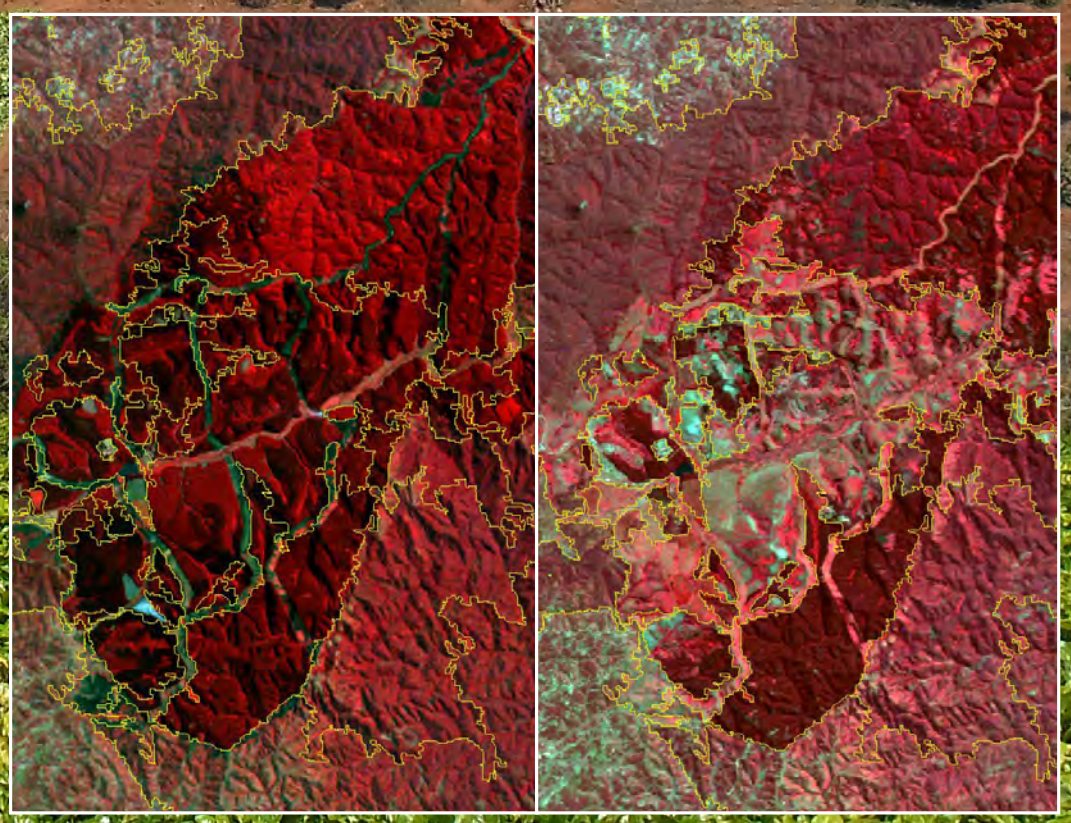
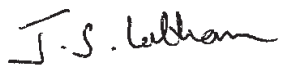
June 2013

Atlas of Malawi

LAND COVER and LAND COVER change

1990 - 2010





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Foreword

The Republic of Malawi is a landlocked country in southeast Africa, bordered by Zambia, Tanzania and Mozambique. The country is separated from Tanzania and Mozambique by Lake Malawi, the third largest lake in Africa. Malawi's surfacearea is almost 118,000 km2 with an estimated population of around 15 million people. It can be considered one of the most densely populated countries in Sub-Saharan Africa region. It is currently classified amongst the world's least-developed countries. The economy is heavily based in agriculture, with a largely rural population.

Based on the *National Program for Managing Climate Change in Malawi* document, Malawi is a rain-fed agricultural economy and the agriculture sector employs approximately 80 % of the country's workforce, which contributes over 80% of its foreign exchange earnings. The country receives an average of approximately 850 mm of rainfall per year, adequate for rain-fed crop production and for recharging underground aquifers. However, the distribution and intensity of rainfall is erratic and water storage capacity is limited. Only a small portion of the total farmed area in Malawi is under water management and the irrigated land constitutes only around 10 percent of the estimated physical potential. Malawi has suffered extensively from severe climate events such as drought and floods. Historically, Malawi went through severe droughts during the last hundred years, whilst the worst floods occurred around the year 2000. These events have affected the areas where they are the most vulnerable poor communities and whose livelihood is based on agriculture. With the recent growing recognition that climate change has adverse effects on both growth and development processes of the country, it is imperative to mainstream climate change into the country's development plans and programs. Building commensurate up to date databases of the status of the countries land cover, and its associated changes, forms a critical baseline upon which to monitor change and evaluate degradation and to evaluate the effectiveness of measures being put in place to reverse or slow the rate of natural resources depletion.

The need for reliable information (including land cover and land cover change information) has also been recognized in a number of international conventions including the UN environmental conventions, the recommendations by the UNCED Agenda 21 and the WSSD Plan of Implementation. More recently, the United Nations sustainable development conference in Rio+20 (*Rio de Janeiro, 2012*) also recommended that closing the information gap between industrialized and developing countries should be one of the development priorities. Accordingly this study provides valuable information that will enhance Malawi's reporting capacity to the Multilateral Environmental agreements, and support the Rio+20 process.

The implementation of on-site training courses represents a significant contribution to improve the local capacity in producing, undertaking, maintaining, archiving, disseminating land cover change data and information to support informed decision-making at national and sub-national level. Recommendations are made to maintain and expand this capacity; so far developed through this project; in the use of advanced geo-information technologies of remote sensing, geographic information and global positioning systems for updating inventories of natural resources in Malawi.. The information provided through this project has significantly contributed to the needs for consistent and reliable land cover change information at national level to aid studies related to climate change.

The outputs of the project include:

- strengthened national capacity to undertake consistent land cover change assessments in the country,
- availability of detailed reliable data and information on the land cover and its associated changes
- an Atlas of Malawi, land cover and land cover changes (1990s to 2010s) that can be used by a large number of technical experts, land managers, research and development community and ultimately the national and local authorities to support the sustainable develop strategies and development agendas.

Introduction

The government of Malawi, with support from its cooperating partners, assumed a comprehensive program to address Climate Change issues in its development agenda. The main objective of the program is "to develop a strategic framework for responding to the challenges that climate change poses for sustainable economic development and national food security in Malawi." The goal of the formulation phase is "to develop an evidence-based strategic framework, national program and funded implementation plan for managing response to climate change in Malawi". The Climate Change Program framework defined the following outputs:

- Institutional Building;
- Climate Change Risk and Adaptation Assessments;
- Strategic/Programmatic Investment Analyses and Interventions;

The creation of the land cover database of Malawi was identified as one of the core components of the overall development agenda of the National Adaptation Programme of Action (NAPA) and had significant support provided by all the NAPA implementation agencies, partners and donors.

