
B(et)	2033.00	0.11
BSc	479.55	0.03
BSL	6913.01	0.38
Bt(et)	4930.90	0.27
Cm	6520.19	0.36
Fn	142834.59	7.84
Gb	41908.40	2.30
Gbs	22096.25	1.21
Go	4384.93	0.24
Gos	2919.28	0.16
GSc	867.86	0.05
Gw	354044.46	19.42
Gws	2111.60	0.12
IW	8070.92	0.44
S/M	29.98	0.00
Wc	96735.86	5.31
Wo	1125519.20	61.74
WSc	560.18	0.03
Sheet Total	1822960.18	100.00

56. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-6 (LIWALE)

Classification code	Hectares	Percentage cover
B(et)	201250.86	11.06
Bo	344.42	0.02
BSc	41864.65	2.30
Bt	312.91	0.02
Bt(et)	53111.40	2.92
Cm	21271.55	1.17
Ctc	1882.00	0.10
Fn	333.53	0.02
Gb	77765.57	4.27
Gbs	38641.67	2.12
Go	387.86	0.02
Gos	10748.91	0.59
Gw	205242.44	11.28
Gws	55497.49	3.05
S/M	1064.91	0.06
Urban	309.53	0.02
Wc	65188.78	3.58
Wo	863638.93	47.45
WSc	181407.89	9.97
Sheet Total	1820265.29	100.00

57. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-7 (LINDI)

Classification code	Hectares	Percentage cover
B(et)	17725.91	2.14
BSc	133037.34	16.07
BSL	3905.49	0.47
Chc	9333.85	1.13
Cm	17775.19	2.15
Ctc	48816.70	5.90
Fm	17944.73	2.17
Gb	40219.60	4.86
Gbs	4303.45	0.52
Go	258.12	0.03
Gos	5497.91	0.66
GSc	14557.76	1.76
Gw	59405.33	7.18
Gws	17654.82	2.13
IW	831.08	0.10
S/M	165.46	0.02
Wc	237700.16	28.72
Wo	116239.71	14.05
WSc	82238.88	9.94
<b>Total - Tanzania</b>	<b>827611.48</b>	<b>100.00</b>

Ocean	992995.10	
Sheet Total	1820606.58	

58. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-12 (SONGEA)

Classification code	Hectares	Percentage cover
B(et)	197440.45	10.86
BSc	356248.07	19.60
Bt(et)	2117.56	0.12
Cm	182526.27	10.04
Ctc(st)	6212.79	0.34
Fn	41543.87	2.29
Fp	2869.50	0.16
Gb	44250.75	2.43
Gbs	4928.42	0.27
Go	4457.43	0.25
Gos	4053.57	0.22
GSc	26823.81	1.48
Gw	27031.03	1.49
Gws	5016.53	0.28
IW	122522.10	6.74
S/M	13932.67	0.77
Urban	2626.07	0.14
Wc	283986.19	15.62
Wo	171733.75	9.45
WSc	317196.77	17.45
Sheet Total	1817517.61	100.00

59. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-9 (LIKUYU)

Classification code	Hectares	Percentage cover
BSc	74354.12	4.09
BSL	2191.55	0.12
Chc	1782.58	0.10
Cm	91096.26	5.01
Ctc	74828.25	4.12
Fn	16544.16	0.91
Gb	43910.73	2.42
Gbs	38740.81	2.13
Go	622.81	0.03
Gos	11828.29	0.65
GSc	18160.72	1.00
Gw	359975.40	19.81
IW	3666.99	0.20
S/M	15963.80	0.88
Urban	544.78	0.03
Wc	192036.17	10.57
Wo	763919.92	42.03
WSc	107356.57	5.91
Sheet Total	1817523.90	100.00

60. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-10 (MASASI)

Classification code	Hectares	Percentage cover
B(et)	470623.16	25.93
Bd	883.97	0.05
Bo	13979.01	0.77
BSc	304084.29	16.75
Bt(et)	1700.97	0.09
Cm	24715.57	1.36
Ctc	148617.02	8.19
Fn	3580.97	0.20
Gb	3148.08	0.17
Gbs	14315.64	0.79
Go	616.00	0.03
Gos	540.38	0.03
GSc	635.82	0.04
Gw	91185.74	5.02
Gws	36193.41	1.99
IW	31.76	0.00
RO	1821.49	0.10
S/M	330.97	0.02
Urban	1907.86	0.11
Wc	104545.11	5.76
Wo	350189.31	19.29
WSc	241440.41	13.30
Sheet Total	1815086.92	100.00

61. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-11 (MTWARA)

Classification code	Hectares	Percentage cover
Airport	73.81	0.01
B(et)	18527.49	1.38
BSc	77280.06	5.74
BSL	11269.19	0.84
Bt(et)	46132.20	3.43
Chc	16638.71	1.24
Cm	38607.48	2.87
Ctc	612258.46	45.50
Fm	21257.88	1.58
Fn	54237.25	4.03
Fp	2948.53	0.22
Gb	866.32	0.06
Gbs	5449.94	0.40
Gos	281.51	0.02
GSc	35163.91	2.61
Gw	10269.65	0.76
IW	4125.01	0.31
S/M	1645.30	0.12
SC	35.57	0.00
Urban	3727.70	0.28
Wc	5039.42	0.37
Wo	98442.89	7.32
WSc	281429.19	20.91
<b>Total - Tanzania</b>	<b>1345707.49</b>	<b>100.00</b>

Mozambique	278523.00	
Ocean	190845.90	
Sheet Total	1815076.39	

62. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-36-16 (MBAMBA BAY)

Classification code	Hectares	Percentage cover
B(et)	6638.27	0.55
BSc	186441.94	15.38
Cm	47816.41	3.95
Ctc(st)	4694.55	0.39
Fn	958.16	0.08
Fp	389.64	0.03
Gb	6283.90	0.52
Gbs	6438.23	0.53
Go	908.58	0.07
Gos	2307.89	0.19
GSc	7581.83	0.63
Gw	38955.52	3.21
IW	432812.64	35.71
RO	127.36	0.01
S/M	10925.05	0.90
Urban	127.09	0.01
Wc	171032.80	14.11
Wo	192861.02	15.91
WSc	94717.84	7.81
<b>Total - Tanzania</b>	<b>1212018.74</b>	<b>100.00</b>

Mozambique	599501.60
Sheet Total	1811520.34

63. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-13 (TUNDURU)

Classification code	Hectares	Percentage cover
B(et)	32813.79	2.82
BSc	168193.15	14.48
BSL	1737.88	0.15
Cm	81310.83	7.00
Ctc	123328.09	10.61
Fn	76439.90	6.58
Gb	2507.57	0.22
Go	412.71	0.04
GSc	20016.51	1.72
Gw	82998.51	7.14
Gws	32652.58	2.81
IW	7828.27	0.67
S/M	5032.41	0.43
Urban	835.80	0.07
Wc	92319.20	7.95
Wo	283086.76	24.36
WSc	150393.34	12.94
<b>Total - Tanzania</b>	<b>1161907.29</b>	<b>100.00</b>

Mozambique	649534.40	
Sheet Total	1811441.69	

64. DISTRIBUTION OF LAND COVER FOR SHEET NUMBER SC-37-14 (LUKWIKA)

Classification code	Hectares	Percentage cover
B(et)	24379.15	3.36
BSc	32125.90	4.43
BSL	13304.02	1.83
Cm	704.88	0.10
Ctc	33685.29	4.64
Fn	208.19	0.03
Gos	2588.76	0.36
GSc	5713.88	0.79
Gw	5690.29	0.78
Gws	25192.55	3.47
IW	12132.90	1.67
RO	152.33	0.02
S/M	3249.47	0.45
Wc	156791.38	21.62
Wo	279600.11	38.55
WSc	129762.18	17.89
<b>Total - Tanzania</b>	<b>725281.29</b>	<b>100.00</b>

Mozambique	1740758.00	
Sheet Total	2466039.29	

**THE DISTRIBUTION OF LAND COVER BY ADMINISTRATIVE  
AREA**



## **THE DISTRIBUTION OF LAND COVER BY ADMINISTRATIVE AREA**

In this section, area statements for the distribution of land cover classes throughout Tanzania, and for each of its Regions and Districts are presented.

The statement for the nationwide distribution of land cover classes appears first.

This is followed by the Regional and District statements presented within one section. The Regions are ordered alphabetically. The statement for each Region is followed by the statements for its constituent Districts.

In order to compile these statements it was necessary first to map-join the map sheet coverages embracing a given Region or District. The authorised administrative area boundary was then overlaid to this coverage and a new file created containing only the land cover information contained within the boundary. From these data, the relevant statement was computed.



**THE DISTRIBUTION OF LAND COVER THROUGHOUT  
TANZANIA**



**TOTAL AREAS WITHIN TANZANIA**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	114.28	0.00
Airstrip	30.98	0.00
B(et)	5355976.82	5.67
Bd	597581.21	0.63
Bo	944082.37	1.00
BSc	9234804.62	9.77
BSL	126177.75	0.13
Bt	524826.98	0.56
Bt(et)	659000.70	0.70
Cbc	89234.34	0.09
Chc	2187336.74	2.31
Cm	6322958.37	6.69
Ctc	1433223.84	1.52
Ctc(st)	110754.72	0.12
Fm	156877.51	0.17
Fn	2431315.28	2.57
Fp	134914.34	0.14
Gb	1962818.30	2.08
Gbs	2923033.25	3.09
Go	1859896.56	1.97
Gos	1782196.44	1.89
GSc	4703633.86	4.98
Gw	4072640.07	4.31
Gws	2056165.74	2.18
Ice	1551.85	0.00
IW	6344789.31	6.71
Ocean	26068.36	0.03
RO	9280.82	0.01
S/M	981260.37	1.04
SC	1986.95	0.00
Urban	64584.84	0.07
Wc	5719223.33	6.05
Wo	24721669.90	26.15
WSc	6994674.29	7.40
<b>Total</b>	<b>94534685.10</b>	<b>100.00</b>

Note : Ocean totals fall within Tanga and Dar - es - Salaam regions only.

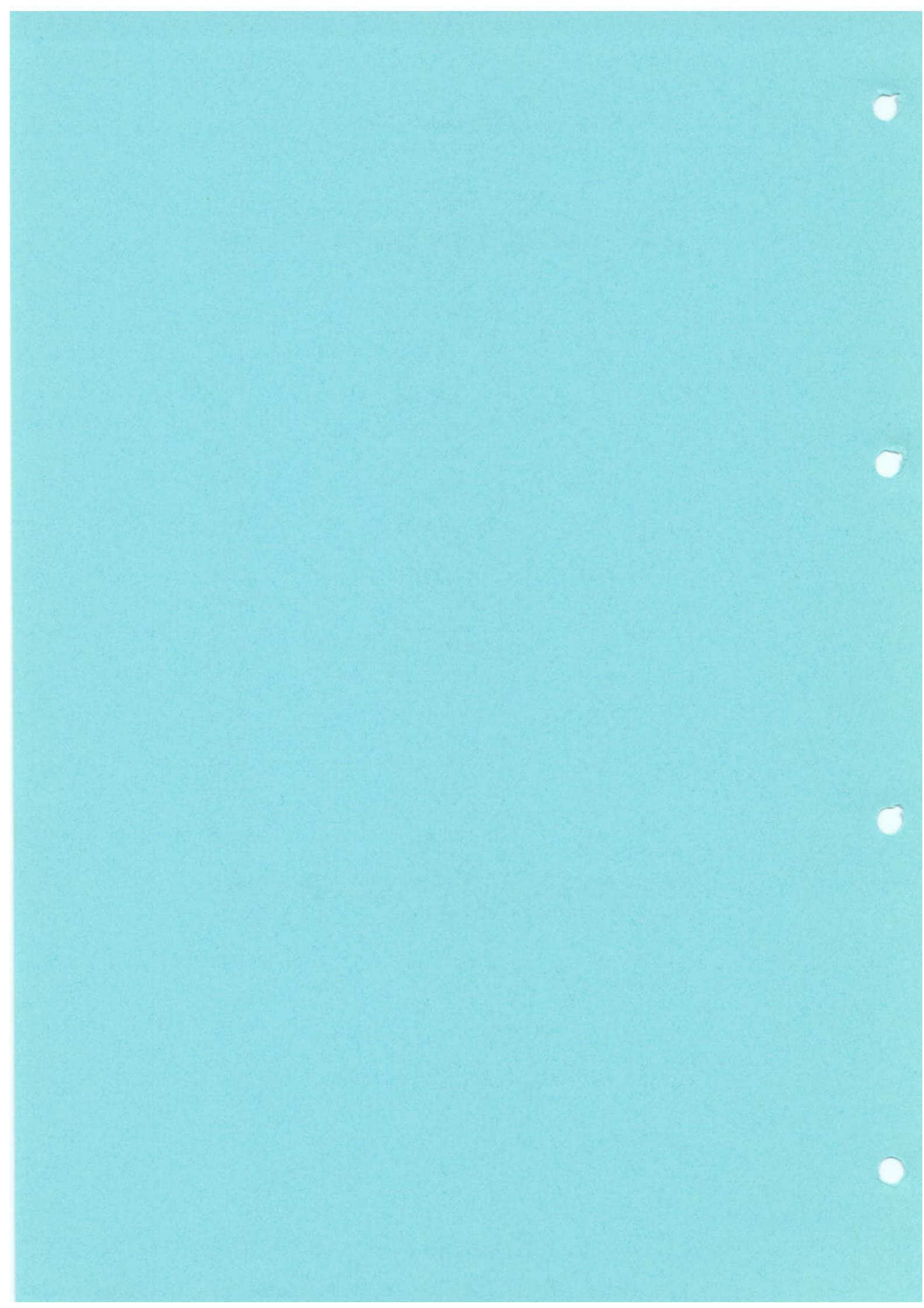


**THE DISTRIBUTION OF LAND COVER BY REGION AND  
CONSTITUENT DISTRICTS**



**ARUSHA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	1089965.83	12.94
Bd	200342.60	2.38
Bo	281920.68	3.35
BSc	698003.73	8.29
BSL	20760.64	0.25
Bt	15937.15	0.19
Bt(et)	192437.76	2.29
Chc	349519.51	4.15
Cm	304414.43	3.62
Ctc(st)	27974.54	0.33
Fn	280732.19	3.33
Fp	6841.86	0.08
Gb	557237.43	6.62
Gbs	197299.32	2.34
Go	955708.75	11.35
Gos	173263.86	2.06
GSc	469674.22	5.58
Gw	405481.38	4.82
Gws	28528.36	0.34
IW	249188.75	2.96
RO	167.64	0.00
S/M	65884.47	0.78
Urban	3757.12	0.04
Wc	134306.52	1.60
Wo	1225168.92	14.55
WSc	485925.28	5.77
<b>Total - Arusha region</b>	<b>8420442.95</b>	<b>100.00</b>



ARUSHA DISTRICT  
Distribution of land cover

Classification code	Hectares	Percentage cover
Chc	3594.55	34.73
Cm	662.37	6.40
Ctc(st)	3811.86	36.83
Urban	2282.26	22.05
<b>Total - Arusha District</b>	<b>10351.04</b>	<b>100.00</b>

**BABATI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	11628.30	2.15
Bd	1484.01	0.27
Bo	143.45	0.03
BSc	74645.95	13.80
Bt	180.57	0.03
Chc	75704.30	14.00
Cm	16272.44	3.01
Ctc(st)	4909.99	0.91
Fn	23334.43	4.31
Gb	37026.30	6.85
Gbs	31997.41	5.92
Go	5967.21	1.10
Gos	18289.30	3.38
GSc	74793.04	13.83
Gw	72378.45	13.38
Gws	3335.49	0.62
IW	43573.06	8.06
S/M	4094.30	0.76
Wc	3330.07	0.62
Wo	15220.55	2.81
WSc	22516.88	4.16
<b>Total - Babati District</b>	<b>540825.50</b>	<b>100.00</b>

**KITETO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	309772.01	24.84
Bd	437.79	0.04
Bo	3493.06	0.28
BSc	154842.23	12.42
Bt	9388.70	0.75
Bt(et)	39591.01	3.17
Cm	68530.17	5.50
Fn	15069.57	1.21
Gb	9205.98	0.74
Gbs	25209.84	2.02
Go	773.55	0.06
Gos	25173.48	2.02
GSc	76733.69	6.15
Gw	40868.67	3.28
Gws	13950.55	1.12
IW	101.82	0.01
S/M	11955.74	0.96
Urban	473.20	0.04
Wc	60389.84	4.84
Wo	257913.48	20.68
WSc	123166.42	9.88
<b>Total - Kiteto District</b>	<b>1247040.80</b>	<b>100.00</b>

**HANANG DISTRICT**  
**Distribution of land cover**

<b>Classification cover</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	8466.17	2.25
BSc	63127.73	16.77
Bt	5929.09	1.57
Bt(et)	1982.31	0.53
Chc	61684.94	16.39
Cm	26161.37	6.95
Fn	5894.75	1.57
Gb	1024.46	0.27
Gbs	90.29	0.02
Go	373.88	0.10
Gos	3427.00	0.91
GSc	46744.95	12.42
Gw	228.20	0.06
IW	4610.32	1.22
S/M	1686.61	0.45
Wo	56871.94	15.11
WSc	88163.65	23.42
<b>Total - Hanang District</b>	<b>376467.63</b>	<b>100.00</b>

**MBULU DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	38907.64	4.78
Bd	1938.36	0.24
Bo	1205.06	0.15
BSc	205535.42	25.24
BSL	5857.58	0.72
Bt(et)	3612.52	0.44
Chc	30740.45	3.77
Cm	26684.06	3.28
Fn	65697.32	8.07
Fp	45.42	0.01
Gb	18214.69	2.24
Gbs	12720.42	1.56
Go	3082.87	0.38
Gos	14702.00	1.81
GSc	72715.57	8.93
Gw	3056.12	0.38
Gws	2552.26	0.31
IW	116306.45	14.28
S/M	15051.60	1.85
Urban	140.11	0.02
Wc	5406.16	0.66
Wo	146561.44	17.99
WSc	23725.35	2.91
<b>Total - Mbulu District</b>	<b>814458.88</b>	<b>100.00</b>

**MONDULI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
✓ B(et)	260432.82	13.95
✓ Bd	128088.38	6.86
✓ Bo	148649.50	7.96
✓ BSc	52727.25	2.83
✓ BSL	1903.56	0.10
✓ Bt	438.79	0.02
✓ Chc	117123.69	6.28
✓ Cm	147206.88	7.89
✓ Ctc(st)	19252.68	1.03
✓ Fn	65637.31	3.52
✓ Fp	6796.44	0.36
✓ Gb	226646.32	12.14
✓ Gbs	49782.81	2.67
✓ Go	259085.49	13.88
✓ Gos	47956.36	2.57
✓ GSc	117290.15	6.28
✓ Gw	90988.09	4.88
✓ Gws	667.03	0.04
✓ IW	57248.87	3.07
✓ RO	167.64	0.01
✓ S/M	10349.26	0.55
✓ Urban	579.12	0.03
✓ Wc	1219.76	0.07
✓ Wo	55292.49	2.96
✓ WSc	761.89	0.04
<b>Total - Monduli District</b>	<b>1866292.59</b>	<b>100.00</b>

**NGORONGORO DISTRICT**  
**Distribution of land cover**

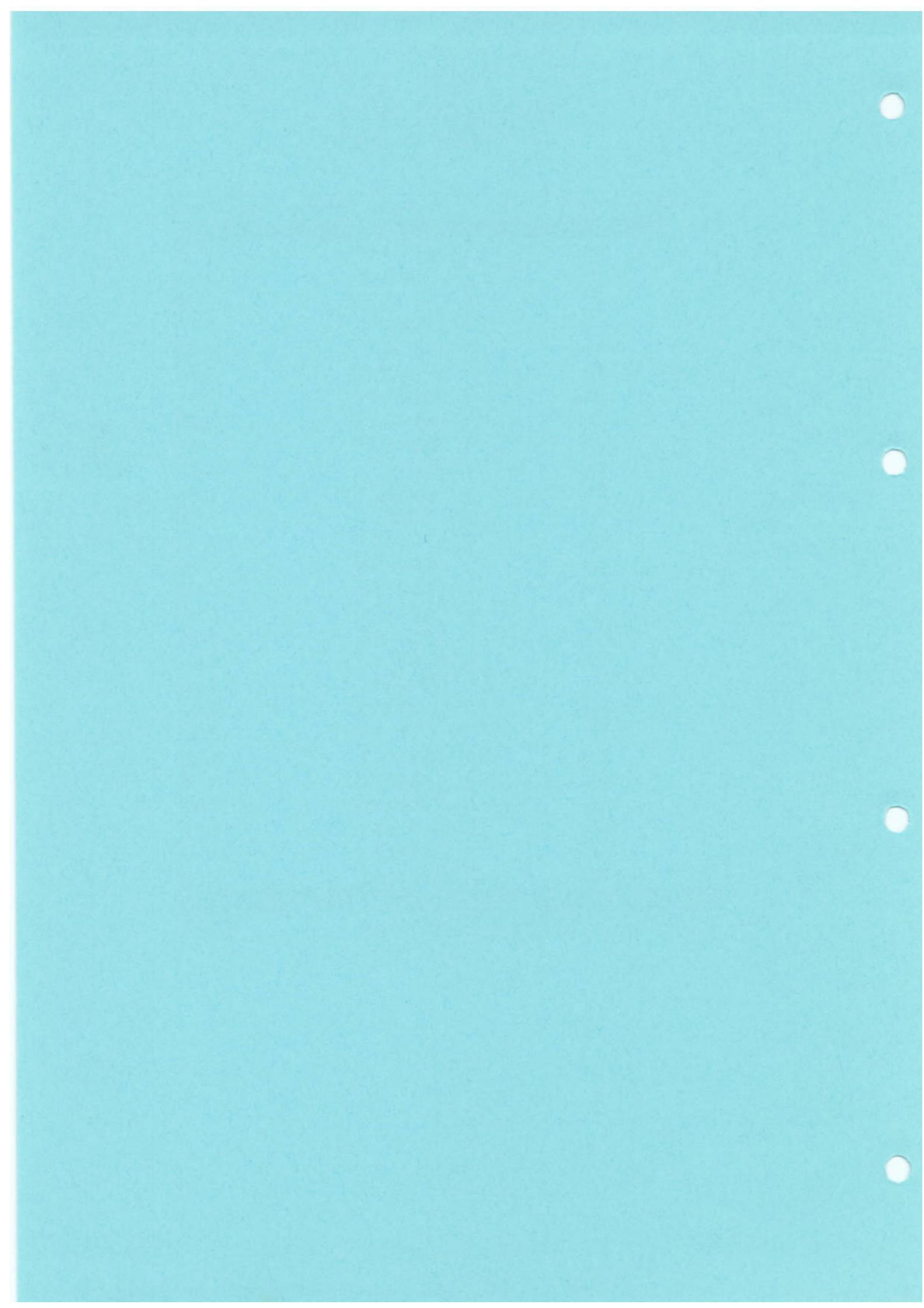
Classification code	Hectares	Percentage cover
B(et)	105898.88	7.01
Bd	32412.47	2.14
Bo	100965.77	6.68
BSc	14975.79	0.99
BSL	12999.50	0.86
Bt(et)	10601.85	0.70
Cm	2708.51	0.18
Fn	101670.02	6.73
Gb	101794.86	6.74
Gbs	16982.35	1.12
Go	671149.45	44.41
Gos	23002.18	1.52
GSc	34003.56	2.25
Gw	57009.37	3.77
Gws	1684.21	0.11
IW	21160.78	1.40
S/M	7710.53	0.51
Urban	73.09	0.00
Wc	6222.46	0.41
Wo	182074.46	12.05
WSc	6255.18	0.41
<b>Total - Ngorongoro District</b>	<b>1511355.26</b>	<b>100.00</b>