Under the auspecices of the Malawi Climate Change Monitoring National Program and the Climate Change general framework, FAO's Land and Water Division (NRL), in collaboration and with the support of the FAO Malawi office and a number of the national institutes including the Land Resources and Conservation Department (LRCD) of Ministry of Agriculture, completed a new national Land Cover Change database of Malawi. One of the core outputs of this activity is the Atlas of Malawi Land Cover and Land Cover Change (1990s to 2010s).

Land cover assessment and monitoring of its dynamics are essential requirements for the sustainable management of natural resources and represent a fundamental baseline through which to support several activities linked to climate change projects and environmental studies. The updated and accurate land cover databases produced are indeed multipurpose in their utility and can support the monitoring of landscape dynamics and facilitate environmental modelling.

The Malawi land cover change database was created using a number of data sources including remotely sensed satellite imagery emananting from the Landsat series of satellites (at 30 meters of resolution or better), available historical digital datasets and in-situ data. The FAO Land Cover Classification System (LCCS) was used for the creation of the national legend by national experts. The FAO methodology for land cover change mapping was implemented using FAO land cover change mapping toolbox. FAO provided substantive technical assistance to the national experts to undertake consistent assessment of the land cover change in Malawi.

The FAO office in Malawi supported the implementation of the on-site training workshops.

The national experts from Environmental Affairs and Forestry Department of the Ministry of Natural Resources, Energy and Environment and from Land Resources and Conservation Department of the Ministry of Agriculture and Food Security were trained on the methodology and tools to create, manage and analyse the land cover changes database.

FAO has worked closely with the Malawi Government partners to:

- produce a detailed and harmonized national land cover change database, which provides reliable and updated information on the distribution of the land cover classes to support land cover change analysis;
- strengthen the national capacity to undertake land cover change analysis using international standards, remote sensing and GIS technology and to integrate in-situ with earth observation data;
- prepare the Atlas of Malawi land cover and land cover change;
- use the outputs of these activities to support informed decision making at various levels.

Abstract

The Atlas of Malawi, land cover and land cover change (1990s-2010s) provides information on the land cover resources, their distribution and changes over time, at national, regional and district levels.

The Atlas is published in 2013. The administrative unit layer as well as the water basin layer and a number of ancillary datasets was provided by the Land Resources and Development Department of the Ministry of Agriculture of Malawi.

The land cover change database was prepared according to the FAO, Land and Water Division www.fao.org and Global Land Cover Network (GLCN) www.glcn.org land cover change mapping methodology; underpinned by the use of FAO/ISO standards and the Land Cover Mapping Toolbox.

The national land cover legend was prepared using the Land Cover Classification System (LCCS): a FAO comprehensive, standardized a priori classification system, designed to meet specific user requirements and created for mapping exercises, independent of the scale or means used to map. The classification uses a set of independent diagnostic criteria that allows the correlation with existing classifications and legends.

Main satellite data sources include high resolution satellite imagery, freely downloaded from the United States Geological Survey (USGS) www.usgs.gov and some very high resolution remote sensing imagery, for selected areas, as well as a number of historical datasets and ancillary data.

Initially, remote sensing block mosaics, created from the high resolution imagery were segmented into homogeneous objects, which were then interpreted based on the FAO land cover change mapping methodology, using the Mapping Device Change Assessment Tool (MAD-CAT), the photo interpretation keys and local knowledge. The preliminary database was validated through the field work that was implemented by national experts; under the supervision of FAO technical staff.

The final land cover change database is composed of more than 200,000 land cover units (polygons), classified into 23 land cover classes and aggregated into 8 major land cover classes. The aggregation of the major land cover classes was made based on consultations with the national experts to address the main requirements for land cover information at national level.

At the national level, the Atlas provides information on the distribution of the major aggregated land cover. The national information is provided in form of maps, statistical tables and charts. At the regional and district level, the information on the distribution of the land cover is provided at full resolution scale, as maps, statistical tables and charts.

Aknowledgments

The publication of the Atlas of Malawi land cover and land cover change (1990s to 2010s) is the result of the outstanding efforts of different institutions and people working in close partnership. The following paragraph acknowledges the core staff and experts who supported and contributed to the preparation of the Atlas of Malawi.

This activity was implemented in close collaboration with the Land Resources and Conservation Department (LRCD), from Ministry of Agriculture and Food Security, and with the FAO office in Malawi.

We especially acknowledge the cooperation of the following national institutions and experts for their support and precious advices in the realization of the project and in providing local knowledge and valuable inputs to the project activities: Rosebell Mabamba (FAO/ Food Security National Coordinator), Mr. Mussaj (Director LRCD), James Banda (Deputy Director LRCD) for the workshop and training organization, dissemination and uptake; Mr. Austin Tibu (LRCD), Mr. Mihla Phiri (LRCD), Mr. Joel Goodwin Munthali (LRCD), Mr. Andrew Msosa (LRCD), Ms. Mary Msopera (LRCD), Mr. Solomon Gadiel Kalima (Water Resources Dep.), Mr. Christopher Sinkonde (Survey Dep.), Mr. Kefas Kamoyo (LRCD), Mr. Fyaupi Mwanyongo (Disaster and Monitoring Affairs Department), Mr. Aliko Munyenyembe (Forestry Department of the Ministry of Natural Resources) who have supported the image interpretation and who have undertaken the field validation activities; travelling extensively in the most remote areas of Malawi.

Image processing, segmentation process, photo interpretation, database creation, map production supported by the International team of experts included: Daniela Mattina, Edlira Kollozaj, Ilaria Rosati, Emanuela De Leo, Luigi Simeone, Mario Bloise. Atlas graphic designer: Ane Louise Gaudert. Technical supervision supported by: Renato Cumani (FAO, Land and Water Officer) and Antonio Di Gregorio (Senior land cover mapping expert), with Project management led by: John Latham (FAO, Senior Land and Water Officer).

The contribution of all the above, as well as the support from the partners and donors involved in this activity has been fundamental for the success of the project.

List of Acronyms

ADG	Advanced Database Gateway software
FAO	Food and Agriculture Organization of the United Nations
GIS	Geographic Information System
GLCN	Global Land Cover Network
Landsat	Earth Observation Satellite System, a US scientific satellite that studies and photographs the earth's surface by using remote-sensing techniques
LCCS	Land Cover Classification System
LRCD	Land Resources and Conservation Department
MAD-CAT	Mapping Device Change Analysis Tools
NAPA	National Adaptation Programs of Action
NRL	FAO Land and Water division
RS	Remote Sensing of the Earth's surface by Earth observation satellites
UN	United Nations
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

Table of Content

Tables and Figures

1. Background

FAO in collaboration with the FAO Malawi office supported national governmental institutions to undertake the assessment of land resources and their associated changes over time; using FAO methodology and tools. The FAO, Land and Water division (NRL) has developed a number of tools for land cover and change mapping and change assessment based on standards (FAO/ ISO) and best practices.

The main objective of the land cover change mapping component was the preparation of an accurate, up-to-date and reliable land cover change database of Malawi in order to improve effective and focused decision making on landscape dynamics and climate change related issues.

2. Methodology

The methodology implemented for the creation of the land cover change database is based on the well documented FAO approach. The major steps for the compilation of the database included:

- satellite data screening, acquisition and pre-processing
- the creation of an integrated imagery coverage
- image processing and segmentation;
- creation of the land cover legend based on LCCS
- creation of the photo-interpretation keys
- interpretation
- field validation
- land cover change detection and change analysis
- data harmonization and final database generation
- preparation of the Atlas of Malawi land cover and land cover change
- dissemination of results

It is a methodology built upon more than a decade of practical experience in creating detailed national database of natural resources, using GIS and Remote Sensing technology.

The activities for the creation of the land cover change database consisted in following main phases. These phases are described in detail below.

2.1 Satellite Data Acquisition and Pre-Processing

The image interpretation process is based on the discrimination of features in the satellite image. The selection of the appropriate timely data sources is fundamental step, in most cases the spatial ground resolution of the satellite imagery and its spectral characteristics define the overall level and scale of the land cover mapping. Many types of commercial satellite data are available, with different resolutions, sensors, characteristics and costs.

A number of options were explored for Malawi. After an evaluation, considering the requirements for optimum temporal and spatial coverage, data quality, cost, limitations, and constraints, it was decided to utilize the Landsat imagery as basis for the interpretation. The imagery dataset covering the whole country is composed of 12 partial scenes (Figure 1) of Landsat ETM and TM (Enhanced Thematic Mapper and Thematic Mapper sensors), with a pixel resolution of 30 meters, available for three different periods, respectively 1990s, 2000s, and 2010s.

Remote Sensing imagery

The availability of the Landsat satellite imagery was analyzed and the quality of images was evaluated for possible replacements. The accuracy of the geometric correction and the percentage of cloud coverage (less than 20%) were evaluated to determine whether the data met the quality requirements needed for the interpretation. For example, in the northern region of Malawi, the Landsat dated 2011 is characterized by a percentage of cloud coverage higher than the accepted threshold (Figure 2); for this area the land cover analysis was completed with the support of the additional Landsat imagery (2010s), with minimal cloud cover

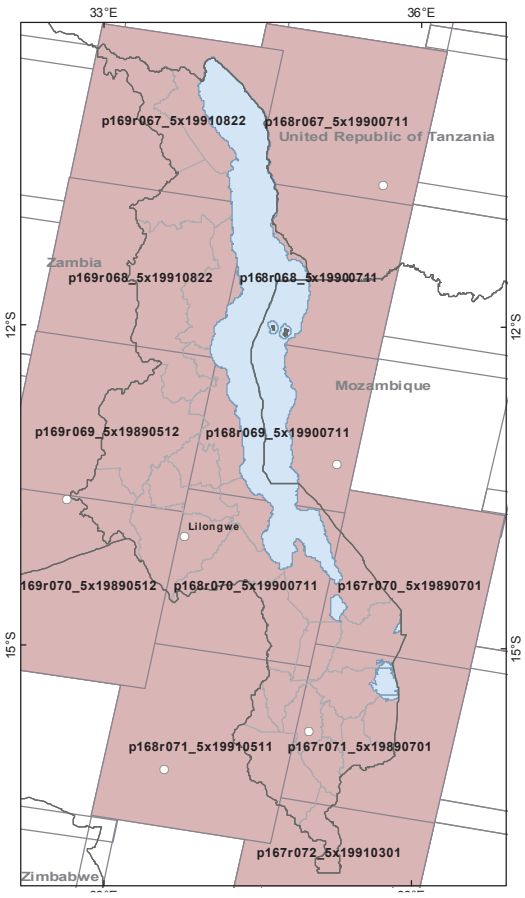


Figure 1: Landsat scene index

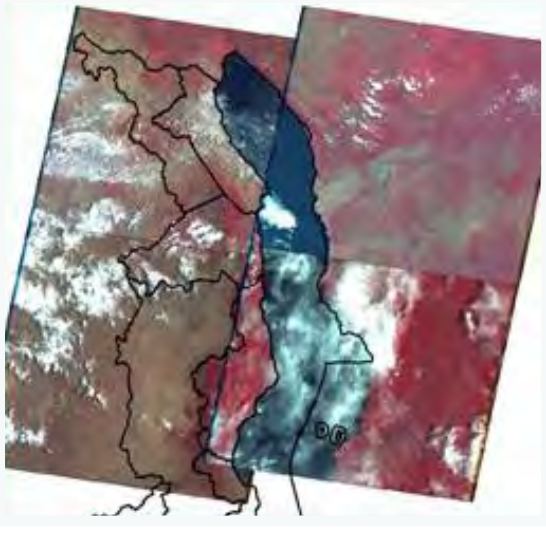


Figure 2: Example of the Landsat imagery coverage in the northern region

2.2 Image Processing and Interpretation

a. Segmentation

Recently developed techniques (segmentation) allow the generation of a very detailed layer of polygons in a short time, eliminating interpreter subjectivity and increasing the cost/benefit efficiency. Image segmentation is based on a region-merging technique, of the divisions of the image, into spatially continuous and spectrally homogeneous regions or objects. The segmentation produces a vector layer of objects that represent regions with similar pixel values with respect to some characteristic or computed property such as colour, intensity or texture. It is important to test different segmentation parameters to get an accurate balance between the level of detail that is expected to be reached and the total number of polygons.

Image segmentation was performed at FAO. The segmentation was performed on three mosaics composed of four partial Landsat scenes each, accordingly the segmentation obtained from mosaicked images avoids discontinuity and edge matching problems along the border of single scenes. The three mosaics correspond to the southern, middle and northern area of Malawi respectively, composed by a total number of more than 300,000 image objects, is shown in Figure 3 anf Figure 4.