**SIMANJIRO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	354860.01	17.28
Bd	35981.58	1.75
Bo	27463.85	1.34
BSc	132149.38	6.43
Bt(et)	136650.06	6.65
Chc	60671.57	2.95
Cm	16188.63	0.79
Fn	3428.79	0.17
Gb	163324.81	7.95
Gbs	60516.20	2.95
Go	15276.31	0.74
Gos	40713.55	1.98
GSc	47393.26	2.31
Gw	140952.48	6.86
Gws	6338.82	0.31
IW	6187.45	0.30
S/M	15036.44	0.73
Urban	209.33	0.01
Wc	57738.23	2.81
Wo	511234.57	24.89
WSc	221335.92	10.78
<b>Total - Simanjiro District</b>	<b>2053651.24</b>	<b>100.00</b>

**COAST REGION (PWANI)**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	137016.54	4.30
Bd	16438.42	0.52
Bo	1395.28	0.04
BSc	272980.90	8.57
BSL	19795.11	0.62
Bt	949.05	0.03
Bt(et)	103187.91	3.24
Chc	43532.71	1.37
Cm	93816.39	2.94
Ctc	264613.71	8.31
Fm	62302.21	1.96
Fn	54793.87	1.72
Fp	6734.22	0.21
Gb	43293.38	1.36
Gbs	15391.89	0.48
Go	3178.61	0.10
Gos	28114.06	0.88
GSc	282657.52	8.87
Gw	173447.27	5.44
Gws	110933.19	3.48
IW	17678.76	0.55
S/M	32246.76	1.01
SC	1602.73	0.05
Urban	2640.53	0.08
Wc	470519.54	14.77
Wo	616272.50	19.34
WSc	310621.89	9.75
<b>Total - Coast region (Pwani)</b>	<b>3186154.96</b>	<b>100.00</b>



**BAGAMOYO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	113562.88	13.21
Bo	1373.28	0.16
BSc	143603.44	16.71
BSL	1203.14	0.14
Bt	949.05	0.11
Bt(et)	3262.95	0.38
Chc	20559.04	2.39
Cm	51250.78	5.96
Ctc	85067.79	9.90
Fm	4143.34	0.48
Fn	793.25	0.09
Fp	2488.92	0.29
Gb	21453.75	2.50
Gbs	4732.27	0.55
Go	676.08	0.08
Gos	333.80	0.04
GSc	25156.97	2.93
Gw	12904.44	1.50
Gws	1127.13	0.13
IW	21.98	0.00
SC	1076.28	0.13
Urban	968.17	0.11
Wc	52705.71	6.13
Wo	207965.20	24.19
WSc	102234.05	11.89
<b>Total - Bagamoyo District</b>	<b>859613.67</b>	<b>100.00</b>

**KIBAHA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	1469.31	0.74
BSc	58145.96	29.46
Bt(et)	24135.20	12.23
Chc	11077.34	5.61
Cm	13043.87	6.61
Ctc	38912.78	19.72
Fn	5452.55	2.76
Fp	4169.08	2.11
Gb	6433.14	3.26
GSc	1235.02	0.63
Gw	9.82	0.00
IW	28.47	0.01
S/M	26.17	0.01
Urban	494.52	0.25
Wc	9781.86	4.96
Wo	10892.20	5.52
WSc	12052.21	6.11
<b>Total - Kibaha District</b>	<b>197359.50</b>	<b>100.00</b>

**KISARAWA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	21984.35	2.84
BSc	47812.52	6.18
BSL	150.90	0.02
Bt(et)	18544.16	2.40
Chc	4168.76	0.54
Cm	14907.51	1.93
Ctc	76491.00	9.88
Fm	5038.12	0.65
Fn	20482.94	2.65
Gb	4456.14	0.58
Gbs	4779.69	0.62
Go	177.27	0.02
Gos	5728.77	0.74
GSc	63432.38	8.20
Gw	54453.65	7.04
Gws	38302.36	4.95
IW	1349.61	0.17
S/M	9656.61	1.25
SC	526.44	0.07
Urban	414.83	0.05
Wc	197000.10	25.46
Wo	61840.30	7.99
WSc	122180.76	15.79
<b>Total - Kisarawe District</b>	<b>773879.19</b>	<b>100.00</b>

**MAFIA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
BSc	535.54	0.95
BSL	9997.01	17.76
Cm	5169.47	9.18
Ctc	19073.63	33.89
Fm	3820.47	6.79
Fn	3756.04	6.67
Gb	161.61	0.29
Gbs	1364.97	2.42
GSc	203.17	0.36
Gw	18.09	0.03
Urban	221.97	0.39
Wc	1980.59	3.52
Wo	427.33	0.76
WSc	9558.66	16.98
<b>Total - Mafia District</b>	<b>56288.53</b>	<b>100.00</b>

**RUFIJI DISTRICT**  
**Distribution of land cover**

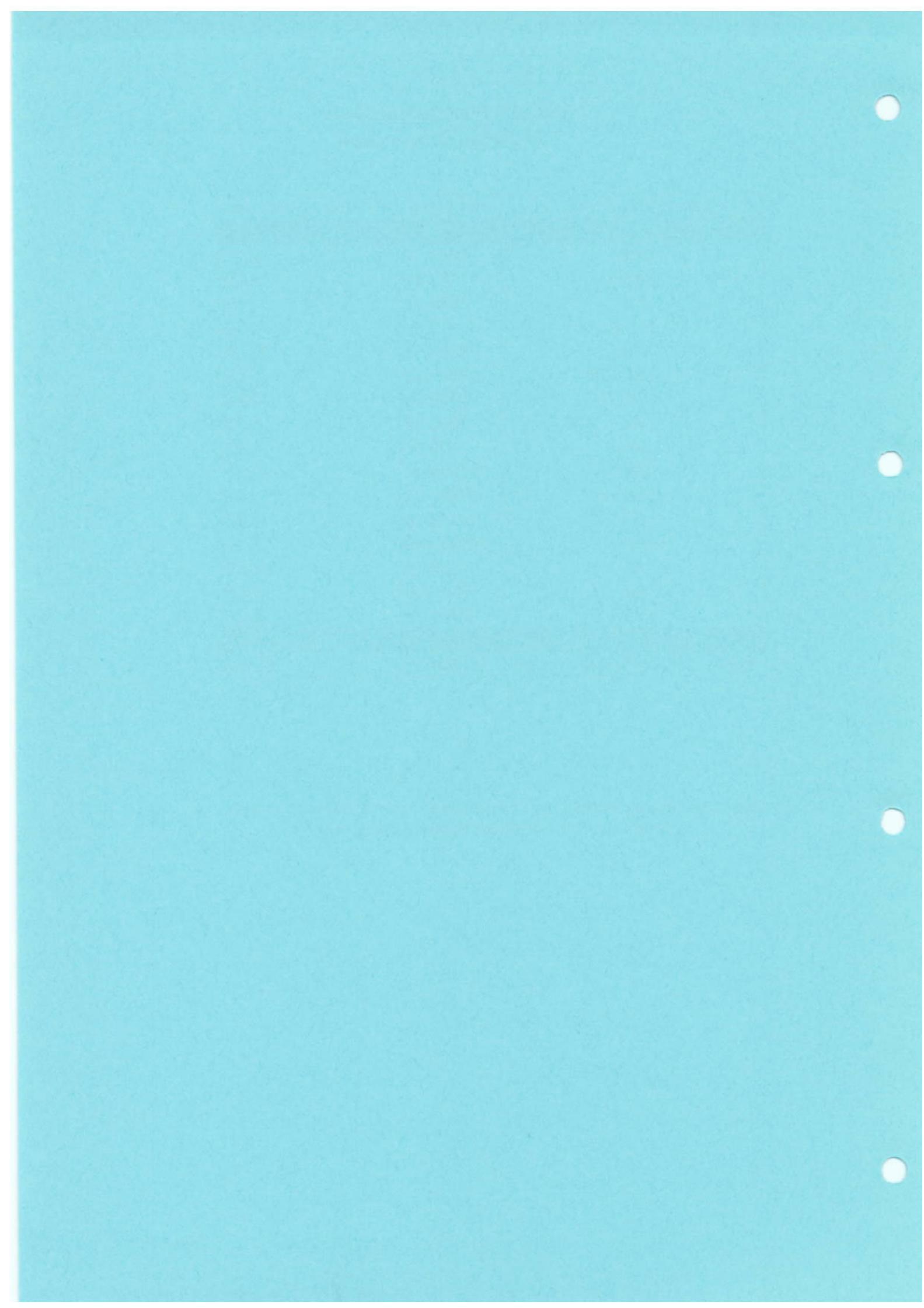
Classification code	Hectares	Percentage cover
Bd	16438.42	1.27
Bo	22.00	0.00
BSc	22883.45	1.76
BSL	8444.07	0.65
Bt(et)	57245.60	4.41
Chc	7727.57	0.59
Cm	9444.77	0.73
Ctc	45068.51	3.47
Fm	49300.28	3.80
Fn	24309.10	1.87
Fp	76.22	0.01
Gb	10788.74	0.83
Gbs	4514.96	0.35
Go	2325.27	0.18
Gos	22051.49	1.70
GSc	192629.98	14.83
Gw	106061.28	8.16
Gws	71503.70	5.50
IW	16278.69	1.25
S/M	22563.97	1.74
Urban	541.05	0.04
Wc	209051.29	16.09
Wo	335147.46	25.80
WSc	64596.20	4.97
<b>Total - Rufiji District</b>	<b>1299014.07</b>	<b>100.00</b>



**DAR - ES - SALAAM REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	4014.76	2.31
BSc	11747.29	6.76
BSL	1666.25	0.96
Bt(et)	353.51	0.20
Cm	58158.89	33.49
Ctc	13645.42	7.86
Fm	4315.79	2.49
Fn	2205.57	1.27
Gbs	500.75	0.29
GSc	31519.01	18.15
Ocean	20805.02	11.98
SC	348.66	0.20
Urban	12340.49	7.11
Wc	430.16	0.25
Wo	2541.06	1.46
WSc	9071.74	5.22
<b>Total - Dar-es-Salaam region</b>	<b>173664.37</b>	<b>100.00</b>

Note : Dar-es-Salaam region has a clearly defined boundary within the ocean, therefore for this district area statements are given.



**ILALA DISTICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	3.04	0.01
Cm	10145.13	32.41
Ctc	12311.43	39.33
Fm	0.28	0.00
Fn	608.26	1.94
GSc	32.21	0.10
Ocean	2118.14	6.77
Urban	2942.87	9.40
WSc	3138.64	10.03
<b>Total - Ilala District</b>	<b>31299.99</b>	<b>100.00</b>

Note : Dar - es - Salaam region has a clearly defined boundary within the ocean, therefore for this district area statements for the ocean are given.

**KINONDONI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	4011.72	6.29
BSc	3691.16	5.79
Bt(et)	353.51	0.55
Cm	29972.82	46.99
Fm	265.82	0.42
Fn	1497.68	2.35
GSc	6024.67	9.44
Ocean	10917.06	17.11
SC	348.66	0.55
Urban	5806.15	9.10
Wc	151.38	0.24
WSc	748.95	1.17
<b>Total - Kinondoni District</b>	<b>63789.57</b>	<b>100.00</b>

Note : Dar - es - Salaam region has a clearly defined boundary within the ocean, therefore for this district area statements for the ocean are given.

**TEMEKE DISTRICT**  
**Distribution of land cover**

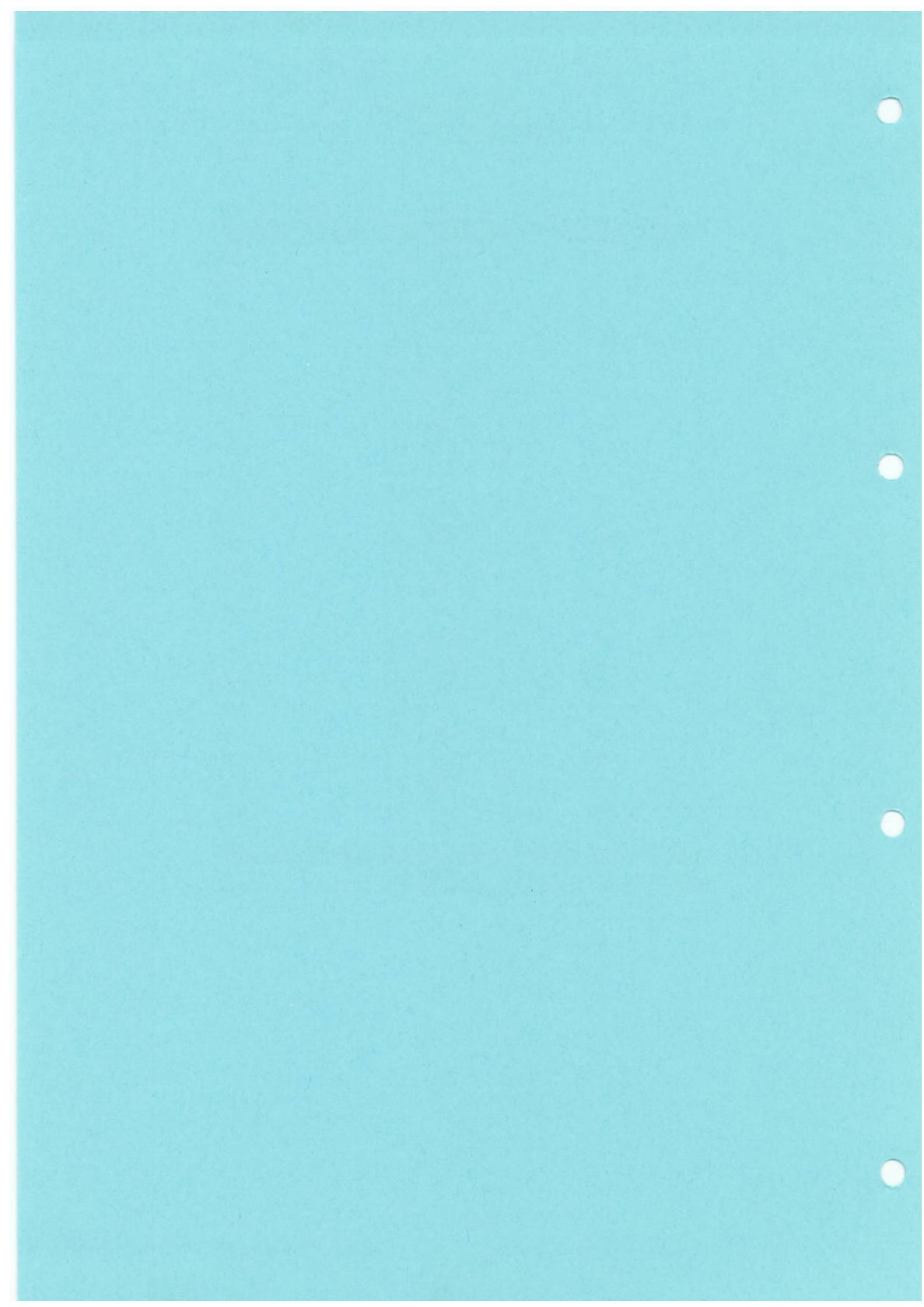
Classification code	Hectares	Percentage cover
BSc	8056.13	10.25
BSL	1666.25	2.12
Cm	18040.93	22.96
Ctc	1333.99	1.70
Fm	4049.70	5.15
Fn	99.64	0.13
Gbs	500.75	0.64
GSc	25462.13	32.40
Ocean	7769.82	9.89
Urban	3591.47	4.57
Wc	278.78	0.35
Wo	2541.06	3.23
WSc	5184.14	6.60
<b>Total - Temeke District</b>	<b>78574.80</b>	<b>100.00</b>

Note : Dar - es - Salaam region has a clearly defined boundary within the ocean, therefore for this district area statements for the ocean are given.



**DODOMA REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	160942.90	3.82
Bd	58613.91	1.39
Bo	122845.24	2.91
BSc	1360143.18	32.27
BSL	3199.72	0.08
Bt	44532.46	1.06
Bt(et)	22390.41	0.53
Chc	23525.14	0.56
Cm	210801.96	5.00
Fn	19689.97	0.47
Fp	293.20	0.01
Gb	21087.41	0.50
Gbs	131653.49	3.12
Go	10675.73	0.25
Gos	124296.05	2.95
GSc	508731.15	12.07
Gw	89475.13	2.12
Gws	25938.17	0.62
IW	26817.85	0.64
RO	72.54	0.00
S/M	14294.74	0.34
Urban	3769.80	0.09
Wc	111988.36	2.66
Wo	631463.04	14.98
WSc	487652.40	11.57
<b>Total -Dodoma region</b>	<b>4214893.94</b>	<b>100.00</b>



**DODOMA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	58428.64	3.42
Bd	42347.15	2.48
Bo	104362.94	6.11
BSc	674897.76	39.51
BSL	0.23	0.00
Bt	21499.52	1.26
Bt(et)	670.47	0.04
Chc	1276.96	0.07
Cm	81586.46	4.78
Fn	1016.66	0.06
Gb	2211.88	0.13
Gbs	91918.66	5.38
Go	5024.01	0.29
Gos	57434.95	3.36
GSc	142956.34	8.37
Gw	19492.22	1.14
Gws	17401.74	1.02
IW	24479.33	1.43
RO	72.54	0.00
S/M	5962.03	0.35
Urban	2304.79	0.13
Wc	53596.47	3.14
Wo	141134.31	8.26
WSc	158073.18	9.25
<b>Total - Dodoma District</b>	<b>1708149.24</b>	<b>100.00</b>

**KONDOA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	56894.66	4.17
Bd	10867.43	0.80
Bo	18236.88	1.34
BSc	466826.31	34.22
BSL	3136.73	0.23
Bt	22466.47	1.65
Bt(et)	10989.52	0.81
Chc	17400.44	1.28
Cm	97139.43	7.12
Fn	1267.35	0.09
Fp	134.24	0.01
Gb	4684.47	0.34
Gbs	30445.69	2.23
Go	2226.96	0.16
Gos	54293.52	3.98
GSc	75330.32	5.52
Gw	40707.85	2.98
Gws	4740.59	0.35
IW	348.66	0.03
S/M	8267.56	0.61
Urban	486.92	0.04
Wc	33771.37	2.48
Wo	265907.13	19.49
WSc	137665.15	10.09
<b>Total - Kondoia District</b>	<b>1364235.64</b>	<b>100.00</b>

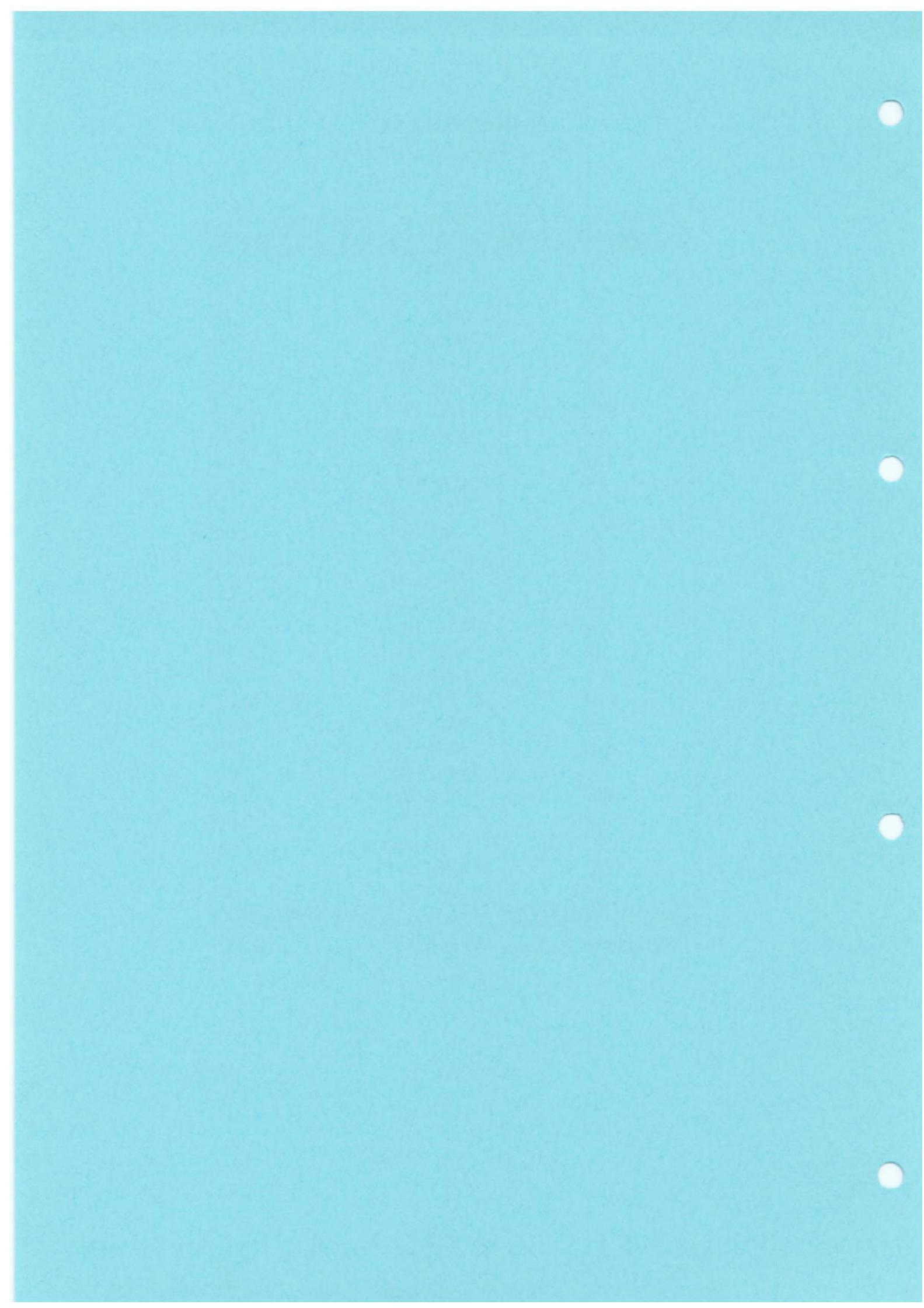
**MPWAPWA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	45619.60	3.99
Bd	5399.33	0.47
Bo	245.43	0.02
BSc	218419.11	19.12
BSL	62.76	0.01
Bt	566.48	0.05
Bt(et)	10730.42	0.94
Chc	4847.73	0.42
Cm	32076.07	2.81
Fn	17405.96	1.52
Fp	158.96	0.01
Gb	14191.05	1.24
Gbs	9289.15	0.81
Go	3424.76	0.30
Gos	12567.58	1.10
GSc	290444.49	25.42
Gw	29275.05	2.56
Gws	3795.83	0.33
IW	1989.86	0.17
S/M	65.16	0.01
Urban	978.09	0.09
Wc	24620.53	2.15
Wo	224421.59	19.64
WSc	191914.07	16.80
<b>Total - Mpwapwa District</b>	<b>1142509.06</b>	<b>100.00</b>