Figure 3: Remote sensing image mosaics

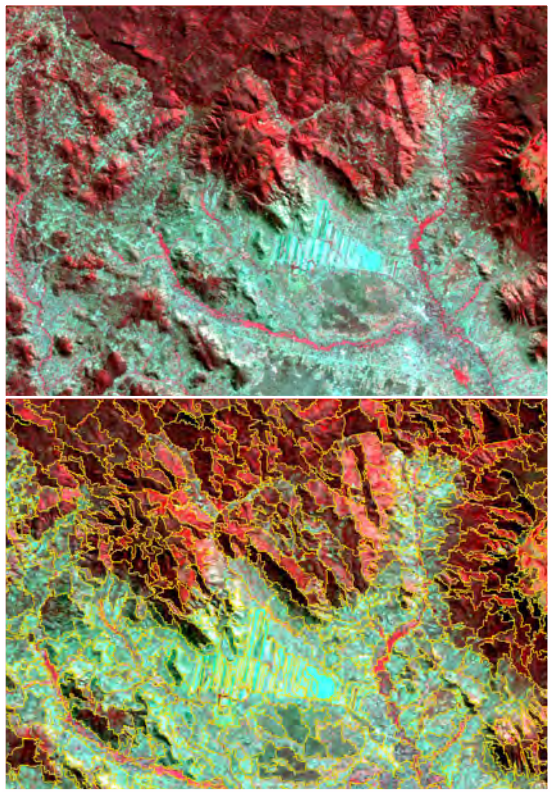


Figure 4: Example of the segmentation results

b. Training and capacity development

Capacity building is one of the pillars of FAO approach. Several key staff from the governmental institutions were involved in the mapping process. A series of training workshops as well as on-the-job training activities and direct supervision from FAO technical staff and experts was provided to the national experts during the course of the project. The workshops on the land cover classification system and land cover change methodology were organized in collaboration with FAO Malawi and LRCD.

The following main topics were addressed during the workshops:

- FAO LCCS legend basic concepts and principles;
- FAO land cover and land cover change methodology and mapping toolbox: LCCS, MAD-CAT, ADG - software functions guidance and practical exercises on the use of the main tools;
- Fieldwork methodology and organization.

National experts also received training on the land cover change mapping. Moreover, they received a detailed training on the use of Advanced Data Gateway tools (ADG) software as part of the FAO Land Cover Change Toolbox.

c. Image interpretation

The visual interpretation can be briefly described as the process of labellisation of the image objects using the land cover legend, photo-interpretation keys, remote sensing imagery and ancillary information.

Mapping Device Change Analysis tools (MAD-CAT) was used for the creation of the land cover change database using the remote sensing imagery and the LCCS legend to assign a land cover class label to each polygon. The interpretation process follows a standard sequence of operations: the first phase is the preliminary interpretation, when the interpreter studies the image and all the available data and assigns a land cover label to each object; The Minimum Mapping Unit (MMU) used in the interpretation phase was 2 ha. Subsequently, after finalizing the preliminary interpretation, the doubtful subareas selected during the interpretation process were checked with a systematic fieldwork campaign. This procedure gives the possibility to minimize the interpretation errors and to improve the level of detail and the quality of the final output.

The final phase consists in the correction of the errors and the harmonization of the interpretation, with the validation of the land cover database.

Note 2: *The final Land Cover change database of Malawi is projected in UTM projection, Zone 36S and Datum WGS 84*

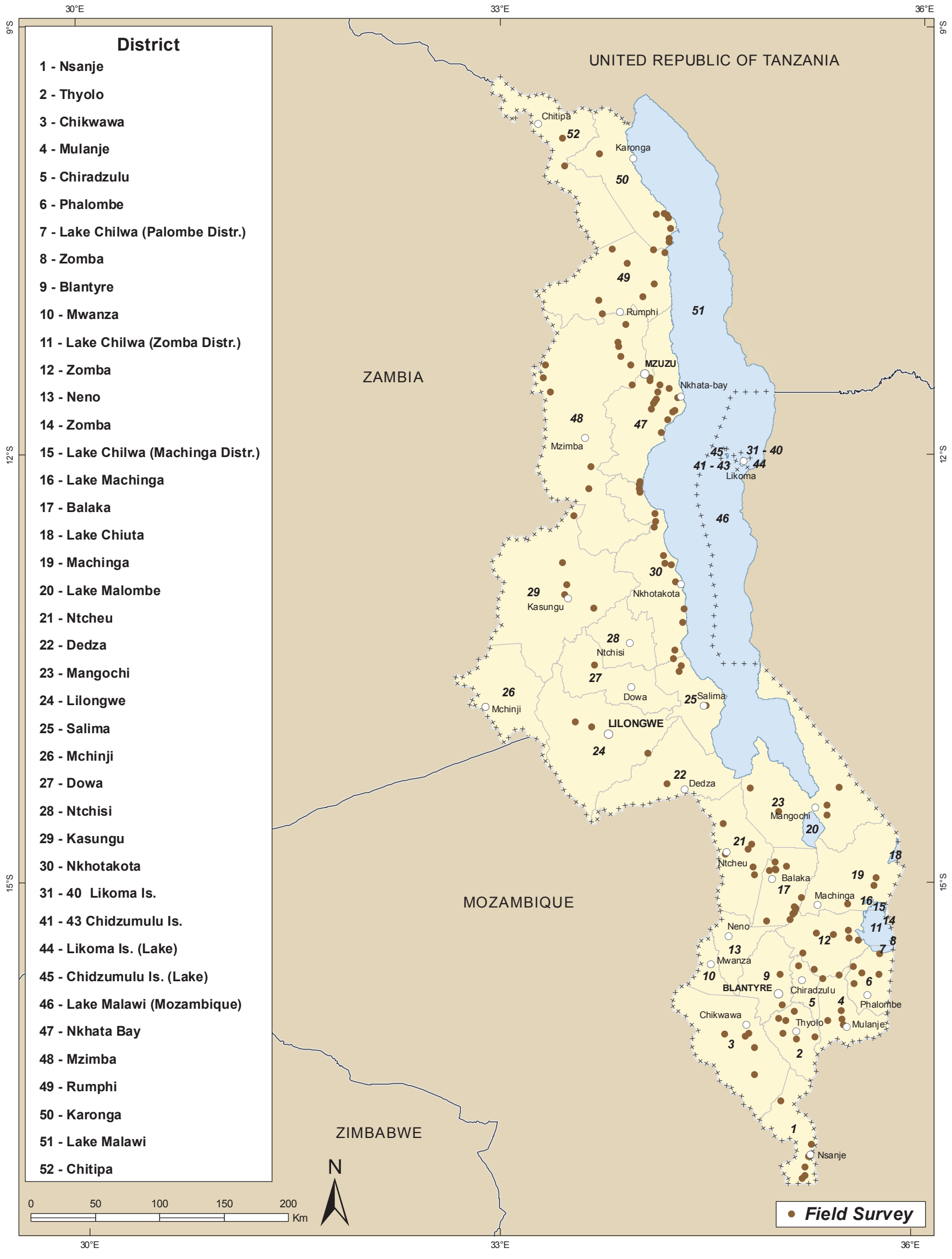


Figure 5: Field validation points

2.3 Validation

The validation process is normally undertaken through extensive field work; after the completion of the preliminary interpretation phase. This phase is important in the production chain and it contributes to improve the quality of the database. FAO provided training, supervision and guidance to the national experts during the validation phase.

The fieldwork in Malawi was carried out by national teams, with the supervision of FAO experts, utilizing the FAO standardized field survey forms and methodology. The areas to be surveyed were selected on the image during the preliminary interpretation and the points of interest were identified; the field information was later generalized to the areas' having a similar reflectance on the image. For each selected point, the land cover types and the coordinates were recorded. The areas and the points coordinates were recorded using GPS devices.

New points were added to the list selected during the preliminary interpretation with a total number of 140 points (Figure 5), two weeks of fieldwork were planned across the whole country to complete this validation process. Remote sensing techniques combined with in situ measurements enabled the creation of a reliable and accurate product. The contribution of national experts was crucial to address issues of remoteness, security and accessibility. The field information and the ground pictures were then linked through their geographic coordinates to the database. The validation of the land cover analysis was performed using both the points collected in the field and the use of high resolution imagery.

2.4 Data Harmonization and Final Database Generation

The final review of the land cover database is a crucial step for its consolidation. The harmonization work serves to generate a consistent land cover database, minimizing differences from the subjectivity of the different interpreters. In addition, the technical and semantic aspects were being checked.

The final database follows precise topology rules (the correct geometric arrangement of point, line and polygon features), removing the overlapping area and filling the gaps, and having correct arrangement of the attribute's table, a continuous labelling along the image's edges and the coherence of the bordering polygons. FAO has developed several standard procedures and freeware tools to assist in the generation of the land cover database.

The final Malawi land cover change database was harmonized according to the above mentioned procedures and represents a detailed model of national land cover and its changes, across a time period of 20 years, with approximately 231,000 land cover polygons covering a total area of almost 118,000 sqkm.

2.5 Land Cover Change Assessment

The land cover change of Malawi was mapped using multi temporal remote sensing imagery and the FAO Land Cover Change Mapping Toolbox.

It was possible to monitor changes in the landscape using remote sensed products, as they facilitate observations across larger extents of Earth's surface and the detection of changes can be highlighted using different satellite time series.

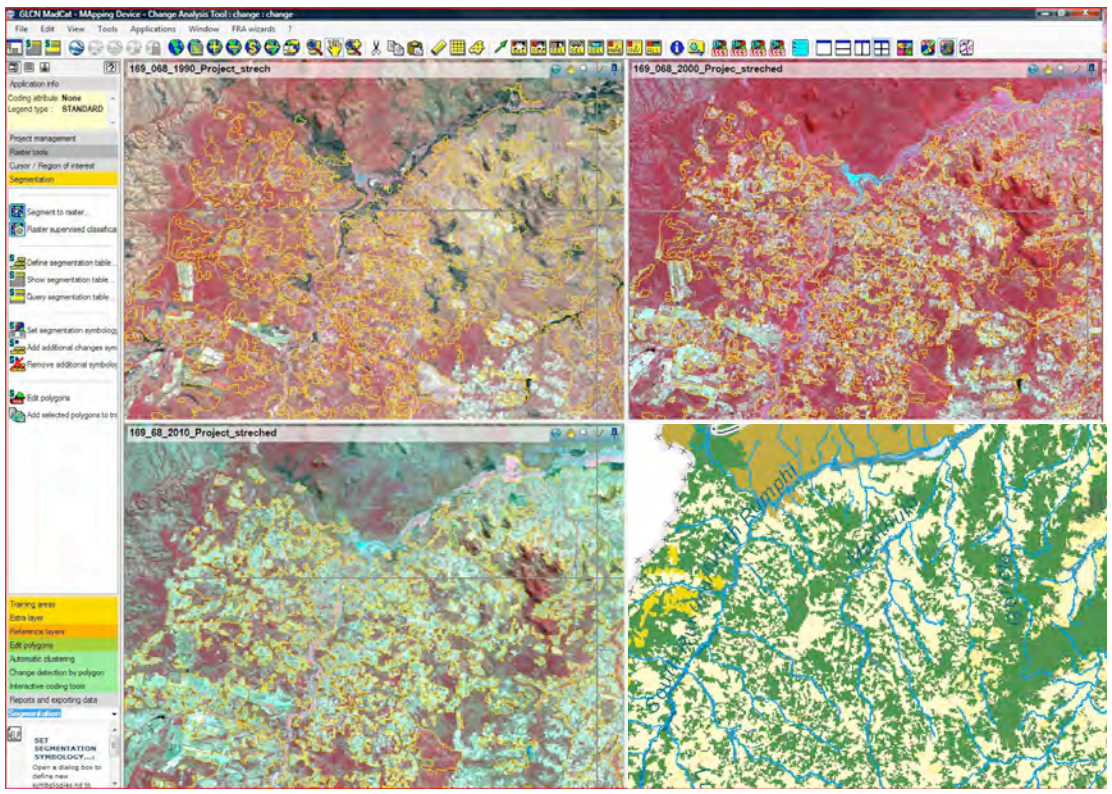
The main sources of information were:

- land cover database, updated according with the Landsat ETM+ dated 2010-2011 (2010s);
- high resolution remote sensing imagery with three different time series: 1990s, 2000s and 2010s;
- very high resolution and multi/temporal satellite images;