**IRINGA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	438355.39	7.40
Bd	40996.49	0.69
Bo	112204.88	1.89
BSc	1058033.17	17.85
BSL	689.87	0.01
Bt	1069.62	0.02
Bt(et)	13672.57	0.23
Cbc	24392.29	0.41
Chc	14.57	0.00
Cm	296618.72	5.00
Ctc	21196.03	0.36
Ctc(st)	1467.61	0.02
Fn	437734.48	7.38
Fp	75520.94	1.27
Gb	176772.31	2.98
Gbs	84551.64	1.43
Go	46393.80	0.78
Gos	56425.80	0.95
GSc	875526.02	14.77
Gw	298407.68	5.03
Gws	45470.28	0.77
IW	259167.60	4.37
S/M	9689.59	0.16
Urban	2487.80	0.04
Wc	131204.95	2.21
Wo	853909.94	14.41
WSc	565665.66	9.54
<b>Total - Iringa region</b>	<b>5927639.71</b>	<b>100.00</b>



**IRINGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	385230.26	14.35
Bd	40996.49	1.53
Bo	105253.51	3.92
BSc	380647.72	14.18
BSL	689.87	0.03
Bt	1069.62	0.04
Bt(et)	13672.57	0.51
Chc	14.57	0.00
Cm	36836.27	1.37
Fn	119315.72	4.44
Fp	874.91	0.03
Gb	104645.74	3.90
Gbs	81096.94	3.02
Go	4019.36	0.15
Gos	35206.33	1.31
GSc	297340.69	11.07
Gw	228197.23	8.50
Gws	43711.14	1.63
IW	7442.25	0.28
S/M	4982.29	0.19
Urban	880.87	0.03
Wc	39794.90	1.48
Wo	614386.39	22.88
WSc	138659.51	5.16
<b>Total - Iringa District</b>	<b>2684965.14</b>	<b>100.00</b>

**LUDEWA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	43849.63	5.17
BSc	159533.68	18.81
Cbc	351.47	0.04
Cm	43120.66	5.08
Ctc	1521.08	0.18
Fn	26193.01	3.09
Fp	1087.07	0.13
Gb	32828.21	3.87
Go	5360.15	0.63
Gos	516.54	0.06
GSc	97182.86	11.46
Gw	20685.21	2.44
IW	246379.99	29.04
S/M	1393.60	0.16
Wc	64230.78	7.57
Wo	53414.53	6.30
WSc	50656.04	5.97
<b>Total - Ludewa District</b>	<b>848304.51</b>	<b>100.00</b>

**MAKETE DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	1340.60	0.31
Bo	5701.14	1.33
BSc	66892.06	15.66
Cm	82420.36	19.29
Fn	10216.86	2.39
Gb	16120.80	3.77
Go	28558.17	6.68
GSc	53584.58	12.54
Gw	34274.38	8.02
S/M	331.47	0.08
Wc	4865.54	1.14
Wo	57595.35	13.48
WSc	65317.24	15.29
<b>Total - Makete District</b>	<b>427218.54</b>	<b>100.00</b>

**MUFINDI DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
BSc	179915.66	20.95
Cbc	16885.02	1.97
Cm	38229.78	4.45
Ctc(st)	1467.61	0.17
Fn	99550.07	11.59
Fp	52499.65	6.11
Gb	11254.33	1.31
Gbs	1353.04	0.16
Go	1157.50	0.13
Gos	17932.03	2.09
GSc	169374.47	19.72
Gw	14860.14	1.73
Gws	1759.14	0.20
IW	4001.47	0.47
S/M	2826.71	0.33
Urban	764.12	0.09
Wc	12773.09	1.49
Wo	49128.23	5.72
WSc	182993.35	21.31
<b>Total - Mufindi District</b>	<b>858725.41</b>	<b>100.00</b>

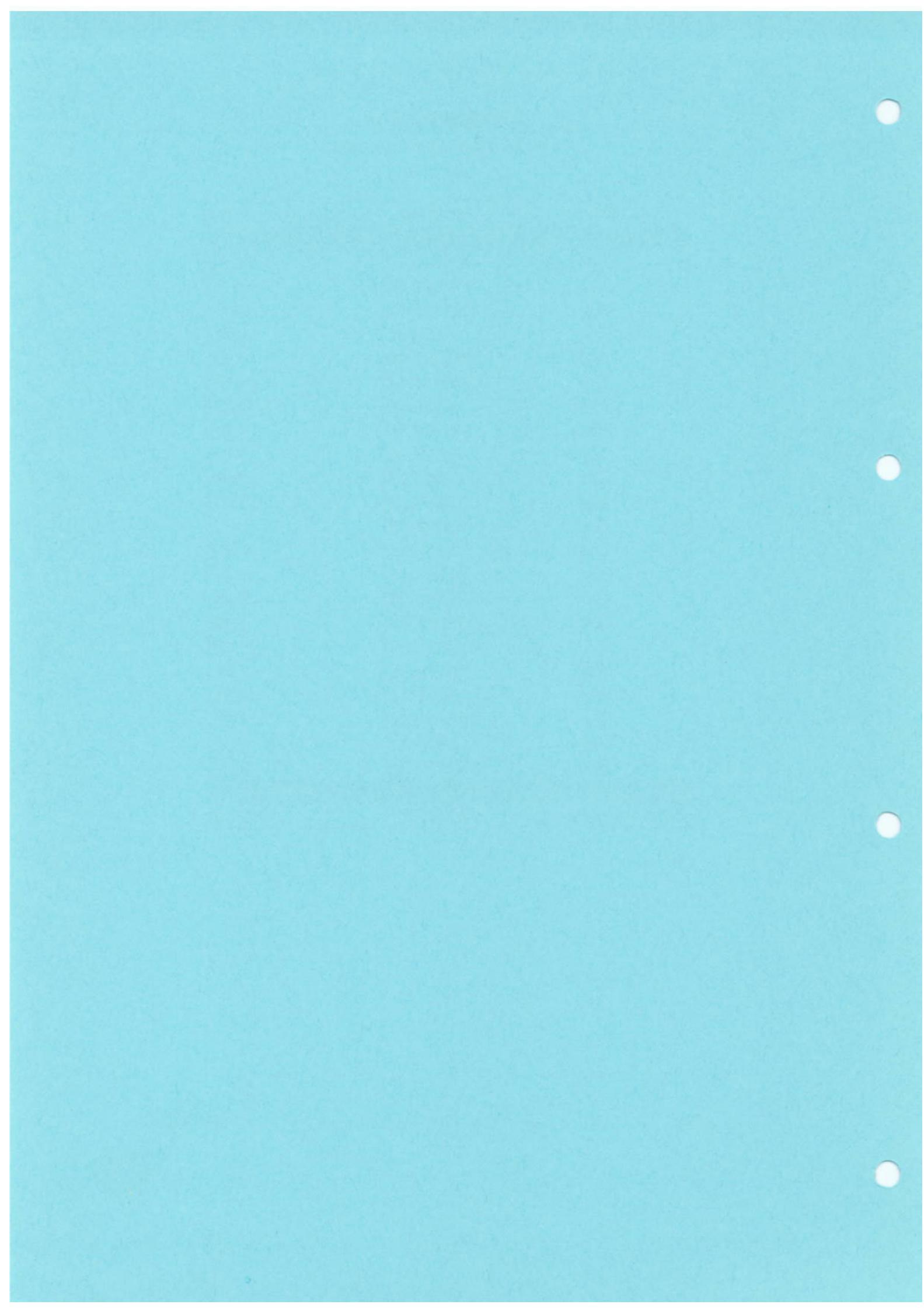
**NJOMBE DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	7934.91	0.72
Bo	1250.23	0.11
BSc	271044.05	24.45
Cbc	7155.80	0.65
Cm	96011.66	8.66
Ctc	19674.94	1.78
Fn	182458.82	16.46
Fp	21059.31	1.90
Gb	11923.24	1.08
Gbs	2101.67	0.19
Go	7298.63	0.66
Gos	2770.90	0.25
GSc	258043.43	23.28
Gw	390.72	0.04
IW	1343.89	0.12
S/M	155.51	0.01
Urban	842.81	0.08
Wc	9540.64	0.86
Wo	79385.43	7.16
WSc	128039.52	11.55
<b>Total - Njombe District</b>	<b>1108426.10</b>	<b>100.00</b>



**KAGERA REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	465543.27	11.86
Bd	3960.10	0.10
BSc	265249.94	6.76
BSL	63.60	0.00
Chc	290087.46	7.39
Cm	574414.04	14.63
Ctc(st)	315.56	0.01
Fn	65102.55	1.66
Fp	435.78	0.01
Gb	191065.97	4.87
Gbs	57585.56	1.47
Go	5004.05	0.13
Gos	33682.11	0.86
GSc	23263.62	0.59
Gw	126146.13	3.21
Gws	53377.91	1.36
IW	1078392.51	27.47
S/M	79879.58	2.03
Urban	2048.76	0.05
Wc	129656.88	3.30
Wo	216846.81	5.52
WSc	263171.05	6.70
<b>Total - Kagera region</b>	<b>3925293.24</b>	<b>100.00</b>



**BIHARAMULO DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	231669.27	22.64
Bd	1186.91	0.12
BSc	40715.68	3.98
Chc	26481.68	2.59
Cm	159822.38	15.62
Fn	6847.63	0.67
Gb	33057.37	3.23
Gbs	25028.35	2.45
Go	1680.22	0.16
Gos	19889.15	1.94
GSc	544.74	0.05
Gw	30926.82	3.02
Gws	33431.12	3.27
IW	39324.16	3.84
S/M	13032.42	1.27
Urban	510.20	0.05
Wc	121634.55	11.88
Wo	134405.53	13.13
WSc	103278.97	10.09
<b>Total - Biharamulo District</b>	<b>1023467.17</b>	<b>100.00</b>

**BUKOPA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	12857.43	1.15
Bd	2773.19	0.25
BSc	84740.71	7.55
BSL	63.60	0.01
Chc	57777.39	5.15
Cm	167578.83	14.93
Fn	38491.25	3.43
Fp	435.78	0.04
Gb	55420.56	4.94
Gbs	26110.25	2.33
Go	689.85	0.06
Gos	9898.26	0.88
GSc	12770.46	1.14
Gw	11681.27	1.04
Gws	19946.79	1.78
IW	556965.88	49.62
S/M	16816.52	1.50
Urban	925.87	0.08
Wc	178.71	0.02
Wo	3016.34	0.27
WSc	43299.27	3.86
<b>Total - Bukoba District</b>	<b>1122438.22</b>	<b>100.00</b>

**KARAGWE DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	124110.91	16.89
BSc	89724.73	12.21
Chc	144511.21	19.66
Cm	43502.64	5.92
Fn	18183.38	2.47
Gb	100336.66	13.65
Gbs	526.37	0.07
Go	919.04	0.13
Gos	1832.19	0.25
GSc	3549.83	0.48
Gw	44788.13	6.09
IW	25232.44	3.43
S/M	37703.85	5.13
Urban	352.76	0.05
Wo	22894.30	3.12
WSc	76774.23	10.45
<b>Total - Karagwe District</b>	<b>734942.67</b>	<b>100.00</b>

**MULEBA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	25249.79	3.64
BSc	20046.82	2.89
Chc	31979.43	4.60
Cm	90421.09	13.02
Ctc(st)	315.56	0.05
Fn	1316.27	0.19
Gb	1738.57	0.25
Go	1714.94	0.25
Gos	1330.44	0.19
GSc	3240.53	0.47
Gw	8790.83	1.27
IW	456870.03	65.78
S/M	7385.75	1.06
Urban	139.04	0.02
Wc	3764.18	0.54
Wo	28271.58	4.07
WSc	12009.26	1.73
<b>Total - Muleba District</b>	<b>694584.11</b>	<b>100.00</b>

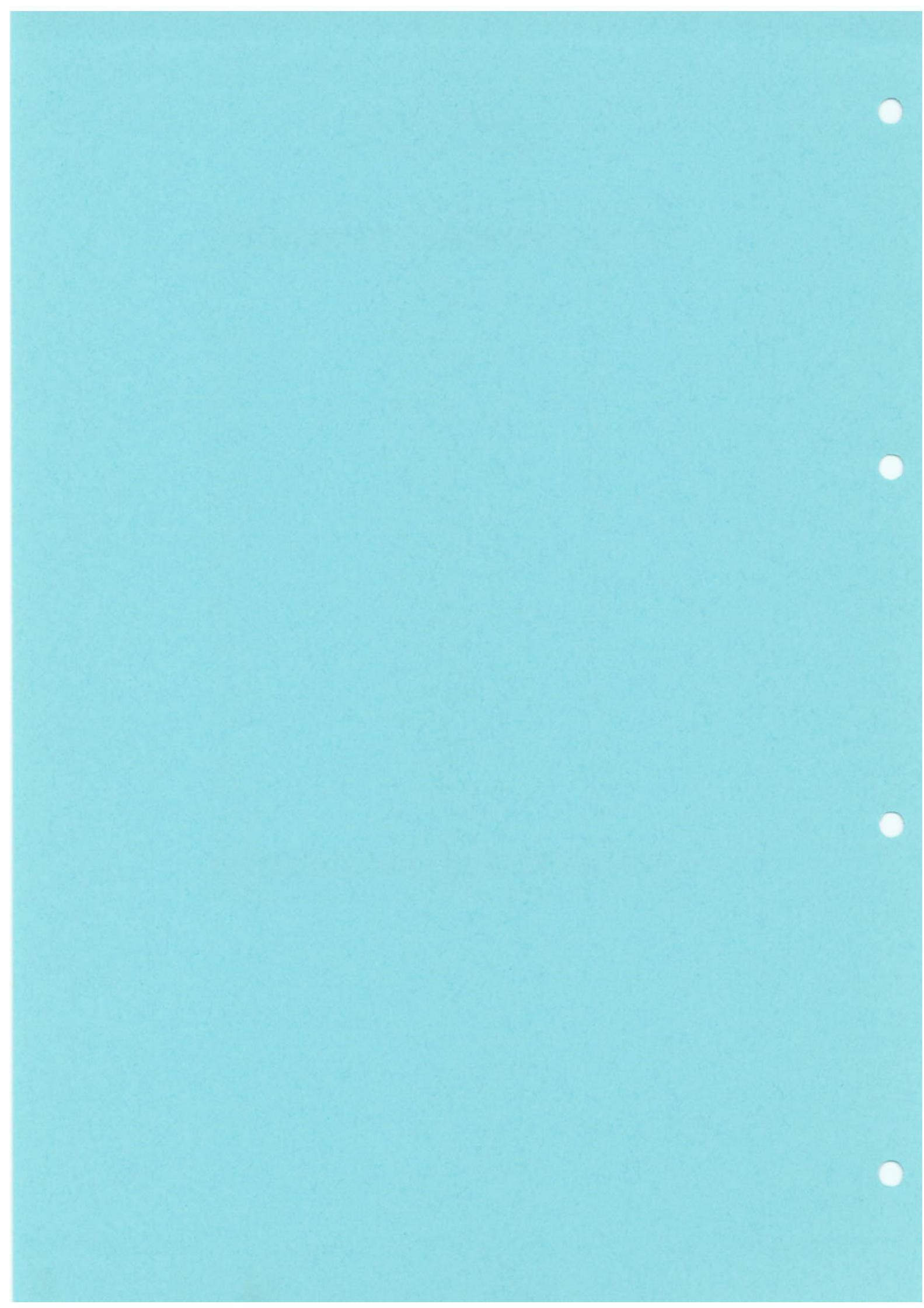
**NGARA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	71655.88	20.48
BSc	30021.99	8.58
Chc	29337.74	8.39
Cm	113089.11	32.32
Fn	264.03	0.08
Gb	512.81	0.15
Gbs	5920.59	1.69
Gos	732.07	0.21
GSc	3158.07	0.90
Gw	29959.09	8.56
S/M	4941.02	1.41
Urban	120.88	0.03
Wc	4079.44	1.17
Wo	28259.06	8.08
WSc	27809.32	7.95
<b>Total - Ngara District</b>	<b>349861.09</b>	<b>100.00</b>



**KIGOMA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airstrip	30.98	0.00
B(et)	218834.23	4.75
Bd	4496.26	0.10
Bo	5616.56	0.12
BSc	283170.34	6.15
BSL	748.31	0.02
Bt	3036.56	0.07
Chc	505.78	0.01
Cm	118715.40	2.58
Ctc	5197.70	0.11
Fn	26333.81	0.57
Gb	40287.36	0.88
Gbs	363692.29	7.90
Go	8028.55	0.17
Gos	53240.04	1.16
GSc	64961.15	1.41
Gw	54449.76	1.18
Gws	361398.08	7.85
IW	798456.93	17.35
RO	288.87	0.01
S/M	145958.13	3.17
Urban	2417.77	0.05
Wc	692527.17	15.05
Wo	1037313.79	22.54
WSc	312970.38	6.80
<b>Total - Kigoma region</b>	<b>4602676.21</b>	<b>100.00</b>



**KASULU DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	25767.17	3.07
BSc	124344.80	14.80
Cm	35982.27	4.28
Ctc	196.00	0.02
Gb	8022.14	0.96
Gbs	78018.08	9.29
Go	252.35	0.03
Gos	6410.84	0.76
GSc	33282.30	3.96
Gw	11459.88	1.36
Gws	80334.14	9.56
IW	68.56	0.01
S/M	36675.37	4.37
Urban	211.37	0.03
Wc	61672.53	7.34
Wo	209821.84	24.98
WSc	127385.73	15.17
<b>Total - Kasulu District</b>	<b>839905.35</b>	<b>100.00</b>

**KIBONDO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	20498.82	1.35
BSc	90066.54	5.92
Bt	2934.55	0.19
Cm	26335.23	1.73
Gb	29921.04	1.97
Gbs	261495.49	17.19
Go	5922.09	0.39
Gos	44243.37	2.91
GSc	6950.83	0.46
Gw	20027.67	1.32
Gws	164838.92	10.84
IW	79.96	0.01
S/M	55184.13	3.63
Urban	158.35	0.01
Wc	330478.08	21.72
Wo	365728.48	24.04
WSc	96384.50	6.34
<b>Total - Kibondo District</b>	<b>1521248.07</b>	<b>100.00</b>

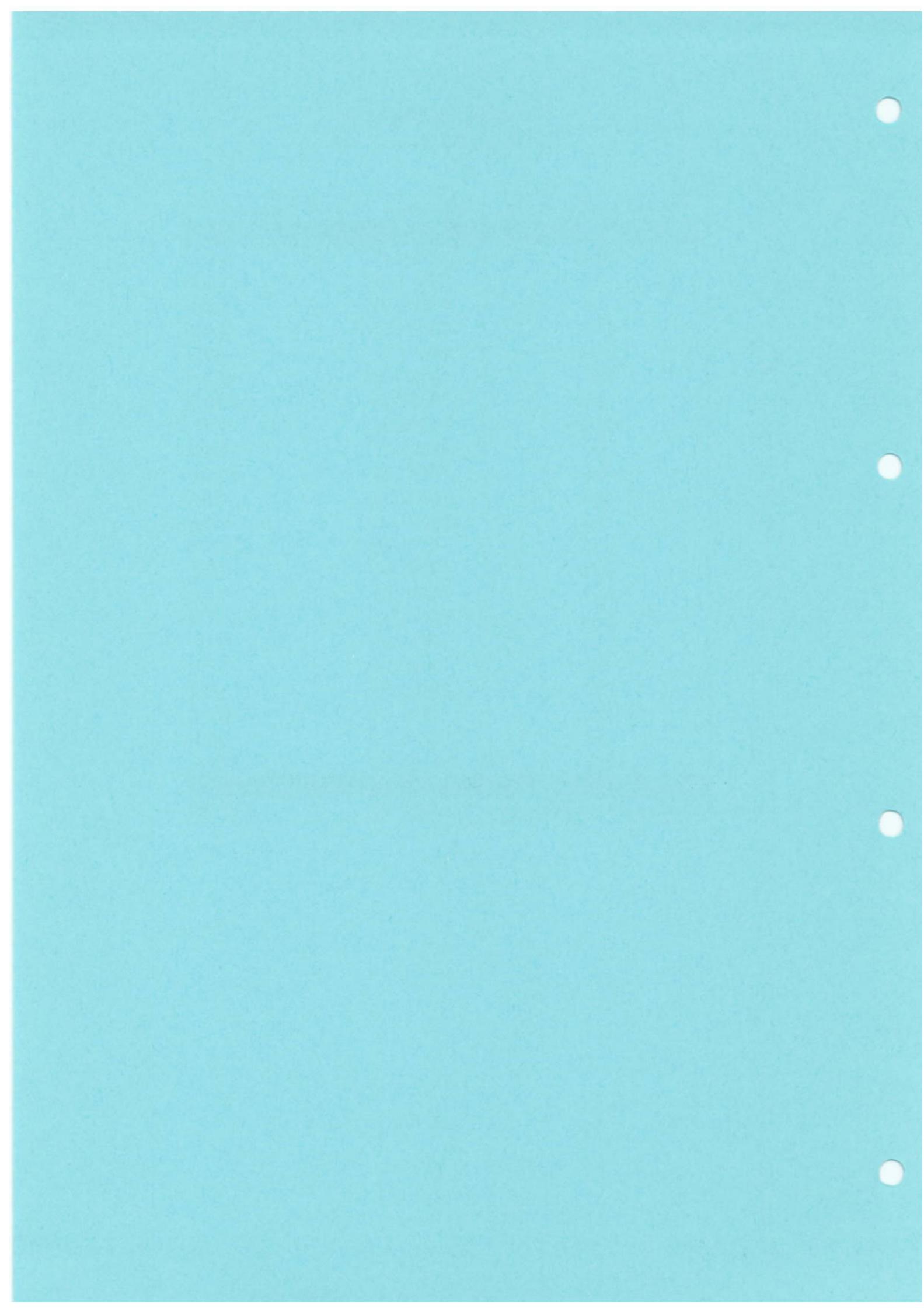
**KIGOMA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airstrip	30.98	0.00
B(et)	172568.24	7.70
Bd	4496.26	0.20
Bo	5616.56	0.25
BSc	68759.01	3.07
BSL	748.31	0.03
Bt	102.01	0.00
Chc	505.78	0.02
Cm	56397.91	2.52
Ctc	5001.70	0.22
Fn	26333.81	1.17
Gb	2344.18	0.10
Gbs	24178.72	1.08
Go	1854.11	0.08
Gos	2585.83	0.12
GSc	24728.02	1.10
Gw	22962.21	1.02
Gws	116225.02	5.19
IW	798308.41	35.61
RO	288.87	0.01
S/M	54098.63	2.41
Urban	2048.05	0.09
Wc	300376.56	13.40
Wo	461763.47	20.60
WSc	89200.15	3.98
<b>Total - Kigoma District</b>	<b>2241522.79</b>	<b>100.00</b>



**KILIMANJARO REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	260454.42	19.55
Bd	82511.87	6.19
Bo	53830.54	4.04
BSc	53974.66	4.05
Bt(et)	16611.24	1.25
Chc	84122.36	6.31
Cm	173447.52	13.02
Ctc(st)	69195.59	5.19
Fn	138528.60	10.40
Fp	12571.94	0.94
Gb	59731.84	4.48
Gbs	89083.45	6.69
Go	1724.49	0.13
Gos	16843.62	1.26
GSc	14148.20	1.06
Gw	23473.86	1.76
ICE	1551.85	0.12
IW	9482.54	0.71
S/M	21879.57	1.64
Urban	3376.79	0.25
Wo	115758.31	8.69
WSc	30106.50	2.26
<b>Total - Kilimanjaro region</b>	<b>1332409.79</b>	<b>100.00</b>