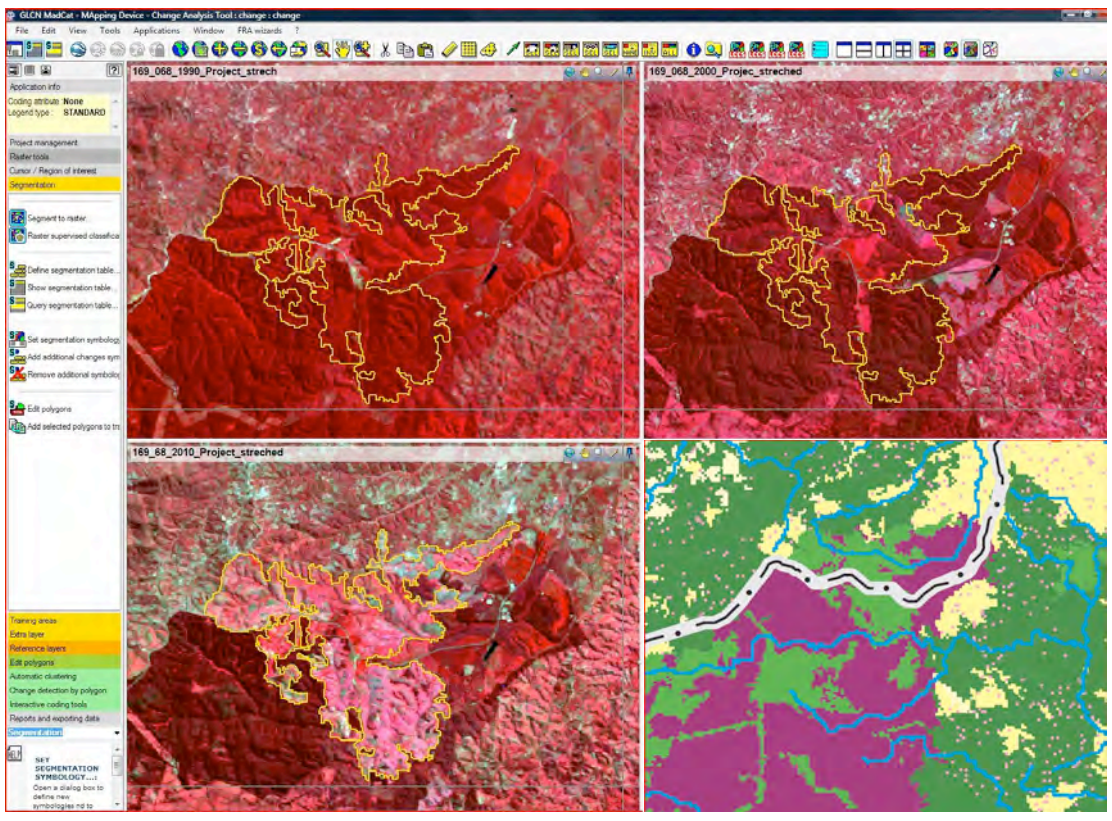
The analysis of land cover change was performed by classifying different time series available (as shown in Table 1).

Reference Date	SENSOR: Landsat	RESOLUTION
2010s (2010-11)	ETM+	30 m
2000s (2000-05)	ETM+	30 m
1990s (1984-90)	TM	30 m

Table 1. Remote Sensing imagery time series used to create the land cover change database of Malawi



A Increasing agricultural area and decreasing trees open from 1990s to 2010s (Mzimba District)



B Decreasing tree plantation from 1990s to 2010s (Nkhata Bay District)

Figure 6: Comparative analysis through "multiple window"

The land cover change assessment for Malawi was performed following these steps:

- The Landsat images for each time series (1990s, 2000s, 2010s) were loaded in MAD-CAT to map the land cover changes (one at a time);
- The comparative analysis was performed through the "multiple window" environment of the software (Figure 6), which allows to display each image in a different window (up to four windows) and allows to modify the image band combination;
- The land cover class for each time horizon was recorded in the database to the corresponding field;

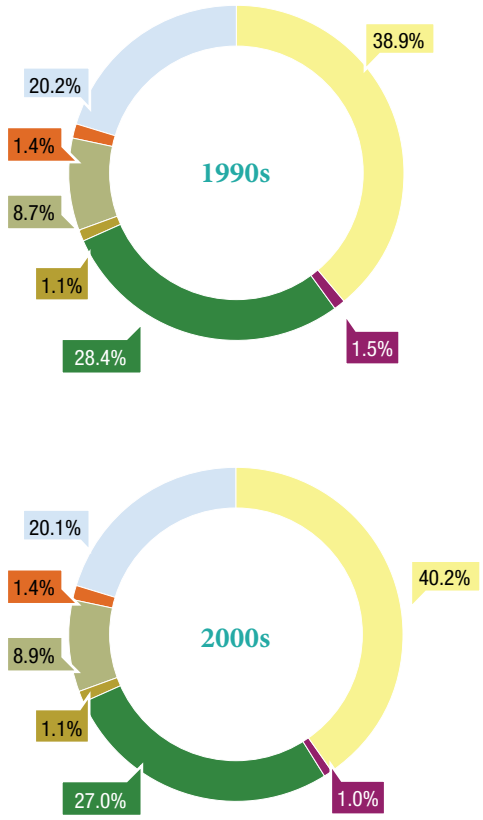
The final database contains, for each polygon, the codes of both 1990s, 2000s and 2010s land cover classes.

It is evident that there is an increase of herbaceous field crops from 1990s to 2010s, with the higher trend in the first ten years, versus a general decrease in natural vegetation, especially in tree and tree plantation areas. The changes are mainly distributed in the northern region, where the process of reduction of the tree cover is more evident.

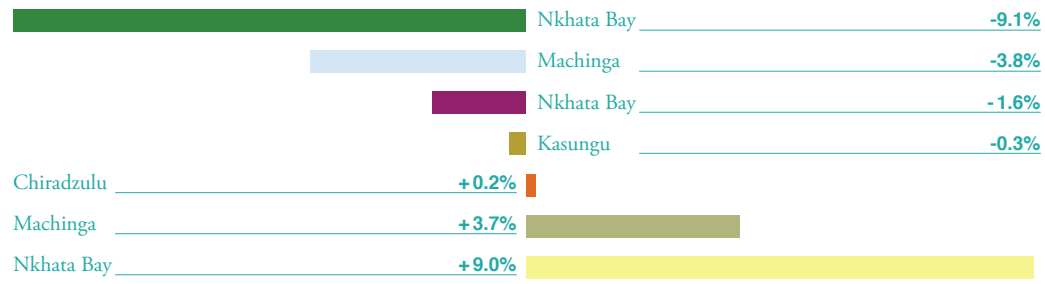
The results of the analysis of the distribution and changes of major land cover classes in Malawi at aggregated and full resolution level are shown in figures (7 to 9) for both the reference date of changes: 1990s-2000s and 2000s-2010s.