**HAI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Bd	18320.72	8.60
Bo	26589.68	12.49
Chc	25025.18	11.75
Cm	54298.81	25.50
Ctc(st)	15445.56	7.25
Fn	42198.57	19.81
Fp	4332.97	2.03
Gb	16951.72	7.96
Gbs	4618.70	2.17
Go	336.46	0.16
GSc	988.70	0.46
S/M	3441.50	1.62
Urban	416.43	0.20
<b>Total - Hai District</b>	<b>212965.02</b>	<b>100.00</b>

**MOSHI DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
Bd	8330.78	5.45
BSc	4120.47	2.70
Chc	28368.29	18.57
Cm	32987.89	21.60
Ctc(st)	37202.81	24.36
Fn	16423.73	10.75
Gb	41.82	0.03
Gos	7883.00	5.16
GSc	5720.20	3.75
S/M	8209.75	5.37
Urban	2321.23	1.52
Wo	120.51	0.08
WSc	1010.22	0.66
<b>Total - Moshi District</b>	<b>152740.69</b>	<b>100.00</b>

**MWANGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	60570.71	30.23
Bo	3030.81	1.51
BSc	27551.15	13.75
Chc	16919.10	8.44
Cm	7609.32	3.80
Fn	23986.57	11.97
Gb	14303.67	7.14
Gbs	1086.52	0.54
Gos	2446.30	1.22
GSc	683.05	0.34
Gw	10789.72	5.38
IW	7784.37	3.88
S/M	4689.81	2.34
Urban	69.35	0.03
WSc	18874.10	9.42
<b>Total - Mwanga District</b>	<b>200394.54</b>	<b>100.00</b>

**ROMBO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Bd	50823.34	34.18
BSc	7646.36	5.14
Cm	29077.75	19.56
Ctc(st)	16547.22	11.13
Fn	33261.77	22.37
Fp	8238.97	5.54
Gb	188.67	0.13
Go	684.91	0.46
ICE	1551.85	1.04
IW	388.33	0.26
Urban	262.52	0.18
Wo	8.82	0.01
<b>Total - Rombo District</b>	<b>148680.51</b>	<b>100.00</b>

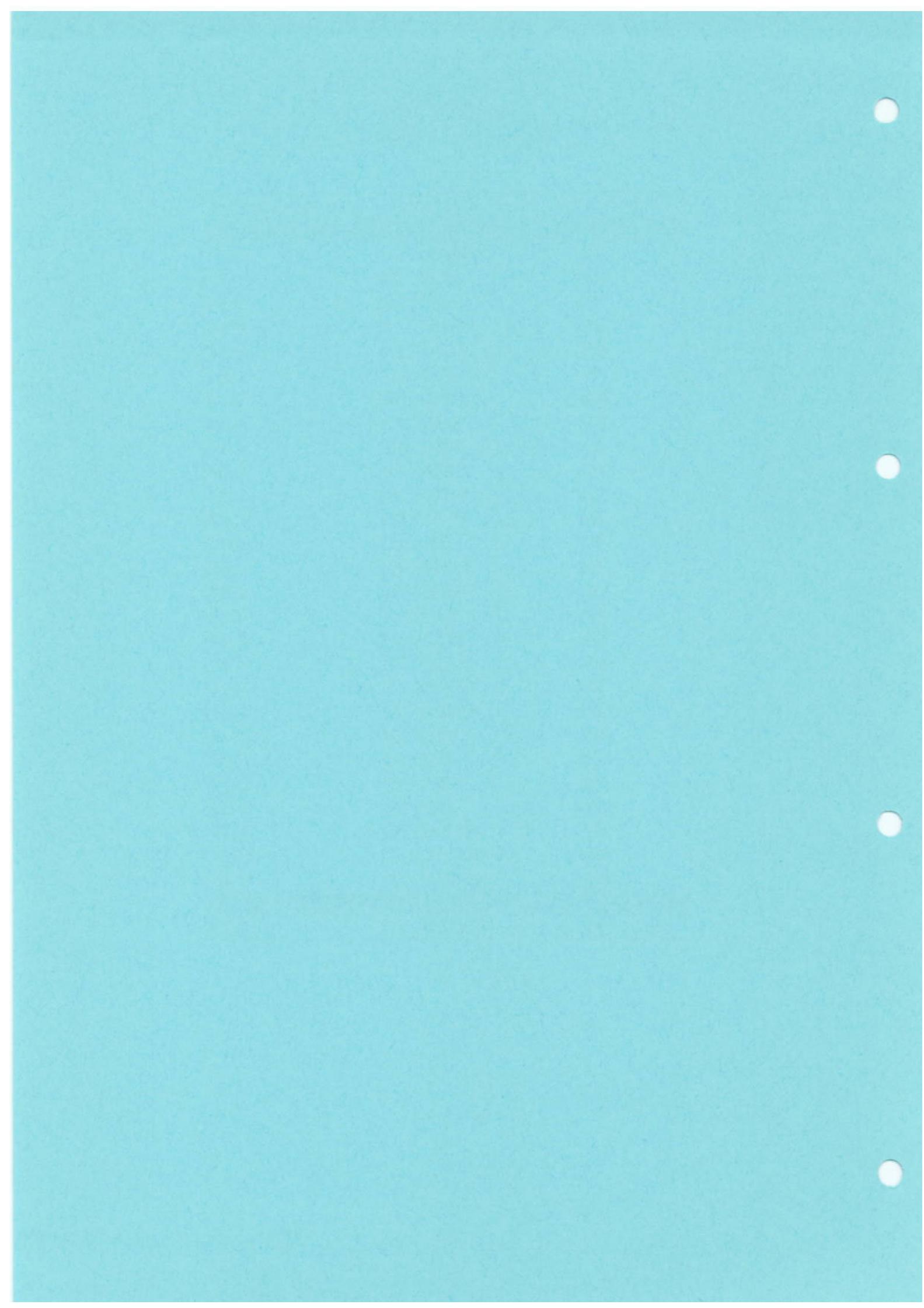
**SAME DISRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	199883.71	32.36
Bd	5037.02	0.82
Bo	24210.05	3.92
BSc	14656.68	2.37
Bt(et)	16611.24	2.69
Chc	13809.80	2.24
Cm	49473.75	8.01
Fn	22657.97	3.67
Gb	28245.97	4.57
Gbs	83378.23	13.50
Go	703.12	0.11
Gos	6514.33	1.05
GSc	6756.26	1.09
Gw	12684.14	2.05
IW	1309.85	0.21
S/M	5538.50	0.90
Urban	307.27	0.05
Wo	115628.98	18.72
WSc	10222.18	1.66
<b>Total - Same District</b>	<b>617629.03</b>	<b>100.00</b>



**LINDI REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	584801.91	8.71
Bd	20797.90	0.31
Bo	20136.29	0.30
BSc	425541.12	6.34
BSL	15914.18	0.24
Bt	611.85	0.01
Bt(et)	193801.60	2.89
Chc	21302.86	0.32
Cm	78436.60	1.17
Ctc	172350.55	2.57
Fm	39143.31	0.58
Fn	63617.46	0.95
Fp	2604.47	0.04
Gb	137844.95	2.05
Gbs	108066.78	1.61
Go	1628.10	0.02
Gos	27679.51	0.41
GSc	42761.76	0.64
Gw	689884.78	10.27
Gws	195620.00	2.91
IW	9283.62	0.14
RO	1407.77	0.02
S/M	13583.65	0.20
Urban	1702.56	0.03
Wc	522259.35	7.77
Wo	2664543.27	39.67
WSc	661856.92	9.85
<b>Total - Lindi region</b>	<b>6717183.12</b>	<b>100.00</b>



**KILWA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	77902.26	5.84
Bd	138.93	0.01
BSc	108820.07	8.15
BSL	3928.14	0.29
Bt	298.94	0.02
Bt(et)	12208.74	0.91
Cm	21845.58	1.64
Ctc	47412.84	3.55
Fm	28421.01	2.13
Fn	2826.15	0.21
Gb	78565.74	5.89
Gbs	12489.59	0.94
Go	624.24	0.05
Gos	5385.53	0.40
GSc	24162.50	1.81
Gw	133919.65	10.03
Gws	49560.27	3.71
IW	238.13	0.02
S/M	291.43	0.02
Urban	157.88	0.01
Wc	255010.01	19.11
Wo	328220.32	24.59
WSc	142323.50	10.66
<b>Total - Kilwa District</b>	<b>1334751.45</b>	<b>100.00</b>

**LINDI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	8914.62	0.95
Bo	0.24	0.00
BSc	159060.81	17.02
BSL	2772.40	0.30
Bt(et)	1045.45	0.11
Chc	21302.86	2.28
Cm	29607.15	3.17
Ctc	109315.57	11.70
Fm	10722.30	1.15
Fn	54237.25	5.80
Fp	2604.47	0.28
Gb	473.58	0.05
Gbs	4241.80	0.45
Go	80.96	0.01
Gos	2277.04	0.24
GSc	17829.51	1.91
Gw	27038.25	2.89
Gws	3053.14	0.33
IW	1118.50	0.12
S/M	523.84	0.06
Urban	517.81	0.06
Wc	85711.02	9.17
Wo	94584.04	10.12
WSc	297601.03	31.84
<b>Total - Lindi District</b>	<b>934633.65</b>	<b>100.00</b>

**LIWALE DISTRICT**  
**Distribution of land cover**

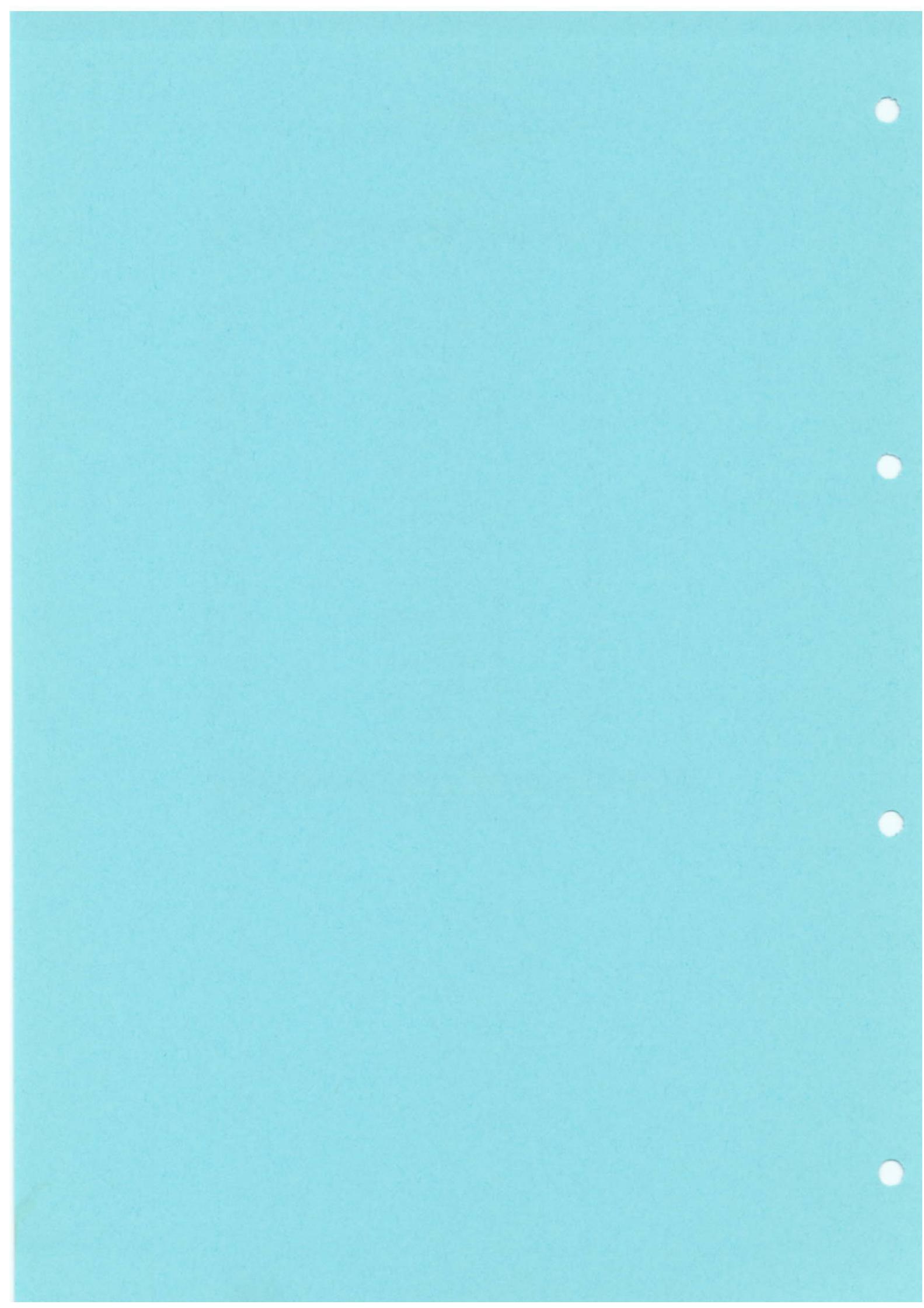
Classification code	Hectares	Percentage cover
B(et)	243167.14	6.39
Bd	20343.34	0.53
Bo	7709.30	0.20
BSc	24861.72	0.65
BSL	9213.65	0.24
Bt	312.91	0.01
Bt(et)	180547.41	4.74
Cm	19189.28	0.50
Ctc	1882.00	0.05
Fn	5966.76	0.16
Gb	55657.54	1.46
Gbs	88181.75	2.32
Go	387.86	0.01
Gos	19890.35	0.52
GSc	769.75	0.02
Gw	524550.41	13.78
Gws	126760.11	3.33
IW	7926.99	0.21
RO	64.31	0.00
S/M	12768.38	0.34
Urban	329.48	0.01
Wc	175192.86	4.60
Wo	2129180.23	55.95
WSc	150677.48	3.96
<b>Total - Liwale District</b>	<b>3805530.99</b>	<b>100.00</b>

**NACHINGWEA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	254817.89	39.67
Bd	315.63	0.05
Bo	12426.75	1.93
BSc	132798.52	20.68
Cm	7794.59	1.21
Ctc	13740.14	2.14
Fn	587.30	0.09
Gb	3148.08	0.49
Gbs	3153.64	0.49
Go	535.03	0.08
Gos	126.59	0.02
Gw	4376.47	0.68
Gws	16246.48	2.53
RO	1343.46	0.21
Urban	697.39	0.11
Wc	6345.46	0.99
Wo	112558.68	17.53
WSc	71254.91	11.09
<b>Total - Nachingwea District</b>	<b>642267.03</b>	<b>100.00</b>

**MARA REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	221301.27	7.25
Bd	76398.46	2.50
Bo	128301.15	4.21
BSc	281209.47	9.22
BSL	1659.94	0.05
Chc	36491.63	1.20
Cm	233668.74	7.66
Ctc(st)	45.82	0.00
Fn	11455.06	0.38
Fp	64.95	0.00
Gb	140836.84	4.62
Gbs	59204.42	1.94
Go	307365.26	10.08
Gos	21637.11	0.71
GSc	255714.38	8.38
Gw	59983.29	1.97
Gws	25097.76	0.82
IW	866295.02	28.40
S/M	33162.50	1.09
Urban	1433.36	0.05
Wo	153466.30	5.03
WSc	135916.88	4.46
<b>Total - Mara region</b>	<b>3050709.58</b>	<b>100.00</b>



**BUNDA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	12934.25	3.06
Bo	624.91	0.15
BSc	57348.61	13.57
BSL	1659.94	0.39
Chc	14536.48	3.44
Cm	57839.08	13.69
Fn	105.39	0.02
Gb	8212.26	1.94
Gbs	26571.69	6.29
Go	45497.69	10.77
Gos	1101.90	0.26
GSc	40221.07	9.52
Gw	11063.92	2.62
Gws	4903.31	1.16
IW	128041.52	30.30
S/M	3010.09	0.71
Urban	97.09	0.02
Wo	2415.23	0.57
WSc	6344.53	1.50
<b>Total - Bunda District</b>	<b>422528.96</b>	<b>100.00</b>

**MUSOMA DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	30510.57	5.85
Bo	4022.94	0.77
BSc	95373.81	18.29
Chc	21955.14	4.21
Cm	81083.41	15.55
Fn	4169.00	0.80
Gb	8913.31	1.71
Gbs	16138.63	3.10
Go	1407.68	0.27
Gos	2850.59	0.55
GSc	104213.03	19.99
Gw	3575.86	0.69
Gws	11801.17	2.26
IW	82219.27	15.77
S/M	7802.60	1.50
Urban	1114.71	0.21
Wo	8081.14	1.55
WSc	36193.43	6.94
<b>Total - Musoma District</b>	<b>521426.30</b>	<b>100.00</b>

**SERENGETI DISTRICT**  
**Distribution of land cover**

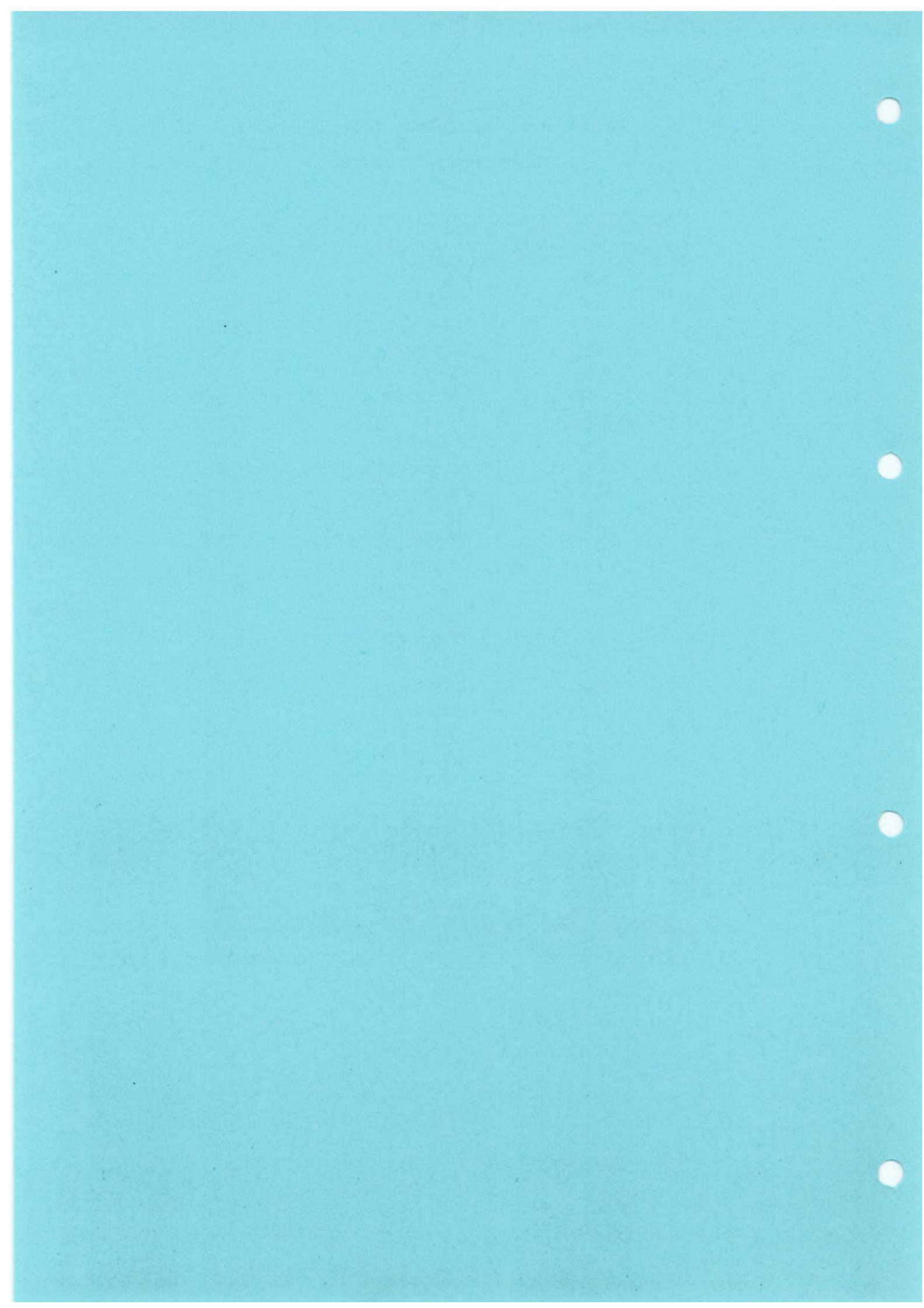
Classification code	Hectares	Percentage cover
B(et)	159596.36	15.23
Bd	69563.98	6.64
Bo	111119.48	10.60
BSc	41261.06	3.94
Cm	10839.76	1.03
Fn	2450.11	0.23
Gb	122541.04	11.69
Gbs	11782.35	1.12
Go	251800.80	24.02
Gos	3764.53	0.36
GSc	39472.03	3.77
Gw	45279.42	4.32
Gws	1920.61	0.18
S/M	90.50	0.01
Urban	116.63	0.01
Wo	130313.19	12.43
WSc	46268.42	4.41
<b>Total - Serengeti District</b>	<b>1048180.27</b>	<b>100.00</b>

**TARIME DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	18260.09	1.72
Bd	6834.48	0.65
Bo	12533.82	1.18
BSc	87225.99	8.24
Cm	83906.49	7.93
Ctc(st)	45.82	0.00
Fn	4730.56	0.45
Fp	64.95	0.01
Gb	1170.23	0.11
Gbs	4711.74	0.45
Go	8659.09	0.82
Gos	13920.09	1.31
GSc	71808.24	6.78
Gw	64.09	0.01
Gws	6472.67	0.61
IW	656034.23	61.97
S/M	22259.32	2.10
Urban	104.93	0.01
Wo	12656.74	1.20
WSc	47110.50	4.45
<b>Total - Tarime District</b>	<b>1058574.05</b>	<b>100.00</b>

**MBEYA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	170208.73	2.69
Bd	1319.00	0.02
Bo	22738.67	0.36
BSc	607726.77	9.62
BSL	71.85	0.00
Bt	3105.57	0.05
Bt(et)	38.49	0.00
Cbc	3870.76	0.06
Chc	34052.52	0.54
Cm	388864.82	6.15
Ctc	19369.90	0.31
Fn	100666.05	1.59
Fp	6450.07	0.10
Gb	8326.46	0.13
Gbs	256548.11	4.06
Go	19899.41	0.31
Gos	172661.88	2.73
GSc	135246.84	2.14
Gw	230449.29	3.65
Gws	108285.45	1.71
IW	248963.23	3.94
RO	607.63	0.01
S/M	60866.30	0.96
Urban	3039.89	0.05
Wc	264100.69	4.18
Wo	3167075.42	50.12
WSc	284522.75	4.50
<b>Total - Mbeya region</b>	<b>6319076.55</b>	<b>100.00</b>



**CHUNYA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	33760.88	1.16
Bo	378.77	0.01
BSc	134366.44	4.63
Cm	68879.00	2.37
Fn	24425.70	0.84
Gb	3803.84	0.13
Gbs	132460.13	4.57
Go	554.22	0.02
Gos	37642.08	1.30
GSc	3971.88	0.14
Gw	43668.72	1.51
Gws	57694.22	1.99
IW	140644.95	4.85
RO	258.18	0.01
S/M	9002.50	0.31
Wc	184488.32	6.36
Wo	2016572.78	69.50
WSc	8783.73	0.30
<b>Total - Chunya District</b>	<b>2901356.34</b>	<b>100.00</b>

**ILEJE DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
BSc	57139.23	31.45
Cm	48449.17	26.67
Fn	2280.97	1.26
Gbs	488.56	0.27
Go	2065.31	1.14
Gos	343.26	0.19
GSc	9620.74	5.30
Gw	2617.63	1.44
RO	69.62	0.04
S/M	365.61	0.20
Wc	1637.96	0.90
Wo	12111.78	6.67
WSc	44468.32	24.48
<b>Total - Ileje District</b>	<b>181658.15</b>	<b>100.00</b>

**KYELA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
BSc	22522.48	17.74
Chc	7499.98	5.91
Cm	24190.82	19.05
Ctc	6754.56	5.32
Fn	13525.25	10.65
Gb	71.26	0.06
GSc	2443.61	1.92
IW	35931.24	28.29
Wc	293.52	0.23
Wo	7283.79	5.74
WSc	6472.03	5.10
<b>Total - Kyela District</b>	<b>126988.54</b>	<b>100.00</b>

**MBARALI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	47866.16	2.98
Bd	830.92	0.05
Bo	21818.37	1.36
BSc	94755.84	5.90
Bt	3105.57	0.19
Bt(et)	38.49	0.00
Chc	8649.28	0.54
Cm	13782.09	0.86
Fn	187.78	0.01
Gb	2281.36	0.14
Gbs	95202.15	5.92
Go	4838.24	0.30
Gos	105915.77	6.59
GSc	18172.89	1.13
Gw	156289.22	9.72
Gws	45629.74	2.84
IW	98.83	0.01
S/M	35361.21	2.20
Wc	37553.71	2.34
Wo	841297.54	52.35
WSc	73504.94	4.57
<b>Total - Mbarali District</b>	<b>1607180.11</b>	<b>100.00</b>

**MBEYA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	14284.59	4.46
Bd	146.17	0.05
Bo	491.34	0.15
BSc	64070.61	20.02
Cbc	28.23	0.01
Chc	3034.35	0.95
Cm	83315.51	26.03
Ctc	2422.70	0.76
Fn	20529.35	6.41
Fp	4204.09	1.31
Gb	660.02	0.21
Gbs	204.68	0.06
Go	9610.78	3.00
GSc	29085.63	9.09
Gw	25507.06	7.97
Gws	751.19	0.23
Urban	1734.32	0.54
Wc	2131.43	0.67
Wo	51089.24	15.96
WSc	6743.18	2.11
<b>Total - Mbeya District</b>	<b>320044.48</b>	<b>100.00</b>

**MBOZI DISTRICT**  
**Distribution cover**

Classification code	Hectares	Percentage cover
B(et)	74297.09	7.68
Bo	50.19	0.01
BSc	218363.17	22.58
Chc	13199.98	1.36
Cm	43628.39	4.51
Ctc	10177.52	1.05
Fn	17.49	0.00
Gb	985.83	0.10
Gbs	28192.60	2.91
Gos	28760.77	2.97
GSc	61998.38	6.41
Gw	1497.80	0.15
Gws	4210.29	0.44
IW	71410.83	7.38
RO	279.83	0.03
S/M	16018.68	1.66
Urban	131.18	0.01
Wc	37442.75	3.87
Wo	235569.46	24.35
WSc	121045.52	12.51
<b>Total - Mbozi District</b>	<b>967277.75</b>	<b>100.00</b>

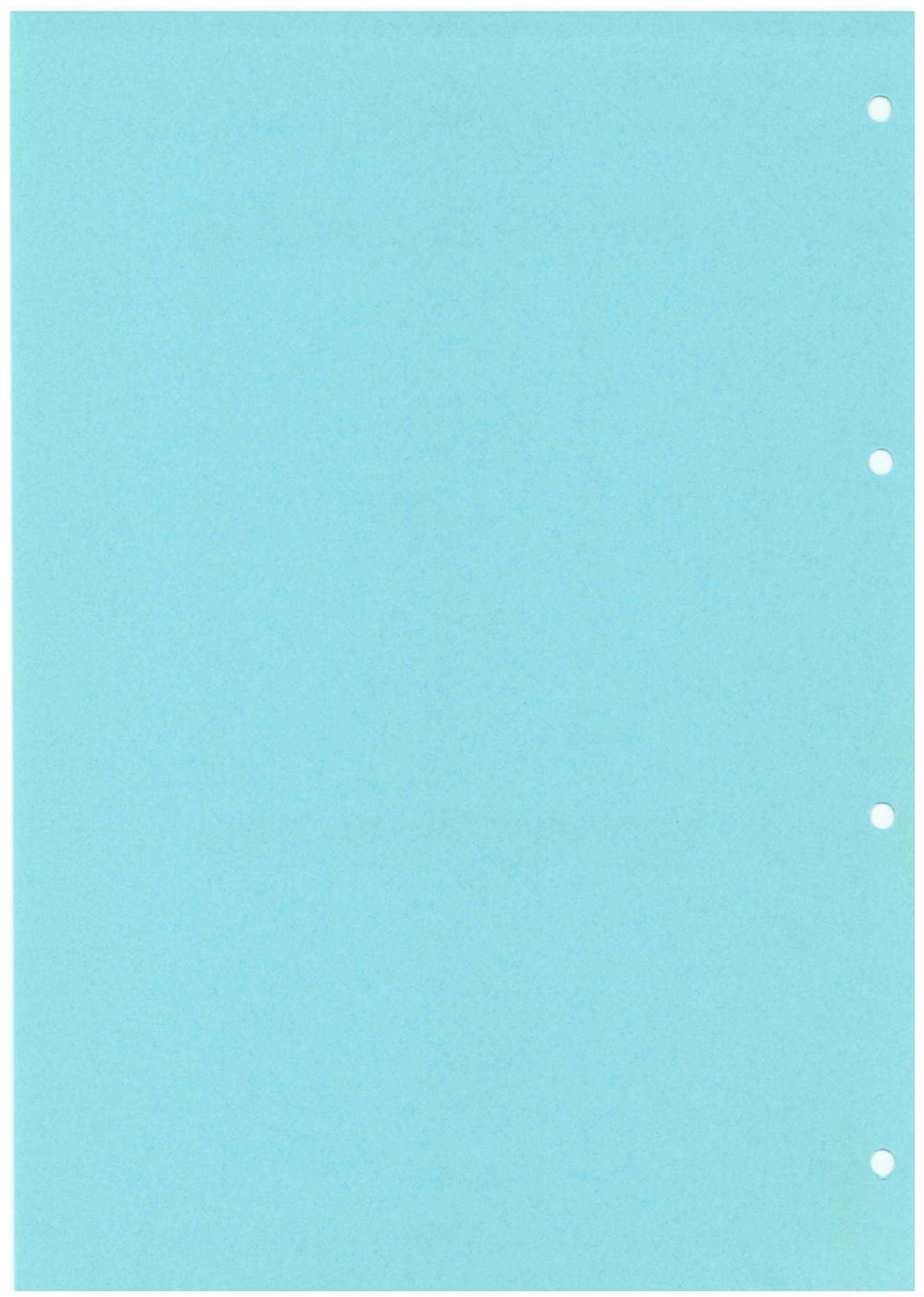
**RUNGWE DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Bd	341.92	0.16
BSc	16509.01	7.69
BSL	71.85	0.03
Cbc	3842.52	1.79
Chc	1668.93	0.78
Cm	106619.85	49.69
Ctc	15.11	0.01
Fn	39699.52	18.50
Fp	2245.98	1.05
Gb	524.15	0.24
Go	2830.86	1.32
GSc	9953.72	4.64
Gw	868.86	0.40
IW	877.37	0.41
S/M	118.30	0.06
Urban	1174.39	0.55
Wc	553.00	0.26
Wo	3150.83	1.47
WSc	23505.02	10.95
<b>Total - Rungwe District</b>	<b>214571.18</b>	<b>100.00</b>



**MOROGORO REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	127595.33	1.84
Bo	561.45	0.01
BSc	472525.19	6.82
BSL	2413.41	0.03
Bt	1929.00	0.03
Bt(et)	3403.55	0.05
Chc	252364.65	3.64
Cm	163579.04	2.36
Ctc	14080.05	0.20
Fn	798276.53	11.53
Fp	4107.01	0.06
Gb	249450.35	3.60
Gbs	182683.70	2.64
Go	59541.01	0.86
Gos	321035.78	4.64
GSc	210323.87	3.04
Gw	863630.57	12.47
Gws	53133.56	0.77
IW	14948.13	0.22
S/M	15400.54	0.22
Urban	3094.56	0.04
Wc	350591.49	5.06
Wo	2448746.61	35.37
WSc	310529.48	4.48
<b>Total - Morogoro region</b>	<b>6923944.84</b>	<b>100.00</b>



**KILOMBERO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
BSc	57582.99	4.16
Bt	547.04	0.04
Chc	22050.32	1.59
Cm	39589.50	2.86
Ctc	411.59	0.03
Fn	311090.19	22.50
Fp	1450.31	0.10
Gb	61280.00	4.43
Gbs	83243.61	6.02
Go	1100.07	0.08
Gos	175450.83	12.69
GSc	88172.11	6.38
Gw	184123.86	13.32
Gws	7444.94	0.54
IW	4418.47	0.32
S/M	1742.84	0.13
Urban	176.45	0.01
Wc	32905.14	2.38
Wo	286444.44	20.71
WSc	23575.44	1.70
<b>Total - Kilombero District</b>	<b>1382800.14</b>	<b>100.00</b>

**KILOSA DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	37306.00	2.56
Bo	561.45	0.04
BSc	120020.49	8.24
BSL	82.74	0.01
Chc	108235.39	7.43
Cm	31489.01	2.16
Fn	78815.11	5.41
Fp	1753.02	0.12
Gb	64776.48	4.45
Gbs	642.46	0.04
Go	35981.32	2.47
Gos	7843.82	0.54
GSc	52256.76	3.59
Gw	120993.83	8.31
Gws	11604.02	0.80
IW	459.27	0.03
S/M	960.77	0.07
Urban	1199.55	0.08
Wc	197816.98	13.58
Wo	434522.89	29.84
WSc	149014.11	10.23
<b>Total - Kilosa District</b>	<b>1456335.47</b>	<b>100.00</b>

**MOROGORO DISTRICT**  
**Distribution of land cover**

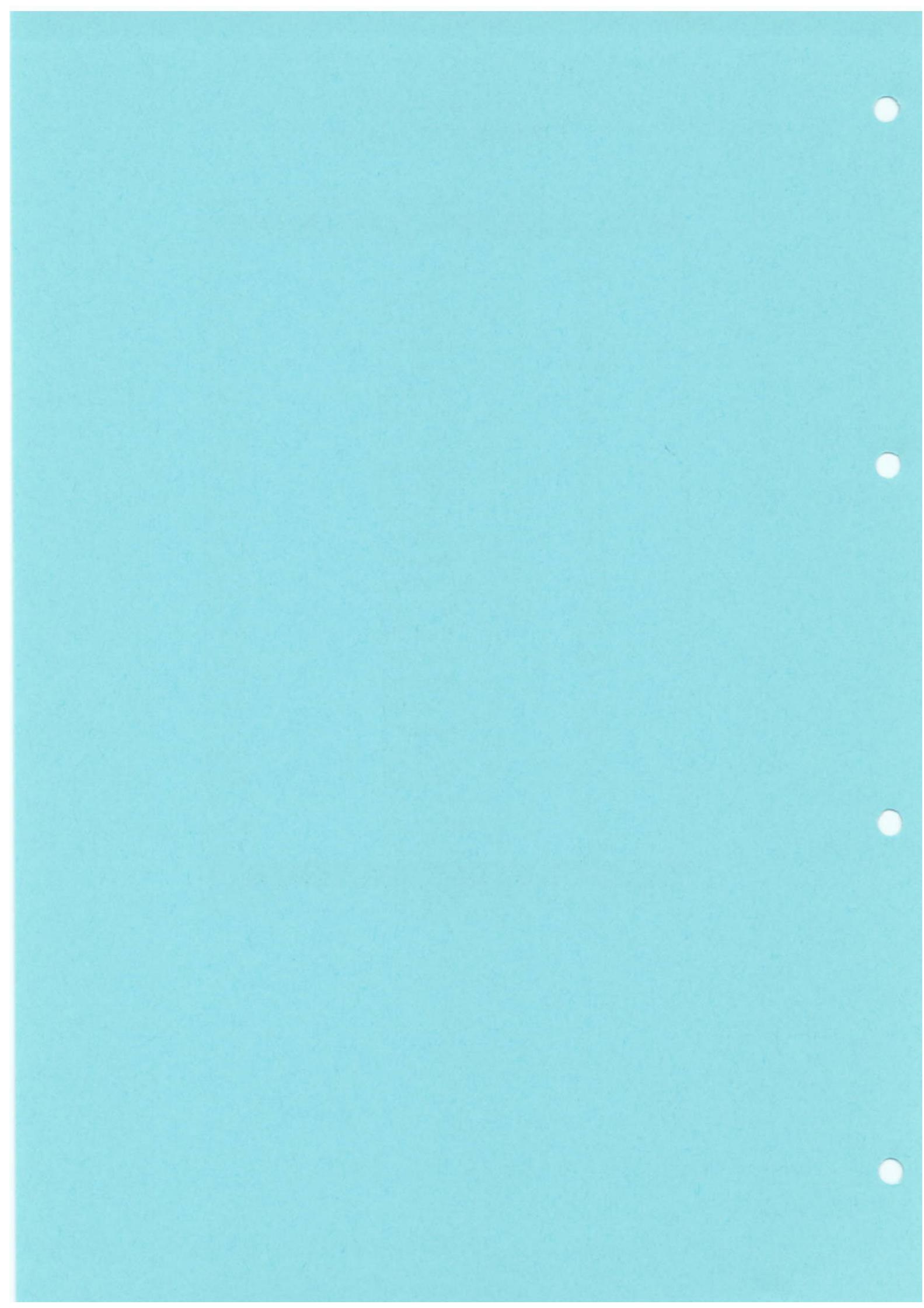
Classification code	Hectares	Percentage cover
B(et)	77105.96	4.09
BSc	278889.54	14.78
Bt	1381.96	0.07
Bt(et)	3338.00	0.18
Chc	122078.94	6.47
Cm	45704.24	2.42
Ctc	13668.46	0.72
Fn	142809.63	7.57
Fp	825.60	0.04
Gb	51966.18	2.75
Gbs	26978.11	1.43
Go	7198.19	0.38
Gos	56145.84	2.98
GSc	43883.70	2.33
Gw	214969.11	11.39
Gws	33619.28	1.78
IW	276.87	0.01
S/M	10264.62	0.54
Urban	1620.63	0.09
Wc	66078.82	3.50
Wo	555999.65	29.47
WSc	131840.30	6.99
<b>Total - Morogoro District</b>	<b>1886643.62</b>	<b>100.00</b>

**ULANGA DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	13183.37	0.60
BSc	16032.16	0.73
BSL	2330.67	0.11
Bt(et)	65.54	0.00
Cm	46796.29	2.13
Fn	265561.61	12.08
Fp	78.08	0.00
Gb	71427.69	3.25
Gbs	71819.53	3.27
Go	15261.42	0.69
Gos	81595.28	3.71
GSc	26011.30	1.18
Gw	343543.77	15.63
Gws	465.32	0.02
IW	9793.52	0.45
S/M	2432.31	0.11
Urban	97.93	0.00
Wc	53790.54	2.45
Wo	1171779.63	53.31
WSc	6099.63	0.28
<b>Total - Ulanga District</b>	<b>2198165.61</b>	<b>100.00</b>

**MTWARA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	73.81	0.00
B(et)	126777.95	7.11
Bo	643.18	0.04
BSc	201822.03	11.31
BSL	23564.28	1.32
Bt(et)	45086.82	2.53
Chc	4669.70	0.26
Cm	33416.39	1.87
Ctc	646391.46	36.23
Fm	15055.53	0.84
Fn	2659.78	0.15
Fp	344.06	0.02
Gb	392.74	0.02
Gbs	2904.98	0.16
Gos	327.09	0.02
GSc	35718.33	2.00
Gw	9181.20	0.51
Gws	4785.14	0.27
IW	16815.14	0.94
RO	180.84	0.01
S/M	3883.61	0.22
SC	35.57	0.00
Urban	4299.82	0.24
Wc	31441.01	1.76
Wo	266462.31	14.93
WSc	307272.30	17.22
<b>Total - Mtwara region</b>	<b>1784205.08</b>	<b>100.00</b>



**MASASI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	113760.49	11.64
Bo	643.18	0.07
BSc	172511.40	17.64
BSL	10775.05	1.10
Cm	6892.95	0.71
Ctc	184641.34	18.89
Fn	2659.78	0.27
Gos	242.06	0.02
GSc	3613.17	0.37
Gw	4663.75	0.48
Gws	4785.14	0.49
IW	7366.01	0.75
RO	180.84	0.02
S/M	2596.69	0.27
Urban	572.12	0.06
Wc	31441.01	3.22
Wo	214966.32	21.99
WSc	215367.72	22.03
<b>Total - Masasi District</b>	<b>977679.01</b>	<b>100.00</b>

**MTWARA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	73.81	0.02
B(et)	5353.72	1.32
BSc	11413.02	2.82
BSL	5942.62	1.47
Bt(et)	38726.71	9.58
Chc	4669.70	1.16
Cm	12032.94	2.98
Ctc	162174.59	40.13
Fm	15055.53	3.73
Gb	392.74	0.10
Gbs	2904.98	0.72
GSc	19541.68	4.84
Gw	4517.45	1.12
IW	5562.32	1.38
S/M	842.00	0.21
SC	35.57	0.01
Urban	3178.54	0.79
Wo	44728.18	11.07
WSc	67007.77	16.58
<b>Total - Mtwara District</b>	<b>404153.87</b>	<b>100.00</b>

**NEWALA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	7663.73	1.90
BSc	17897.61	4.45
BSL	6846.61	1.70
Bt(et)	6360.11	1.58
Cm	14490.50	3.60
Ctc	299575.53	74.45
Fp	344.06	0.09
Gos	85.03	0.02
GSc	12563.48	3.12
IW	3886.81	0.97
S/M	444.92	0.11
Urban	549.16	0.14
Wo	6767.81	1.68
WSc	24896.82	6.19
<b>Total - Newala District</b>	<b>402372.19</b>	<b>100.00</b>



**MWANZA REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	21708.23	0.61
Bd	337.46	0.01
Bo	794.90	0.02
BSc	234269.34	6.63
Cbc	44968.38	1.27
Chc	276526.22	7.83
Cm	691272.09	19.57
Ctc	196.55	0.01
Fn	34164.22	0.97
Fp	3188.52	0.09
Gb	9181.97	0.26
Gbs	25384.39	0.72
Go	28730.05	0.81
Gos	8802.91	0.25
GSc	268687.03	7.61
Gw	4961.58	0.14
Gws	4109.02	0.12
IW	1533162.66	43.40
RO	31.24	0.00
S/M	44562.91	1.26
Urban	2394.86	0.07
Wc	83528.10	2.36
Wo	42095.26	1.19
WSc	169253.27	4.79
<b>Total - Mwanza region</b>	<b>3532311.16</b>	<b>100.00</b>



**GEITA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	7471.83	1.01
BSc	57764.71	7.78
Cbc	18986.33	2.56
Chc	13577.64	1.83
Cm	228776.89	30.81
Fn	19742.42	2.66
Gb	1297.93	0.17
Gbs	15428.42	2.08
Go	548.74	0.07
GSc	9816.96	1.32
Gw	1132.93	0.15
Gws	3640.02	0.49
IW	93356.28	12.57
S/M	17006.08	2.29
Urban	231.32	0.03
Wc	81409.74	10.96
Wo	17075.06	2.30
WSc	155356.58	20.92
<b>Total - Geita District</b>	<b>742619.86</b>	<b>100.00</b>

**KWIMBA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	8982.74	1.56
BSc	74355.65	12.93
Cbc	17877.69	3.11
Chc	201127.81	34.99
Cm	119534.27	20.79
Ctc	196.55	0.03
Fp	49.94	0.01
Gb	223.87	0.04
Go	1021.92	0.18
Gos	3540.11	0.62
GSc	118210.59	20.56
Gw	2220.74	0.39
IW	8473.13	1.47
RO	31.24	0.01
S/M	7216.53	1.26
Urban	197.34	0.03
Wc	317.55	0.06
Wo	9872.78	1.72
WSc	1404.69	0.24
<b>Total - Kwimba District</b>	<b>574855.13</b>	<b>100.00</b>

**MAGU DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	1507.91	0.29
Bd	337.46	0.06
Bo	794.90	0.15
BSc	45582.01	8.69
Chc	51670.18	9.85
Cm	71735.69	13.67
Fn	38.82	0.01
Gb	6675.12	1.27
Gbs	7212.89	1.37
Go	26720.27	5.09
Gos	4930.81	0.94
GSc	106693.01	20.33
Gw	127.07	0.02
Gws	469.00	0.09
IW	187029.38	35.65
S/M	11975.24	2.28
Urban	61.25	0.01
WSc	1116.91	0.21
<b>Total - Magu District</b>	<b>524677.91</b>	<b>100.00</b>

**MWANZA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	1338.81	1.17
BSc	12228.84	10.72
Chc	2270.95	1.99
Cm	30678.89	26.90
GSc	9246.92	8.11
IW	55610.96	48.76
S/M	953.84	0.84
Urban	1457.39	1.28
Wo	264.75	0.23
<b>Total - Mwanza District</b>	<b>114051.34</b>	<b>100.00</b>