Figure 7: Distribution of aggregated land cover and dominant land cover change in Malawi over time (1990s-2000s; 2000s-2010s)

Distribution of major land cover classes in Malawi



Districts with dominant land cover change 1990s - 2000s



Districts with dominant land cover change 2000s - 2010s

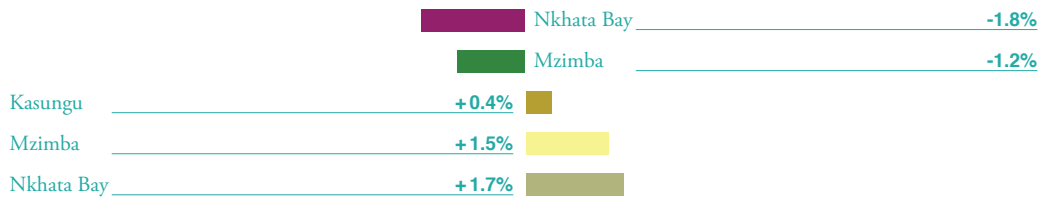
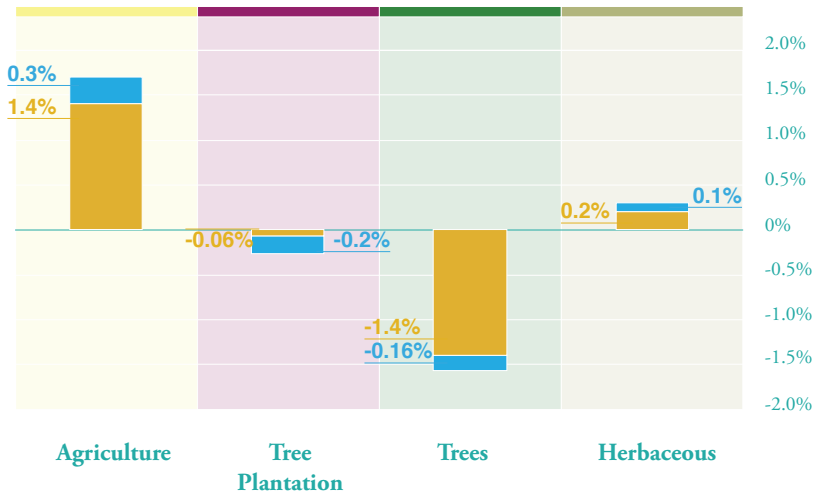
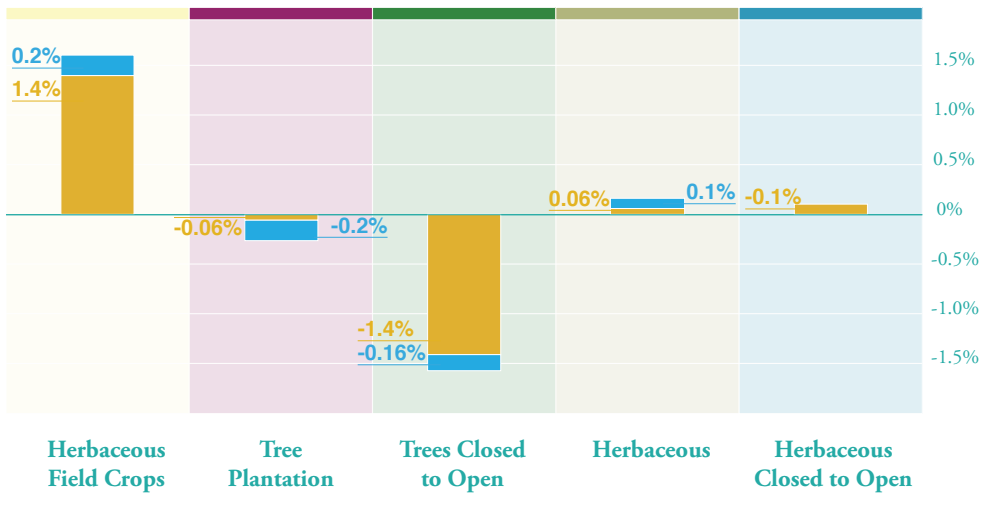


Figure 8: Aggregated land cover change (%) in Malawi for each time horizon (1990s-2000s; 2000s-2010s)



Note: Land cover classes with a percentage of change below 0.1 are not shown in the charts

Figure 9: Full resolution land cover change (%) in Malawi for each time horizon (1990s-2000s; 2000s-2010s)



Legend figure 7

- Agriculture
- Tree Plantation
- Trees
- Shrubs
- Herbaceous
- Urban Areas
- Water bodies

Legend figures 8 & 9

- 1990-2000
- 2000-2010

From the analysis of change according to the aggregated database, calculated at national level (figure 8), the major changes correspond to the classes represented by agricultural areas, with the highest increase (around 1.4 %) in the first time period (1990s - 2000s), while in the second time period (2000s - 2010s) the increase is lower (around 0.3 %). On the other hand the tree areas show the same rate of reduction in area of about -1.4 % in the first time period, while in the second time period the percentage of rate of reduction in area is lower (around 0.2 %).

From the analysis of change according to the full database (figure 9) the higher percentage of change corresponds to the main classes represented by trees closed and open, herbaceous field crops and by tree plantation. The tree plantation areas show the main rate of decrease (around 0.2%) in the second time period (2000s - 2010s) which is higher than the rate of decrease of tree plantation areas (around 0.06 %) during the first time period (1990s - 2000s).

Observing the percentage of change calculated at district level (figure 7), the highest increase of agricultural areas for the first time period is evident in the district of Nkhata Bay (around 9%), while for the second time period it is evident in the district of Mzimba (around 1,5 %).

In the first time period, the highest decrease of tree and tree plantation areas is shown in the districts of Nkhata Bay (around 9% for trees and 1.6% for tree plantation), while in the second time period the tree areas show the highest decrease in the district of Mzimba (around 1.2%) and for the tree plantation areas the highest decrease is evident in the district of Nkhata Bay (around 1.8%).

3. LCCS Legend Generation

The legend is the key of the database. All the information included in the database is implicit in the legend. The Land Cover Classification System (LCCS) was developed by FAO to systematically describe the land cover types and standardize the land cover classification. The creation of the draft legend was undertaken before starting the interpretation process, in collaboration with the international consultants and the national experts, who provided detailed information about the local aspects of the cover, supporting the land cover class definition and the enhancement of the legend.

The land cover classes identification was also facilitated by the photo keys that represent a comprehensive table which shows the aspect on the ground (texture, tone, colour and reflectance) of the land cover units, present in the images. The photo keys list was accurately prepared at the beginning of the interpretation process, and provided all the interpreters with the same interpretation keys for the different land cover types, improving the homogeneity and the quality of the interpretation. To obtain a valuable photo keys collection, several images of the area were also considered.

The final version of the land cover legend of Malawi, prepared using the LCCS software, is composed of 23 land cover classes (ANNEX 1). According to LCCS, within the first dichotomous phase, 8 major land cover types are defined. The main classes of the legend are described in the next paragraphs.