**SENGEREMA DISTRICT**  
**Distribution of land cover**

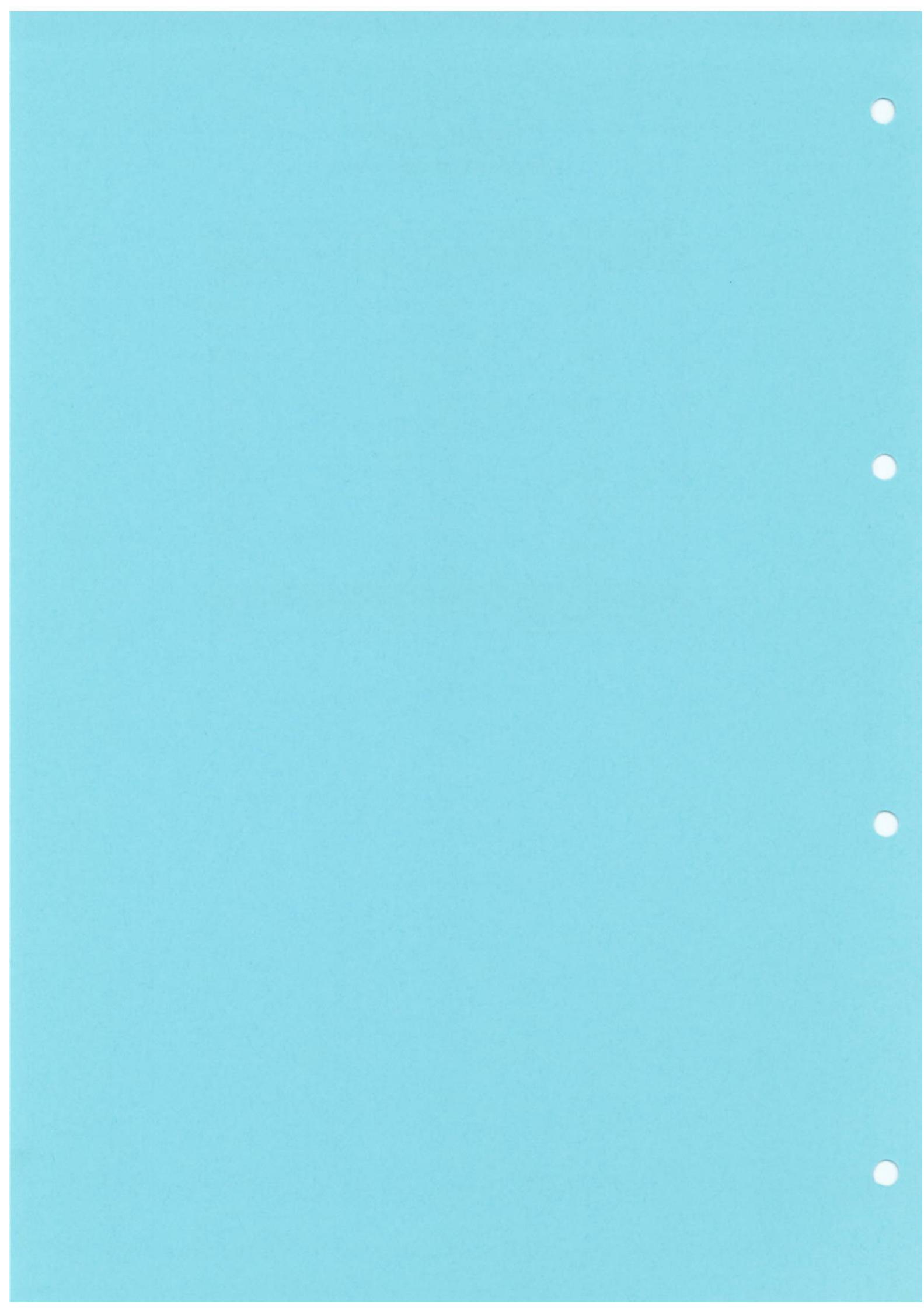
Classification code	Hectares	Percentage cover
B(et)	1993.84	0.21
BSc	27349.35	2.86
Cbc	8104.37	0.85
Chc	7487.26	0.78
Cm	216157.58	22.61
Fn	12542.20	1.31
Fp	3138.58	0.33
Gb	985.07	0.10
Gbs	2743.09	0.29
Go	439.12	0.05
GSc	5953.47	0.62
Gw	1480.84	0.15
IW	632392.22	66.15
S/M	6829.28	0.71
Urban	337.35	0.04
Wc	1800.81	0.19
Wo	14882.67	1.56
WSc	11375.09	1.19
<b>Total - Sengerema District</b>	<b>955992.19</b>	<b>100.00</b>

**UKEREWE DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	413.10	0.07
BSc	16988.78	2.74
Chc	392.37	0.06
Cm	24388.77	3.93
Fn	1840.79	0.30
Gos	331.99	0.05
GSc	18766.08	3.03
IW	556300.69	89.71
S/M	581.94	0.09
Urban	110.21	0.02
<b>Total - Ukerewe District</b>	<b>620114.72</b>	<b>100.00</b>

**PEMBA ISLAND**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	265.92	0.24
BSc	1822.43	1.64
BSL	5174.02	4.64
Chc	46268.84	41.53
Cm	22123.28	19.86
Ctc	9871.75	8.86
Fm	11816.51	10.61
Fn	7575.62	6.80
GSc	217.15	0.19
IW	206.22	0.19
RO	1876.84	1.68
Urban	265.78	0.24
WSc	3918.89	3.52
<b>Total - Pemba Island</b>	<b>111403.25</b>	<b>100.00</b>

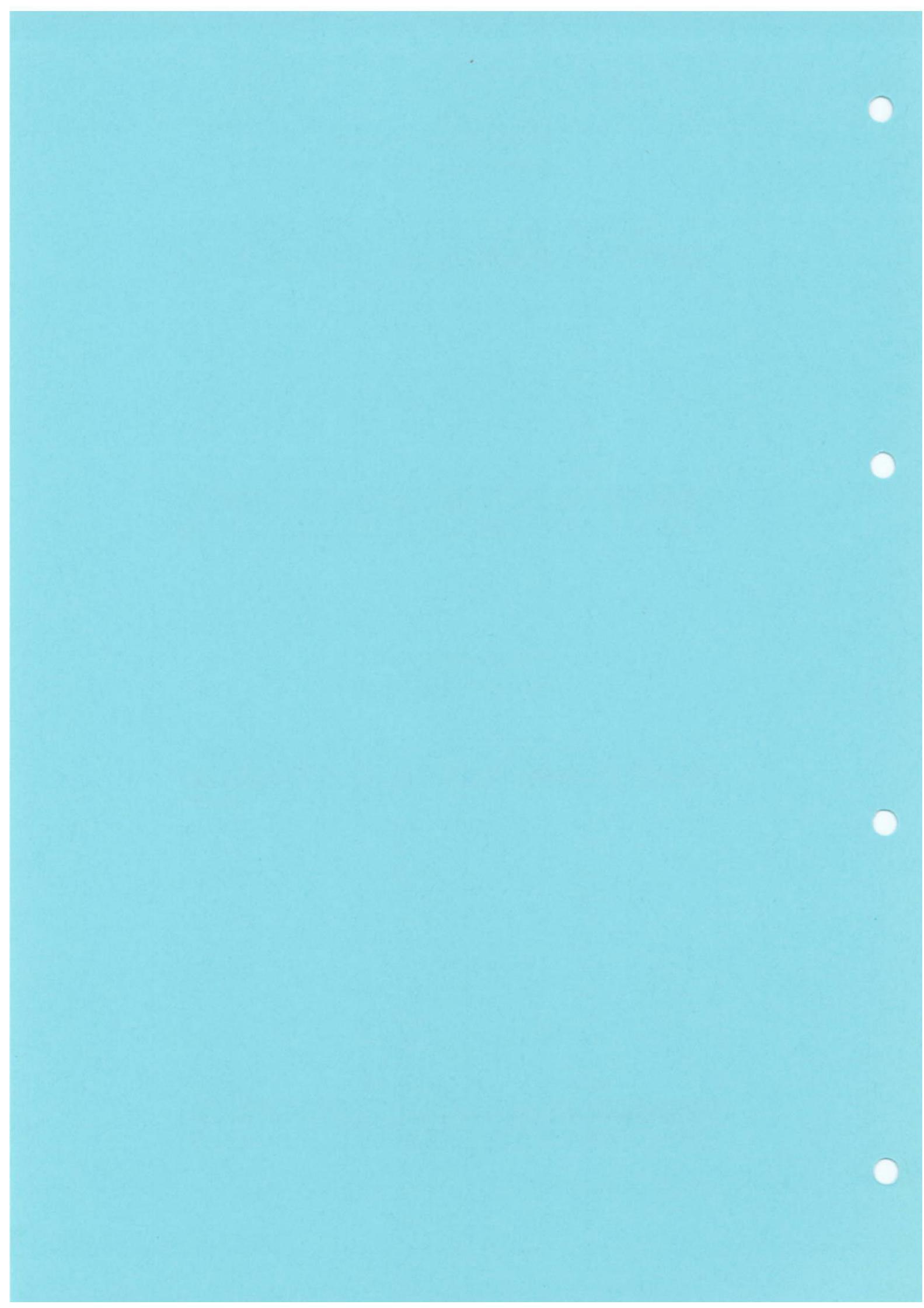


**PEMBA SOUTH REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
BSc	310.96	0.60
BSL	4065.68	7.84
Chc	26602.11	51.30
Cm	9371.94	18.07
Fm	4678.79	9.02
Fn	4674.91	9.01
RO	1684.22	3.25
Urban	91.11	0.18
WSc	378.04	0.73
<b>Total - Pemba South region</b>	<b>51857.75</b>	<b>100.00</b>

**PEMBA NORTH REGION**  
Distribution of land cover

Classification code	Hectares	Percentage cover
B(et)	265.92	100.00
BSc	1511.47	568.39
BSL	1108.34	416.79
Chc	19666.74	7395.62
Cm	12751.34	4795.11
Ctc	9871.75	3712.24
Fm	7137.72	2684.12
Fn	2900.71	1090.80
GSc	217.15	81.66
IW	206.22	77.55
RO	192.62	72.43
Urban	174.67	65.68
WSc	3540.84	1331.53
<b>Total - Pemba North region</b>	<b>59545.50</b>	<b>22391.92</b>



**MICHEWENI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
BSc	1389.25	4.08
BSL	716.95	2.11
Chc	6140.30	18.05
Cm	8784.03	25.82
Ctc	9871.75	29.02
Fm	3590.56	10.56
Fn	2693.46	7.92
GSc	217.15	0.64
IW	206.22	0.61
RO	192.62	0.57
Urban	152.83	0.45
WSc	61.74	0.18
<b>Total - Micheweni District</b>	<b>34016.86</b>	<b>100.00</b>

**WETE DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	265.92	1.04
BSc	122.22	0.48
BSL	391.39	1.53
Chc	13526.43	52.99
Cm	3967.31	15.54
Fm	3547.17	13.89
Fn	207.25	0.81
Urban	21.84	0.09
WSc	3479.11	13.63
<b>Total - Wete District</b>	<b>25528.64</b>	<b>100.00</b>

**CHAKECHAKE DISTRICT**  
**Distribution of land cover**

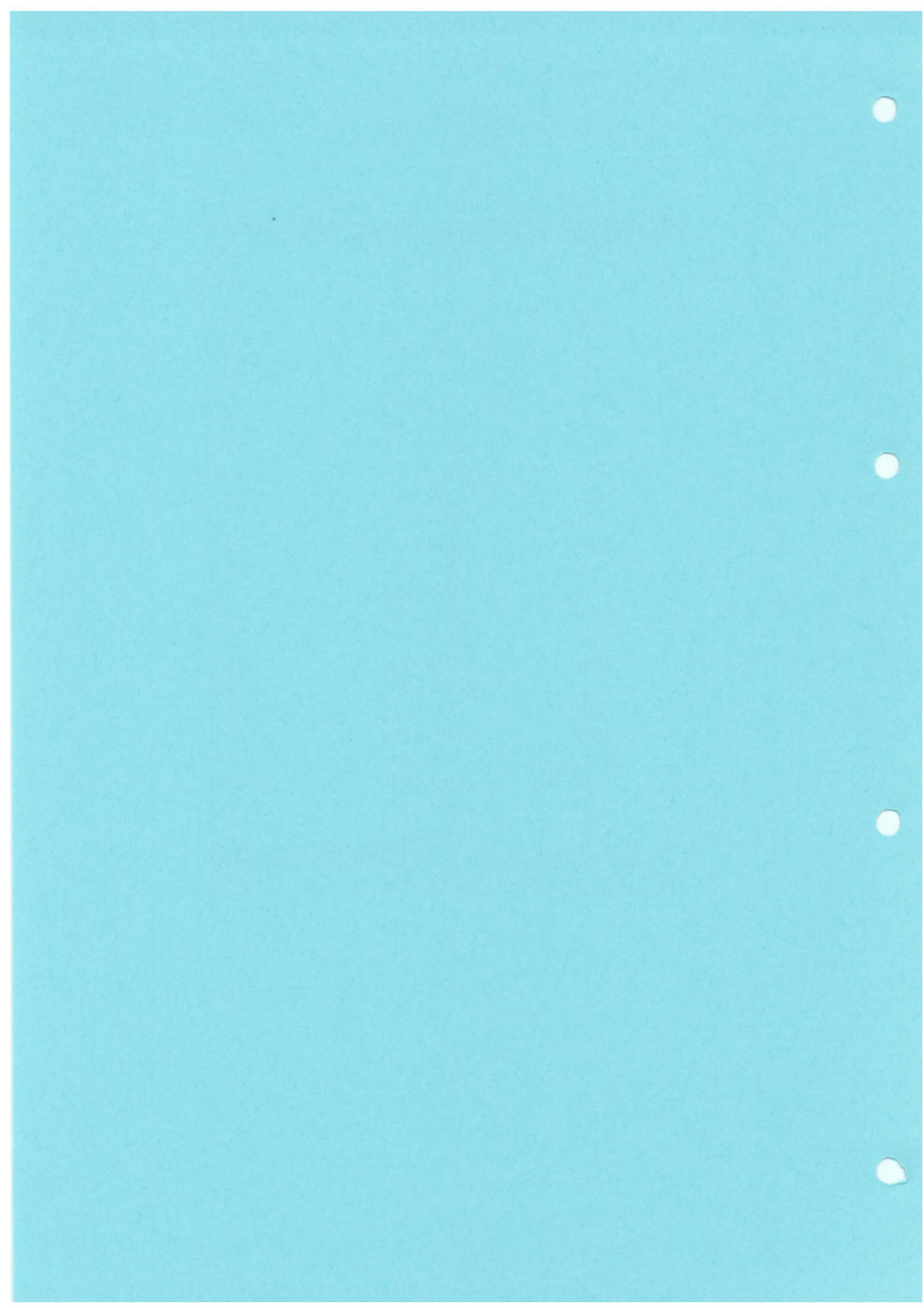
<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
BSc	310.96	1.69
Chc	9348.65	50.92
Cm	5216.87	28.41
Fm	2389.60	13.02
Fn	642.81	3.50
RO	359.40	1.96
Urban	91.11	0.50
WSc	0.25	0.00
<b>Total - Chakechake District</b>	<b>18359.65</b>	<b>100.00</b>

**MKOANI DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
BSL	4065.68	12.14
Chc	17253.46	51.51
Cm	4155.07	12.40
Fm	2289.19	6.83
Fn	4032.09	12.04
RO	1324.82	3.95
WSc	377.79	1.13
<b>Total - Mkoani District</b>	<b>33498.10</b>	<b>100.00</b>

**RUKWA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	208692.85	2.83
Bd	6545.61	0.09
Bo	24714.61	0.34
BSc	379072.21	5.15
BSL	18335.67	0.25
Bt	3096.94	0.04
Bt(et)	31.44	0.00
Chc	1167.15	0.02
Cm	282829.09	3.84
Fn	18129.30	0.25
Fp	376.60	0.01
Gb	80716.73	1.10
Gbs	336268.68	4.56
Go	43406.88	0.59
Gos	178658.96	2.43
GSc	273421.56	3.71
Gw	163135.50	2.21
Gws	200385.23	2.72
IW	884645.09	12.01
RO	3152.67	0.04
S/M	89458.90	1.21
Urban	828.02	0.01
Wc	897535.81	12.18
Wo	2884654.84	39.15
WSc	388090.11	5.27
<b>Total - Rukwa region</b>	<b>7367350.44</b>	<b>100.00</b>



**MPANDA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	169068.46	3.62
Bd	5480.78	0.12
Bo	8885.90	0.19
BSc	38024.63	0.81
BSL	15131.79	0.32
Bt	3096.94	0.07
Bt(et)	31.44	0.00
Cm	140400.80	3.01
Fn	9914.35	0.21
Gb	18189.90	0.39
Gbs	277322.17	5.94
Go	22536.18	0.48
Gos	140627.68	3.01
GSc	5362.13	0.11
Gw	115645.64	2.48
Gws	182803.00	3.92
IW	255042.18	5.46
RO	2968.57	0.06
S/M	60837.77	1.30
Urban	214.40	0.00
Wc	559006.54	11.97
Wo	2531160.53	54.22
WSc	106577.91	2.28
<b>Total - Mpanda District</b>	<b>4668329.71</b>	<b>100.00</b>

**NKANSI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	18811.77	1.59
Bd	882.57	0.07
Bo	15828.71	1.33
BSc	133740.70	11.28
Chc	273.23	0.02
Cm	38755.92	3.27
Fn	1081.48	0.09
Gb	40434.94	3.41
Gbs	15655.32	1.32
Go	15856.55	1.34
Gos	12338.77	1.04
GSc	65386.50	5.51
Gw	47179.48	3.98
Gws	1904.66	0.16
IW	288625.73	24.34
S/M	5582.80	0.47
Wc	245670.65	20.71
Wo	175810.56	14.82
WSc	62220.77	5.25
<b>Total - Nkansi District</b>	<b>1186041.12</b>	<b>100.00</b>

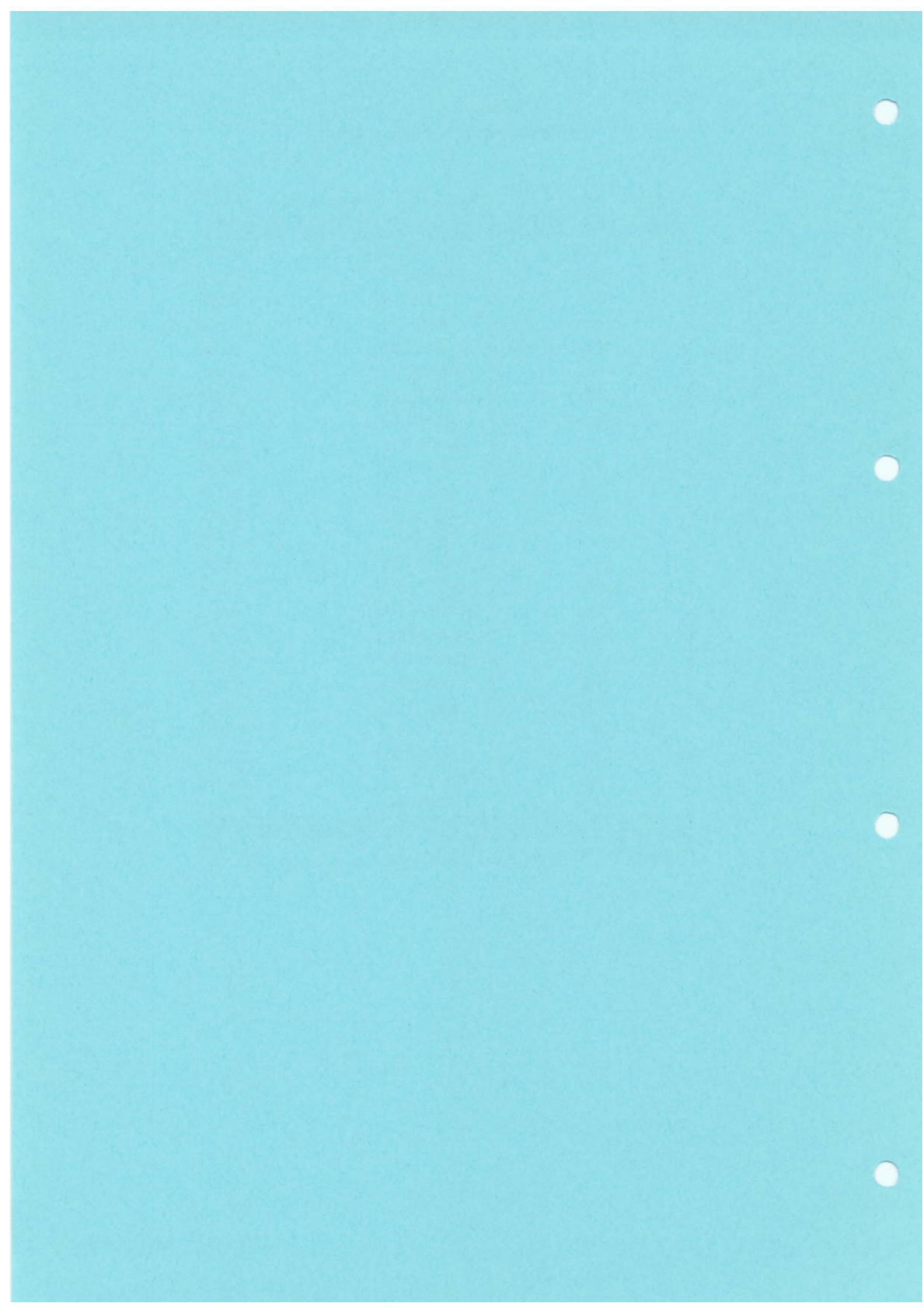
**SUMBAWANGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	20812.62	1.38
Bd	182.26	0.01
BSc	207306.88	13.70
BSL	3203.88	0.21
Chc	893.92	0.06
Cm	103672.36	6.85
Fn	7133.47	0.47
Fp	376.60	0.02
Gb	22091.90	1.46
Gbs	43291.19	2.86
Go	5014.14	0.33
Gos	25692.50	1.70
GSc	202672.93	13.40
Gw	310.38	0.02
Gws	15677.57	1.04
IW	340977.18	22.54
RO	184.09	0.01
S/M	23038.33	1.52
Urban	613.62	0.04
Wc	92858.62	6.14
Wo	177683.75	11.74
WSc	219291.43	14.49
<b>Total - Sumbawanga District</b>	<b>1512979.62</b>	<b>100.00</b>



**RUVUMA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	257062.62	3.95
BSc	799270.15	12.27
BSL	3589.94	0.06
Bt(et)	2117.56	0.03
Chc	3410.05	0.05
Cm	406192.27	6.24
Ctc	234592.20	3.60
Ctc(st)	10907.40	0.17
Fn	207943.16	3.19
Fp	2520.35	0.04
Gb	74261.37	1.14
Gbs	44640.08	0.69
Go	15112.71	0.23
Gos	18220.66	0.28
GSc	60577.90	0.93
Gw	510673.37	7.84
Gws	68522.06	1.05
IW	291701.81	4.48
RO	496.55	0.01
S/M	44625.47	0.69
Urban	4254.29	0.07
Wc	914033.14	14.04
Wo	1794810.19	27.56
WSc	742808.34	11.41
<b>Total - Ruvuma region</b>	<b>6512343.63</b>	<b>100.00</b>



**MBINGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	67726.25	6.33
BSc	276467.53	25.85
Cm	86892.41	8.12
Ctc(st)	10907.40	1.02
Fn	916.78	0.09
Fp	417.86	0.04
Gb	5018.10	0.47
Gbs	532.68	0.05
Go	1326.15	0.12
Gos	752.28	0.07
GSc	13463.99	1.26
Gw	12805.23	1.20
IW	276849.77	25.88
S/M	4846.99	0.45
Urban	432.54	0.04
Wc	151492.72	14.16
Wo	59207.34	5.54
WSc	99613.28	9.31
<b>Total - Mbinga District</b>	<b>1069669.30</b>	<b>100.00</b>

**TUNDURU DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	51073.72	2.75
BSc	116220.49	6.25
BSL	2060.73	0.11
Cm	90462.04	4.86
Ctc	214562.91	11.53
Gb	1392.81	0.07
Gbs	20722.37	1.11
Gos	6981.03	0.38
GSc	15260.43	0.82
Gw	236468.46	12.71
Gws	31298.61	1.68
IW	9012.09	0.48
RO	369.19	0.02
S/M	12443.50	0.67
Urban	956.34	0.05
Wc	322675.28	17.34
Wo	536570.91	28.84
WSc	191896.55	10.31
<b>Total - Tunduru District</b>	<b>1860427.48</b>	<b>100.00</b>

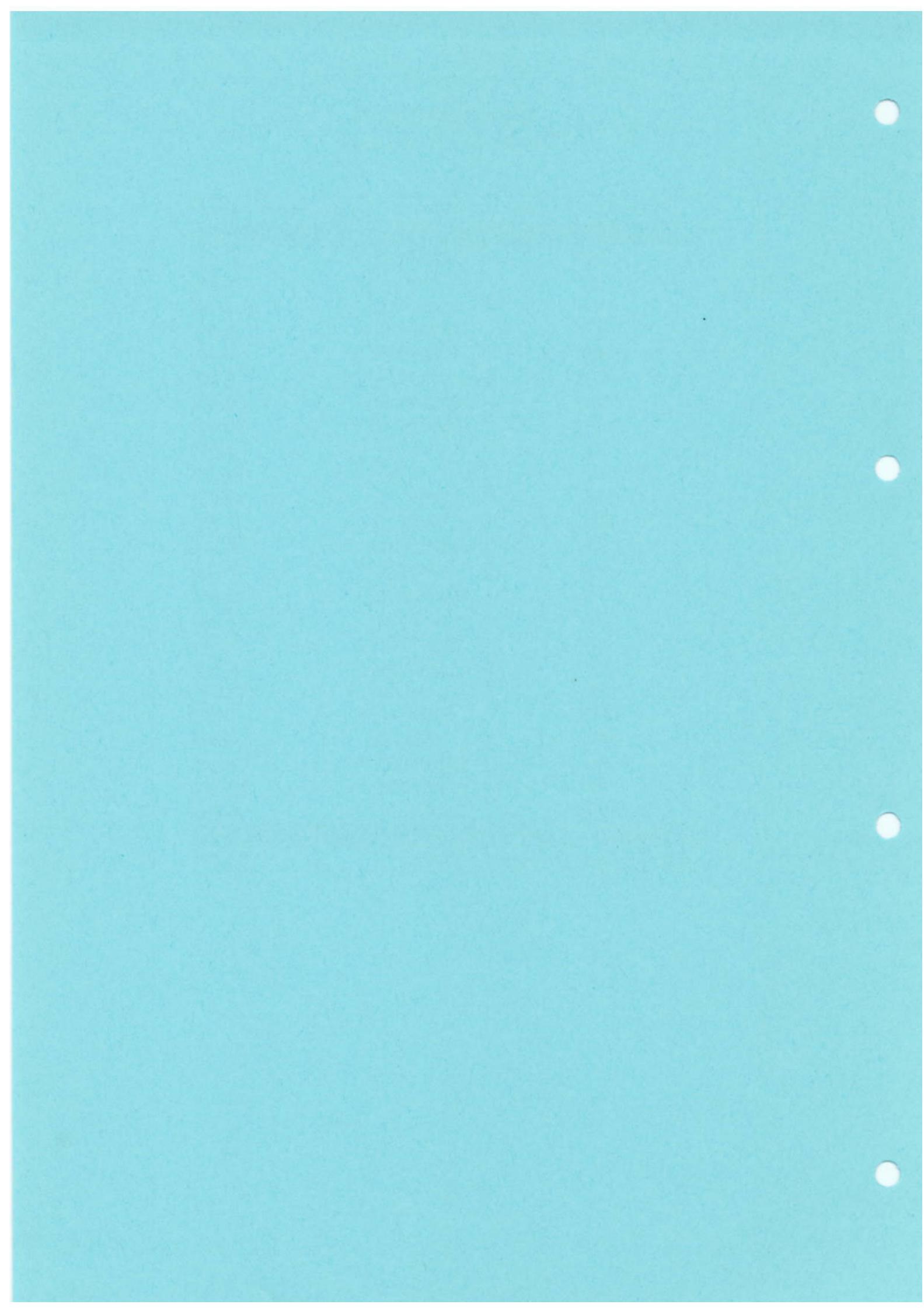
**SONGEA DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	138262.64	3.86
BSc	406582.14	11.35
BSL	1529.21	0.04
Bt(et)	2117.56	0.06
Chc	3410.05	0.10
Cm	228837.82	6.39
Ctc	20029.29	0.56
Fn	207026.37	5.78
Fp	2102.49	0.06
Gb	67850.45	1.89
Gbs	23385.04	0.65
Go	13786.56	0.38
Gos	10487.35	0.29
GSc	31853.49	0.89
Gw	261399.68	7.30
Gws	37223.45	1.04
IW	5839.94	0.16
RO	127.36	0.00
S/M	27334.98	0.76
Urban	2865.40	0.08
Wc	439865.14	12.28
Wo	1199031.93	33.47
WSc	451298.51	12.60
<b>Total - Songea District</b>	<b>3582246.86</b>	<b>100.00</b>



**SHINYANGA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	282198.93	5.63
Bd	3900.43	0.08
Bo	36904.28	0.74
BSc	484301.47	9.67
BSL	6091.35	0.12
Cbc	10835.33	0.22
Chc	470268.44	9.39
Cm	960425.74	19.18
Fn	2711.71	0.05
Fp	53.54	0.00
Gb	111221.77	2.22
Gbs	137896.33	2.75
Go	336821.45	6.73
Gos	71489.85	1.43
GSc	641509.06	12.81
Gw	116733.22	2.33
Gws	49308.07	0.98
IW	2074.39	0.04
RO	101.69	0.00
S/M	59804.13	1.19
Urban	1835.80	0.04
Wc	210264.87	4.20
Wo	686828.83	13.71
WSc	324445.95	6.48
<b>Total - Shinyanga region</b>	<b>5008026.61</b>	<b>100.00</b>



**BARIADI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	135215.39	14.33
Bd	2987.86	0.32
Bo	7452.94	0.79
BSc	82896.97	8.78
BSL	4867.40	0.52
Cbc	10835.33	1.15
Chc	38397.99	4.07
Cm	45268.89	4.80
Fp	53.54	0.01
Gb	89995.19	9.54
Gbs	1846.36	0.20
Go	290906.29	30.82
Gos	3438.13	0.36
GSc	178574.44	18.92
Gw	39470.30	4.18
IW	623.81	0.07
S/M	455.33	0.05
Urban	130.94	0.01
Wo	728.77	0.08
WSc	9622.68	1.02
<b>Total - Bariadi District</b>	<b>943768.55</b>	<b>100.00</b>

**KAHAMA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	81767.91	4.11
BSc	251898.13	12.66
Chc	51324.96	2.58
Cm	292430.77	14.69
Gb	18225.92	0.92
Gbs	87460.68	4.39
Go	2140.19	0.11
Gos	39857.99	2.00
GSc	118607.89	5.96
Gw	6780.10	0.34
Gws	22335.82	1.12
IW	173.46	0.01
RO	26.04	0.00
S/M	27286.25	1.37
Urban	465.00	0.02
Wc	193793.25	9.74
Wo	523944.01	26.33
WSc	271727.05	13.65
<b>Total - Kahama District</b>	<b>1990245.41</b>	<b>100.00</b>

**MASWA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	3750.95	1.04
Bo	174.86	0.05
BSc	48613.54	13.52
Chc	38412.10	10.69
Cm	230040.47	64.00
Go	3198.29	0.89
Gos	246.86	0.07
GSc	26033.00	7.24
Gw	593.84	0.17
IW	247.29	0.07
RO	75.65	0.02
Urban	215.23	0.06
Wo	405.72	0.11
WSc	7451.84	2.07
<b>Total - Maswa District</b>	<b>359459.63</b>	<b>100.00</b>

**MEATU DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	58461.45	6.70
Bd	912.57	0.10
Bo	22202.75	2.54
BSc	40089.40	4.59
BSL	667.26	0.08
Chc	56414.34	6.46
Cm	182429.96	20.90
Fn	2711.71	0.31
Gb	2924.20	0.34
Gbs	48589.29	5.57
Go	40573.53	4.65
Gos	11425.38	1.31
GSc	113574.53	13.01
Gw	69888.98	8.01
Gws	26972.24	3.09
IW	47.91	0.01
S/M	9263.49	1.06
Wc	16471.62	1.89
Wo	155089.83	17.77
WSc	14169.28	1.62
<b>Total - Meatu District</b>	<b>872879.72</b>	<b>100.00</b>

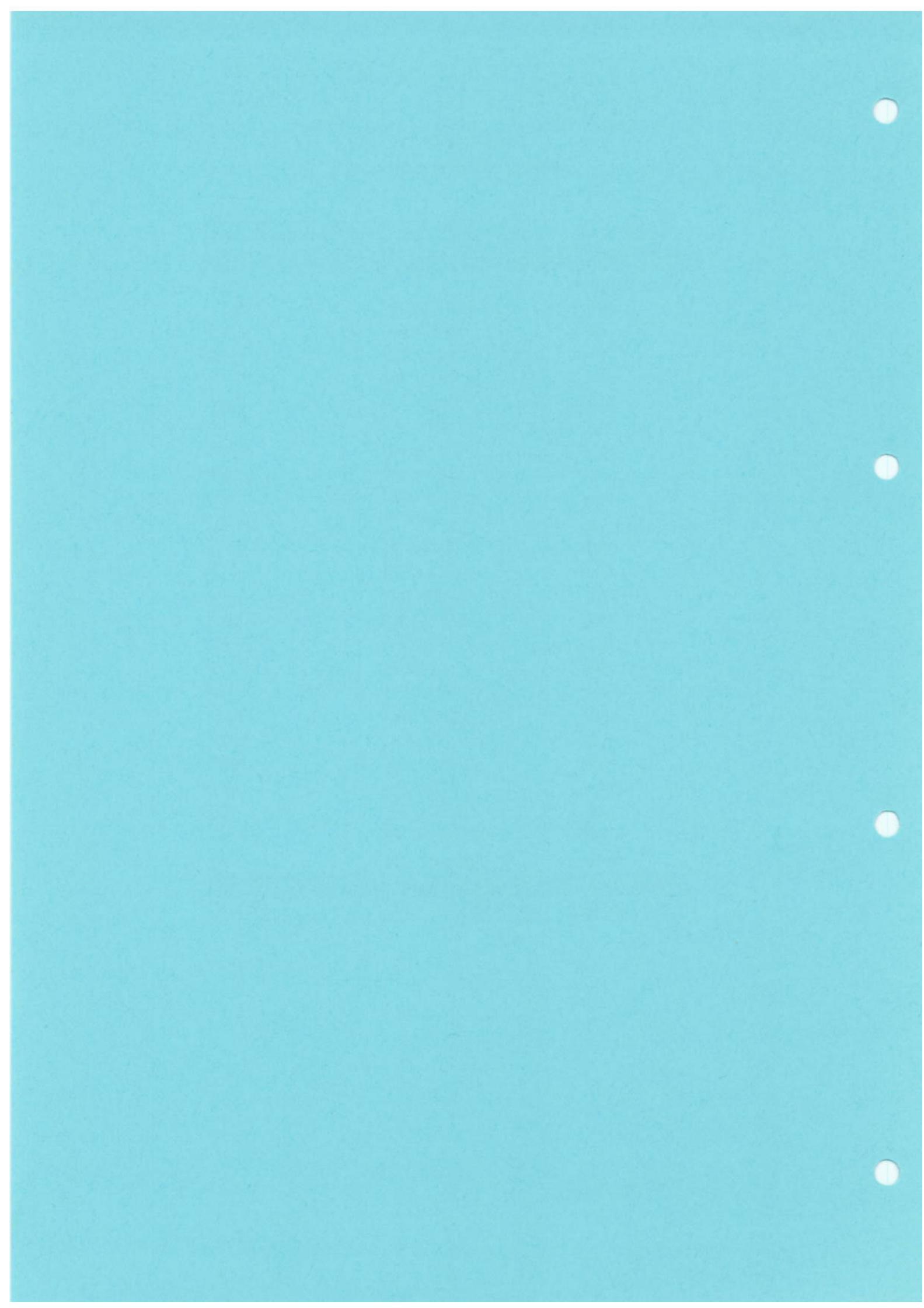
**SHINYANGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	3003.24	0.36
Bo	7073.73	0.84
BSc	60803.43	7.22
BSL	556.68	0.07
Chc	285719.06	33.95
Cm	210255.66	24.98
Gb	76.47	0.01
Go	3.14	0.00
Gos	16521.48	1.96
GSc	204719.21	24.32
IW	981.91	0.12
S/M	22799.07	2.71
Urban	1024.62	0.12
Wo	6660.51	0.79
WSc	21475.09	2.55
<b>Total - Shinyanga District</b>	<b>841673.30</b>	<b>100.00</b>



**SINGIDA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	14.01	0.00
B(et)	300192.09	6.14
Bd	55148.56	1.13
Bo	118271.77	2.42
BSc	619522.88	12.68
BSL	1192.31	0.02
Bt	357810.25	7.32
Bt(et)	25810.19	0.53
Chc	51500.21	1.05
Cm	166661.08	3.41
Fp	1207.14	0.02
Gb	12316.72	0.25
Gbs	300180.52	6.14
Go	4469.35	0.09
Gos	193839.70	3.97
GSc	290703.39	5.95
Gw	61332.87	1.26
Gws	59613.51	1.22
IW	15285.50	0.31
RO	575.97	0.01
S/M	96666.46	1.98
Urban	762.24	0.02
Wc	83577.10	1.71
Wo	1864288.78	38.16
WSc	205062.93	4.20
<b>Total - Singida region</b>	<b>4886005.51</b>	<b>100.00</b>



**IRAMBA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	14.01	0.00
B(et)	13848.59	1.75
Bo	1839.23	0.23
BSc	89526.37	11.31
BSL	1192.31	0.15
Bt	143.33	0.02
Bt(et)	9658.31	1.22
Chc	18790.57	2.37
Cm	85201.37	10.77
Fp	198.09	0.03
Gb	3218.53	0.41
Gbs	52028.29	6.57
Go	4132.43	0.52
Gos	41859.49	5.29
GSc	144839.25	18.30
Gw	16734.69	2.11
Gws	6933.18	0.88
IW	5175.07	0.65
RO	271.86	0.03
S/M	55971.35	7.07
Urban	121.65	0.02
Wc	32897.60	4.16
Wo	119610.39	15.11
WSc	87200.17	11.02
<b>Total - Iramba District</b>	<b>791406.10</b>	<b>100.00</b>

**MANYONI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	249588.19	8.92
Bd	30625.21	1.10
Bo	93417.33	3.34
BSc	287172.18	10.27
Bt	167077.72	5.97
Bt(et)	3046.19	0.11
Cm	29661.97	1.06
Gb	8424.76	0.30
Gbs	211829.30	7.57
Go	62.59	0.00
Gos	129122.16	4.62
GSc	7518.79	0.27
Gw	24004.50	0.86
Gws	45441.45	1.62
IW	7262.18	0.26
RO	304.11	0.01
S/M	14608.82	0.52
Urban	212.43	0.01
Wc	2017.04	0.07
Wo	1460331.74	52.22
WSc	24998.96	0.89
<b>Total - Manyoni District</b>	<b>2796727.63</b>	<b>100.00</b>

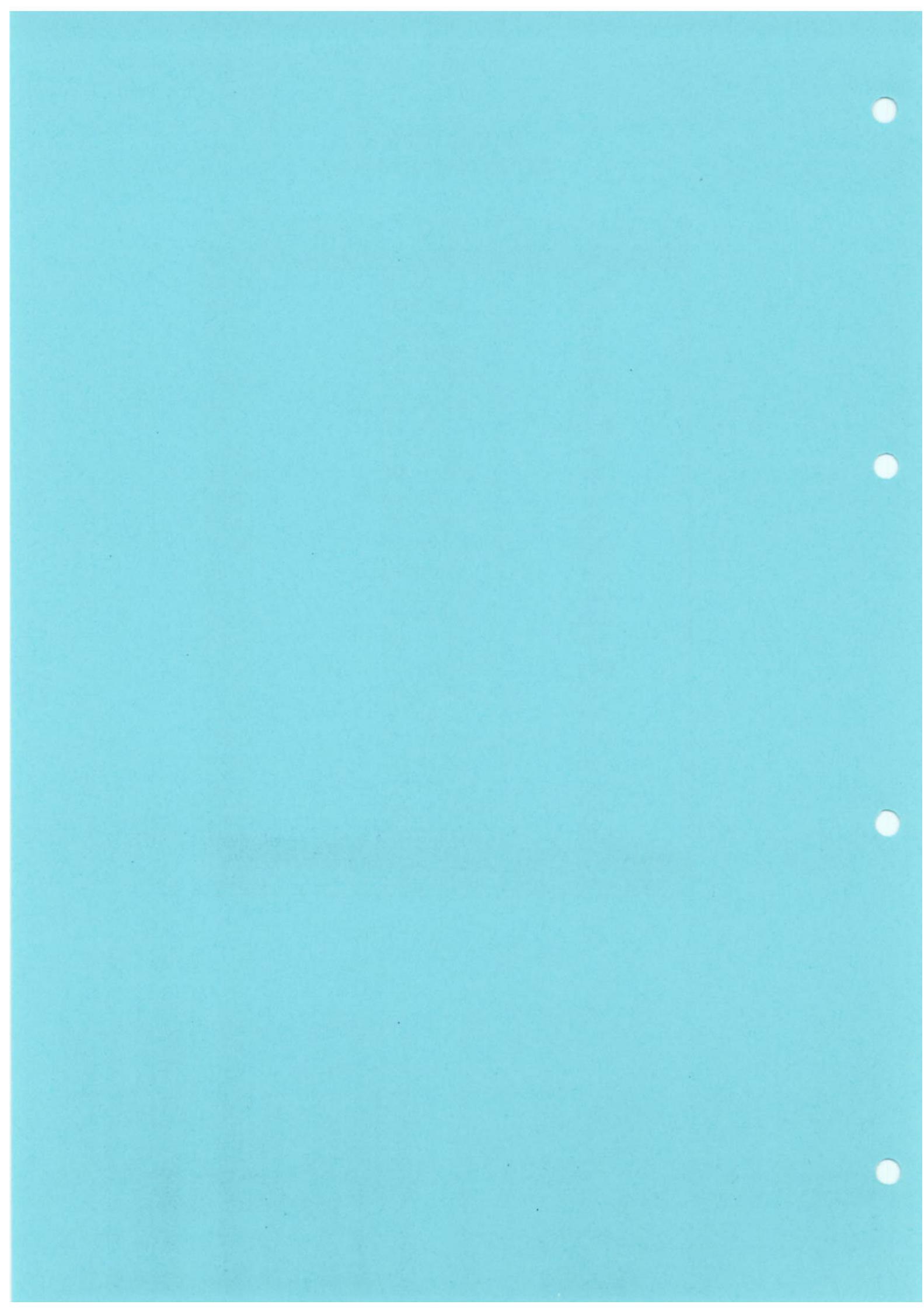
**SINGIDA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	36755.31	2.83
Bd	24523.35	1.89
Bo	23015.21	1.77
BSc	242824.34	18.71
Bt	190589.20	14.68
Bt(et)	13105.69	1.01
Chc	32709.64	2.52
Cm	51797.74	3.99
Fp	1009.05	0.08
Gb	673.43	0.05
Gbs	36322.93	2.80
Go	274.33	0.02
Gos	22858.04	1.76
GSc	138345.35	10.66
Gw	20593.68	1.59
Gws	7238.88	0.56
IW	2848.25	0.22
S/M	26086.29	2.01
Urban	428.16	0.03
Wc	48662.45	3.75
Wo	284346.64	21.91
WSc	92863.80	7.16
<b>Total - Singida District</b>	<b>1297871.78</b>	<b>100.00</b>



**TABORA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	26.46	0.00
B(et)	59649.20	0.79
Bd	9084.25	0.12
Bo	12802.76	0.17
BSc	352317.79	4.64
Bt	92668.20	1.22
Bt(et)	806.33	0.01
Chc	72706.62	0.96
Cm	809271.58	10.66
Fp	633.03	0.01
Gb	4062.70	0.05
Gbs	494848.89	6.52
Go	10448.01	0.14
Gos	276722.48	3.65
GSc	147060.36	1.94
Gw	39534.03	0.52
Gws	654533.77	8.62
IW	20724.01	0.27
RO	135.38	0.00
S/M	149413.06	1.97
Urban	2035.04	0.03
Wc	443203.27	5.84
Wo	3292519.48	43.38
WSc	644072.99	8.49
<b>Total - Tabora region</b>	<b>7589279.69</b>	<b>100.00</b>



**IGUNGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
Airport	2.79	0.00
B(et)	13204.43	1.87
BSc	149091.31	21.13
Bt	11522.51	1.63
Chc	30454.94	4.32
Cm	143843.74	20.39
Fp	633.03	0.09
Gbs	13277.26	1.88
Go	5645.76	0.80
Gos	49533.86	7.02
GSc	99717.78	14.13
Gw	19437.06	2.75
IW	595.16	0.08
S/M	37098.25	5.26
Urban	106.39	0.02
Wo	81073.93	11.49
WSc	50387.61	7.14
<b>Total - Igunga District</b>	<b>705625.79</b>	<b>100.00</b>

**NZEGA DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	4566.55	0.58
Bo	108.15	0.01
BSc	137645.77	17.46
Chc	9220.12	1.17
Cm	306689.88	38.91
Gb	474.31	0.06
Gbs	36118.97	4.58
Go	1039.43	0.13
Gos	46261.23	5.87
GSc	21442.62	2.72
Gw	9689.70	1.23
Gws	1784.02	0.23
IW	117.31	0.01
S/M	9020.90	1.14
Urban	488.72	0.06
Wc	60491.29	7.67
Wo	87559.17	11.11
WSc	55545.50	7.05
<b>Total - Nzega District</b>	<b>788263.64</b>	<b>100.00</b>

**TABORA DISTRICT**  
**Distribution of land cover**

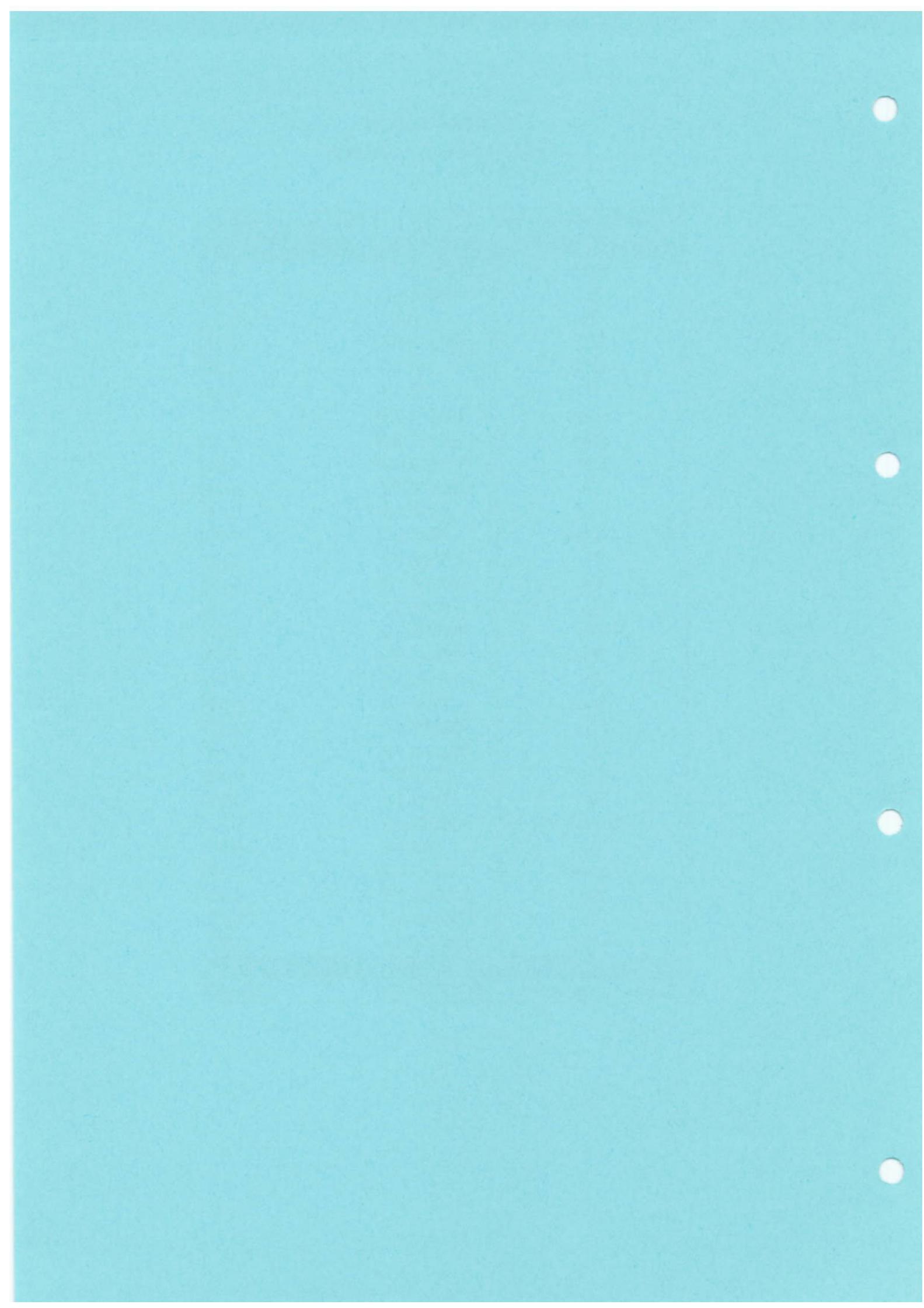
Classification code	Hectares	Percentage cover
Airport	23.67	0.00
B(et)	22653.10	0.55
Bd	9084.25	0.22
Bo	12062.73	0.29
BSc	43551.28	1.06
Bt	81145.70	1.97
Bt(et)	806.33	0.02
Chc	10345.09	0.25
Cm	248931.29	6.06
Gb	3588.39	0.09
Gbs	400620.24	9.75
Go	1704.12	0.04
Gos	166904.51	4.06
GSc	21404.96	0.52
Gw	8544.07	0.21
Gws	378070.02	9.20
IW	979.95	0.02
RO	135.38	0.00
S/M	40513.17	0.99
Urban	1244.82	0.03
Wc	94887.16	2.31
Wo	2211576.82	53.82
WSc	350759.92	8.54
<b>Total - Tabora District</b>	<b>4109536.97</b>	<b>100.00</b>

**URAMBO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	19225.12	0.97
Bo	631.88	0.03
BSc	22029.43	1.11
Chc	22686.46	1.14
Cm	109806.68	5.53
Gbs	44832.42	2.26
Go	2058.71	0.10
Gos	14022.88	0.71
GSc	4494.99	0.23
Gw	1863.20	0.09
Gws	274679.73	13.83
IW	19031.59	0.96
S/M	62780.74	3.16
Urban	195.12	0.01
Wc	287824.81	14.49
Wo	912309.56	45.94
WSc	187379.96	9.44
<b>Total - Urambo District</b>	<b>1985853.30</b>	<b>100.00</b>

**TANGA REGION**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	216666.71	7.76
Bd	16689.89	0.60
Bo	400.13	0.01
BSc	344984.94	12.35
BSL	47.16	0.00
Bt	80.33	0.00
Bt(et)	39251.31	1.41
Cbc	5167.58	0.18
Chc	121590.43	4.35
Cm	225878.09	8.09
Ctc	3340.85	0.12
Ctc(st)	848.21	0.03
Fm	20092.93	0.72
Fn	140686.13	5.04
Fp	10658.38	0.38
Gb	44729.99	1.60
Gbs	32892.81	1.18
Go	1760.35	0.06
Gos	5254.98	0.19
GSc	69850.99	2.50
Gw	152259.16	5.45
Gws	7126.20	0.26
IW	1499.57	0.05
Ocean	5263.30	0.19
RO	185.18	0.01
Urban	3513.44	0.13
Wc	248054.93	8.88
Wo	754336.43	27.00
WSc	320285.04	11.47
<b>Total - Tanga region</b>	<b>2793395.44</b>	<b>100.00</b>



**HANDENI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	59741.60	4.23
Bd	4641.31	0.33
BSc	215442.64	15.27
Bt	80.33	0.01
Bt(et)	22324.36	1.58
Chc	3208.95	0.23
Cm	53497.97	3.79
Ctc	248.45	0.02
Fm	302.29	0.02
Fn	34125.14	2.42
Gb	21805.34	1.55
Gbs	23396.78	1.66
Go	1521.44	0.11
Gos	2038.67	0.14
GSc	20352.25	1.44
Gw	129111.05	9.15
Gws	4640.79	0.33
IW	43.87	0.00
Urban	388.54	0.03
Wc	189872.60	13.46
Wo	510401.29	36.17
WSc	113865.58	8.07
<b>Total - Handeni District</b>	<b>1411051.25</b>	<b>100.00</b>

**KOROGWE DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	29433.67	8.80
Bd	8175.63	2.45
BSc	66159.52	19.79
Bt(et)	926.57	0.28
Cbc	1.42	0.00
Chc	52795.20	15.79
Cm	25424.39	7.60
Fn	17459.62	5.22
Fp	384.29	0.11
Gb	738.93	0.22
Gbs	3097.60	0.93
Go	21.11	0.01
Gos	2591.31	0.78
GSc	26961.86	8.06
Gw	10837.07	3.24
IW	895.57	0.27
Urban	832.46	0.25
Wc	8003.26	2.39
Wo	42510.55	12.71
WSc	37086.16	11.09
<b>Total - Korogwe District</b>	<b>334336.20</b>	<b>100.00</b>

**LUSHOTO DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	64614.94	16.38
Bd	2122.17	0.54
BSc	12783.89	3.24
Bt(et)	5300.76	1.34
Cbc	4046.95	1.03
Chc	9363.69	2.37
Cm	65045.87	16.49
Ctc(st)	29.80	0.01
Fn	55626.50	14.10
Fp	6623.69	1.68
Gb	3576.89	0.91
Gbs	2681.61	0.68
Gos	338.01	0.09
Gw	1881.35	0.48
RO	185.18	0.05
Urban	182.70	0.05
Wc	15922.75	4.04
Wo	85618.11	21.71
WSc	58439.71	14.82
<b>Total - Lushoto District</b>	<b>394384.59</b>	<b>100.00</b>

**MUHEZA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	57985.60	12.77
Bd	1750.78	0.39
BSc	30048.21	6.62
BSL	47.16	0.01
Bt(et)	9384.24	2.07
Cbc	1119.21	0.25
Chc	42477.50	9.35
Cm	64838.79	14.28
Ctc	2551.75	0.56
Ctc(st)	818.41	0.18
Fm	8718.34	1.92
Fn	28971.68	6.38
Fp	3650.40	0.80
Gb	842.12	0.19
Gbs	1269.71	0.28
Go	217.80	0.05
GSc	531.50	0.12
Gw	3373.28	0.74
IW	508.68	0.11
Urban	314.00	0.07
Wc	27261.22	6.00
Wo	76785.12	16.91
WSc	90701.98	19.97
<b>Total - Muheza District</b>	<b>454167.50</b>	<b>100.00</b>

**PANGANI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	4890.90	2.95
Bo	400.13	0.24
BSc	14715.70	8.89
Bt(et)	1111.43	0.67
Chc	9065.01	5.47
Cm	8757.81	5.29
Fm	7830.30	4.73
Fn	4503.18	2.72
Gb	17766.70	10.73
Gbs	2353.13	1.42
Gos	286.99	0.17
GSc	21470.24	12.96
Gw	7056.40	4.26
Gws	2485.42	1.50
IW	51.44	0.03
Urban	117.09	0.07
Wc	6995.10	4.22
Wo	38790.30	23.42
WSc	16955.18	10.24
<b>Total - Pangani District</b>	<b>165602.44</b>	<b>100.00</b>

**TANGA DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
BSc	5834.99	17.24
Bt(et)	203.94	0.60
Chc	4680.08	13.82
Cm	8313.26	24.56
Ctc	540.64	1.60
Fm	3242.00	9.58
Gbs	93.98	0.28
GSc	535.14	1.58
Ocean	5263.30	15.55
Urban	1678.65	4.96
Wo	231.05	0.68
WSc	3236.42	9.56
<b>Total - Tanga District</b>	<b>33853.46</b>	<b>100.00</b>

Note : Tanga district has a clearly defined boundary within the ocean, therefore for this district area statements for the ocean are given.

**ZANZIBAR ISLAND**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	3727.73	2.39
BSc	27115.60	17.35
BSL	1200.14	0.77
Chc	3709.90	2.37
Cm	29952.21	19.17
Ctc	28377.69	18.16
Fm	4151.22	2.66
Fn	18309.24	11.72
Fp	308.29	0.20
Gbs	1755.15	1.12
GSc	1360.35	0.87
Urban	2286.12	1.46
Wo	2567.81	1.64
WSc	31453.56	20.13
<b>Total - Zanzibar Island</b>	<b>156275.00</b>	<b>100.00</b>



**CENTRAL AND SOUTH REGIONS (ZANZIBAR)**  
Distribution of land cover

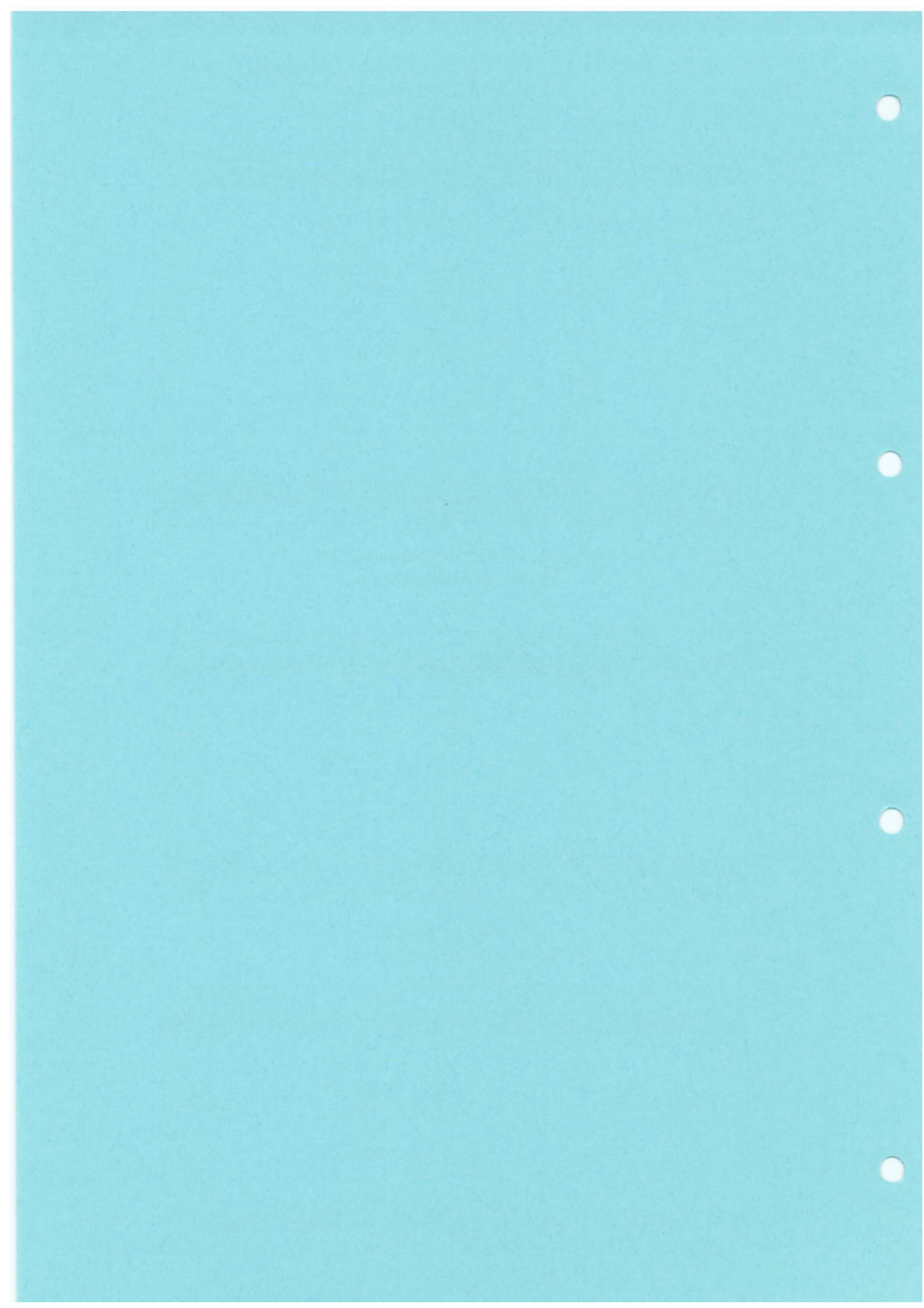
Classification code	Hectares	Percentage cover
B(et)	3727.73	4.34
BSc	7312.78	8.52
Chc	1557.44	1.81
Cm	16921.38	19.71
Ctc	12973.67	15.11
Fm	2518.81	2.93
Fn	17013.82	19.82
Fp	308.29	0.36
Gbs	970.77	1.13
GSc	1360.35	1.58
Urban	27.96	0.03
Wo	2468.94	2.88
WSc	18700.95	21.78
<b>Total - Central and South regions (Zanzibar)</b>	<b>85862.88</b>	<b>100.00</b>

**TOWN AND WEST REGION (ZANZIBAR)**  
Distribution of land cover

Classification code	Hectares	Percentage cover
BSc	594.21	43.68
Cm	3993.99	293.60
Ctc	14259.27	1048.21
Fm	563.87	41.45
Fn	1295.42	95.23
Gbs	784.39	57.66
Urban	2258.16	166.00
WSc	131.22	9.65
<b>Total - Town and West region (Zanzibar)</b>	<b>23880.53</b>	<b>1755.47</b>

**NORTH REGION (ZANZIBAR)**  
Distribution of land cover

Classification code	Hectares	Percentage cover
BSc	19208.61	1978.71
BSL	1200.14	123.63
Chc	2152.46	221.73
Cm	9036.84	930.90
Ctc	1144.75	117.92
Fm	1068.53	110.07
Wo	98.88	10.19
WSc	12621.38	1300.15
<b>Total - North region (Zanzibar)</b>	<b>46531.58</b>	<b>4793.28</b>



**NORTH "A" DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
BSc	12476.45	54.47
BSL	1200.14	5.24
Chc	72.49	0.32
Cm	2559.85	11.18
Ctc	117.34	0.51
Fm	74.18	0.32
Wo	98.88	0.43
WSc	6305.62	27.53
<b>Total - North "A" District</b>	<b>22904.95</b>	<b>100.00</b>

**NORTH "B" DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
BSc	6732.15	28.49
Chc	2079.97	8.80
Cm	6476.99	27.41
Ctc	1027.41	4.35
Fm	994.35	4.21
WSc	6315.76	26.73
<b>Total - North "B" District</b>	<b>23626.63</b>	<b>100.00</b>

**KATI DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
B(et)	1440.63	2.93
BSc	5473.93	11.15
Chc	1234.19	2.51
Cm	7842.17	15.97
Ctc	12778.74	26.02
Fm	1934.21	3.94
Fn	5948.16	12.11
Fp	308.29	0.63
Gbs	970.77	1.98
GSc	1360.35	2.77
Urban	27.96	0.06
Wo	2230.14	4.54
WSc	7559.95	15.39
<b>Total - Kati District</b>	<b>49109.47</b>	<b>100.00</b>

**KUSINI DISTRICT**  
**Distribution of land cover**

Classification code	Hectares	Percentage cover
B(et)	2287.11	6.22
BSc	1838.85	5.00
Chc	323.25	0.88
Cm	9079.21	24.70
Ctc	194.94	0.53
Fm	584.60	1.59
Fn	11065.67	30.11
Wo	238.80	0.65
WSc	11141.00	30.31
<b>Total - Kusini District</b>	<b>36753.42</b>	<b>100.00</b>

**MJINI DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
Cm	423.19	21.04
Ctc	156.89	7.80
Fm	163.22	8.12
Urban	1267.94	63.04
<b>Total - Mjini District</b>	<b>2011.24</b>	<b>100.00</b>

**MAGHARIBI DISTRICT**  
**Distribution of land cover**

<b>Classification code</b>	<b>Hectares</b>	<b>Percentage cover</b>
BSc	594.21	2.72
Cm	3570.80	16.33
Ctc	14102.38	64.48
Fm	400.66	1.83
Fn	1295.42	5.92
Gbs	784.39	3.59
Urban	990.22	4.53
WSc	131.22	0.60
<b>Total - Magharibi District</b>	<b>21869.34</b>	<b>100.00</b>

## REFERENCES



## CATALOGUE OF REFERENCE MATERIALS

### **A BOOKS & REPORTS (HTS Library)**

- A-1. ACLAND, J. D., East African Crops. (HTS)
- A-2. ANDERSON, B., A Survey of Soils in the Kongwa & Nachingwea Districts of Tanganyika. (HTS)
- A-3. ANDERSON, B., The Rufiji Basin Tanganyika - Volume VII (Text). (HTS)
- A-4. ANDERSON, B., The Rufiji Basin Tanganyika - Volume VII (Maps). (HTS)
- A-5. BENNETT J. G. et al. Mtwara/Lindi Regional Integrated Development Programme. (HTS)
- A-6. CASLEY D. J. & LURY, D. A., Data Collection in Developing Countries. (HTS)
- A-7. DALE I. & GREENWAY, P., Kenya Trees and Shrubs. (HTS)
- A-8. DE WINTER, B. et al., Sixty-six Transvaal Trees. (HTS)
- A-9. EDWARDS D. C. & BOGDAN A. V., Important Grassland Plants of Kenya. (HTS)
- A-10. EDWARDS D. C. & BOGDAN A. V., Important Grassland Plants of Kenya. (HTS)
- A-11. EGGELING W. J., An Annotated List of the Grasses of the Uganda Protectorate. (HTS)
- A-12. FAO, Investigation of Lands with Declining and Stagnating Productivity - Tanzania. (HTS)
- A-13. FAO, Towards a Standardised Hierarchical Classification of Vegetation for Remote Sensing. (HTS)
- A-14. IUCN, A Working System for Classification of World Vegetation. (HTS)
- A-15. KIKULA I, S. SHISHIRA, E. K. & PAULSSON B., Mapping of Woodfuel Resources in Tanzania Using Spot Satellite Data. (HTS)
- A-16. LANGDALE-BROWN, I et al., The Vegetation of Uganda and its Bearing on Land-use. (HTS)
- A-17. LOWE, J. & STANFIELD, D. P., The Flora of Nigeria: Sedges. (HTS)
- A-18. MILLINGTON, A. C., et al., Estimating Woody Biomass in Sub-Saharan Africa. (HTS)



- A-19. MONKHOUSE, F. J & WILKINSON, H. R., Maps and Diagrams. (HTS)
- A-20. NAPPER, D. M., Grasses of Tanganyika. (HTS)
- A-21. NATIONAL ACADEMY of SCIENCES, Firewood Crops, Volume 1. (HTS)
- A-22. NATIONAL ACADEMY of SCIENCES, Firewood Crops, Volume 2. (HTS)
- A-23. NATIONAL SOIL SERVICE, Soil Conditions and Agricultural Production Potential for Selected Rainfed Crops of UFC Kikongo Farm, Tanga Tanzania. (HTS)
- A-24. PHILLIPS, J., Agriculture and Ecology in Africa. (HTS)
- A-25. RUSSELL, E. W., The Natural Resources of East Africa. (HTS)
- A-26. SMITH, J., Distribution of Tree Species in the Sudan in Relation to Rainfall and Soil Texture. (HTS)
- A-27. SPOONER, R. J. & JENKIN, R. N., The Development of the Lower Mgeta River Area of the United Republic of Tanzania. (HTS)
- A-28. STANFIELD, D. P., The Flora of Nigeria - Grasses. (HTS)
- A-29. STANFIELD, D. P., The Flora of Nigeria - Grasses. (Illustrations) (HTS)
- A-30. SYLVANDER, R. et al., The Use of Satellite Imagery for Delineation of Vegetation Types in Eastern Tanzania. (HTS)
- A-31. TELEOS, Integrated Remote Sensing Programme for East Africa. (HTS)
- A-32. UN, Kagera River Basin Development - Phase II. (HTS)
- A-33. WESTMAN P., Trees & Shrubs of Babati District Tanzania. (HTS)
- A-34. WORLD BANK, Procurement of Works. (HTS)

**B PHOTOCOPIED REFERENCES**

- B-1. GILLMAN, C. A vegetation-types map of Tanganyika Territory. (HTS)
- B-2. GREENWAY, P. J. A classification of the vegetation of East Africa. (HTS)
- B-3. GRUNBLATT, J., OTTICHILO, W. K. & SINAGE, R. K. A hierarchical approach to vegetation classification in Kenya. (HTS)
- B-4. HAWTHORNE W. D., East African Coastal Forest Botany. (HTS)
- B-5. KAUZENI, A. S., KIKULA, I. S., MOHAMED, S. A. & LYIMO, J. G., Land Use Planning and Resource Assessment in Tanzania: A Case Study. (HTS)



- B-6. LIND, E. M. & M. E.S MORRISON East African Vegetation. (HTS)
- B-7. LOVETT, J. C., Eastern Arc Moist Forest Flora. (HTS)
- B-8. LOVETT, J. C., Floristic Inventory of Tropical Countries - Tanzania. (HTS)
- B-9. POLHILL, R. M., Floristic Inventory of Tropical Countries - East Africa. (HTS)
- B-10. PRATT, D. J., GREENWAY, P. J. & GWYNNE, M. D. A classification of East African rangeland with an Appendix on terminology. (HTS)
- B-11. PRATT, D. J & M. D GWYNNE Rangeland Management and Ecology in East Africa. (HTS)
- B-12. RASCH, H., Mapping of Vegetation, Land Cover and Land Use by Satellite - Experience and Conclusions for Future Project Applications. (HTS)
- B-13. RODGERS, W. A., The Conservation of the Forest Resources of Eastern Africa: Past Influences, Present Practices and Future Needs. (HTS)
- B-14. THOMAS, I., Various Thematic Maps of Tanzania. (HTS)
- B-15. VOLLESEN, K., Annotated Check-list of the Vascular Plants of the Selous Game Reserve, Tanzania. (HTS)

**C            MANUALS**

- Man-1        MICROSOFT EXCEL, User's Guide 1. (HTS)
- Man-2        MICROSOFT WORD for WINDOWS, User's Guide. (HTS)

**D            HTS REPORTS/GUIDES**

- HTS-1        FRMP (LU & NAT RES MAPPING) Inception Report.
- HTS-2        FRMP (LU & NAT RES MAPPING) Proposal (Vol 1 - Technical).
- HTS-3        FRMP (LU & NAT RES MAPPING) Proposal (Vol 2 - Financial).
- HTS-4        FRMP (LU & NAT RES MAPPING) Proposal (Vol 2 - Financial - Alt 1).
- HTS-5        Yemen Woodland? Resources Mapping - Plant Identification Guide.
- HTS-6        Yemen Woodland? Resources Mapping - Fieldwork Guide, 1992.
- HTS-7        Yemen Woodland? Resources Mapping - Fieldwork Guide, 1991.
- HTS-8        Yemen Woodland? Resources Mapping - Record Forms.



- HTS-9 NIRAD Project Interpretation Phase.
- HTS-10 Practical Guide to ARC/INFO Software (Ver 3.4 D).
- HTS-11 Land Resource Survey and Planning Course - GIS Notes.