Primarily Vegetated Areas

Natural and Semi-Natural Vegetation (A12). Natural vegetated areas are defined as areas where the vegetative cover is in balance with the abiotic and biotic forces of its biotope. Semi-natural vegetation is defined as vegetation not planted by humans but influenced by human actions. These may result from grazing, possibly overgrazing the natural phyto-censes, or else from practices such as selective logging in a natural forest whereby the floristic composition has been changed. Previously cultivated areas that have been abandoned and where vegetation is regenerating are also included. This classifier is "Primarily vegetated Terrestrial Artificiality of Cover: (Semi-) natural" (LCCS, 2005).

Natural and Semi-Natural Aquatic or Regularly Flooded Vegetation (A24). This class describes areas that are transitional between pure terrestrial and aquatic systems and where the water table is usually at or near the surface or the land is covered by shallow water. The predominant vegetation, at least periodically, comprises hydrophytes. Marshes, swamps, bogs or flats where drastic fluctuations in water level or high concentration of salts may prevent the growth of hydrophytes are all part of this class. The vegetative cover is significantly influenced by water and dependent on flooding (e.g. mangroves, marshes, swamps and aquatic beds). Natural Vegetated Aquatic habitats are defined as biotopes where the vegetative cover is in balance with the influence of biotic and abiotic forces. Semi-Natural Aquatic vegetation is defined as vegetation that is not planted by humans but which is influenced directly by human activities that are undertaken for other, unrelated purposes. This classifier is "Primarily vegetated Aquatic or Regularly Flooded Artificiality of Cover: (Semi-) natural" (LCCS, 2005).

Cultivated and Managed Terrestrial Areas (A11). This class is "Primarily vegetated Terrestrial Artificiality of Cover: Artificial/ managed". It refers to areas where the natural vegetation has been removed or modified and replaced by other types of vegetative cover of anthropogenic origin. This vegetation is artificial and requires human activities to maintain it in the long term. In between the human activities, or before starting crop cultivation, the surface can be temporarily without vegetative cover. All vegetation that is planted or cultivated with intent to harvest is included in this class (LCCS, 2005). This class is concentrated on the north coast and other scattered small areas.

Cultivated Aquatic or Regularly Flooded Areas (A23). TThis class includes areas where

an aquatic crop is purposely planted, cultivated and harvested, and which is standing in water over extensive periods during its cultivation period. In general, it is the emerging part of the plant that is fully or partly harvested (LCCS, 2005).

Primarily Non-Vegetated Areas

Artificial Surfaces and Associated Areas (B15). This class describes areas that have an artificial cover as a result of human activities, such as construction (cities, towns and transportation), extraction (open mines and quarries) or waste disposal. The classifier is "Primarily non-vegetated Terrestrial Artificiality of Cover: Artificial/managed" (LCCS, 2005).

Bare Areas. (B16). This class describes areas that do not have an artificial cover as a result of human activities. These areas include areas with less than 4% vegetative cover. Included are bare rock areas, sands and deserts. This classifier is: "Primarily non-vegetated Terrestrial Artificiality of Cover: (Semi) natural" (LCCS, 2005).

Artificial - Natural Water bodies, Snow and Ice (B27 and B28). This class refers to areas that are naturally covered by water, such as lakes, rivers, snow or ice. In the case of rivers, the lack of vegetation cover is often due to high flow rates and/or steep banks. In the case of lakes, their geological origin affects the life conditions for aquatic vegetation. The classifier is "Primarily non vegetated Aquatic or Regularly Flooded Artificiality of Cover: (Semi-) natural" (LCCS, 2005).

AGGREGATED CLASS	CLASS ELEMENTS	LC CODE	SIMPLIFIED CODE	AGG
Built-Up Area	Built up, Urban Built up, Non-Urban	5Bu	URBA	URB
Tree Plantation	Tree Plantation	1Tcfp	AGTP	TP
Agricultural land	TEA PLANTATION	1Tea	ATEA	AG
	TREE ORCHARD	1TcsOr	AGOR	
	RAINFED HERBACEOUS CROP(s) Small (< 2ha) and Large to	1Hcs	AGHS	
	Medium Field(s) (> 2ha) and Large to Medium Field(s) (>2ha)	1Hclm	AGHL	
	RAINFED SHRUB CROP(s) Small sized Field(s) (< 2ha)	1Scs	AGSR	
	RICE FIELDS Small Sized Field(s) Of Graminoid Crops On Waterlogged Soil (< 2ha)	3Rc	ARIC	
	SUGAR CANE Irrigated Herbaceous Crop(s) Large to Medium Field(s) (> 2ha)	1SC	ASUG	
	RAINFED HERBACEOUS CROP(s) - Small Field(s) (< 2ha) with a layer of Sparse Trees	1Hcs + 2Ts	AGTR	
	CULTIVATED DAMBO	1HcMspf	AGFL	
Trees	Woodland Open General (15-65%) with Herbaceous Layer	2TO	TREO	TCO
	Broadleaved Deciduous Trees, Closed > (70-60)%	2Tcbd	TREC	
Shrubs	Shrubland Closed to Open (Thicket) (100-15%)	2Sc	SRCO	SCO
Herbaceous	Herbaceous closed vegetation (15- 100%)	2HCO	HBCO	HCO
	Tree and Shrub Savannah	2HcTs	HBCL	
	Permanent Marsh	4Hcpf	HBFP	
	DAMBO Herbaceous Vegetation On Temporarily Flooded Land	4HcpfD	HBFT	
Bare Area	Bare Rock And/Or Coarse Fragments	6Br	BARE	BS
Water Body (flowing and standing)	Perennial Natural Waterbodies (Flowing)	8WF	WATP	WAT
	Non-Perennial Natural Waterbodies (Flowing)	8Wfnp	WANP	
	Perennial Natural Waterbodies (Standing)	8Ws	WATN	
	Perennial Artificial Waterbodies (Standing)	8WAs	WATA	

4. Database Aggregation

It was decided, in collaboration with the counterparts, to represent (in the Atlas) the full resolution database at district and regional level and the aggregated version; at national level.

All the detailed information was linked to the polygons in the attribute table.

The 23 original land cover classes were aggregated into 8 generalized classes. The description of the aggregated classes is provided below:

1. Agriculture in terrestrial and aquatic/ regularly flooded land **(AG)**
2. Tree Plantation **(TP)**
3. Trees closed to open in terrestrial land **(TCO)**
4. Shrubs closed to open in terrestrial land **(SCO)**
5. Herbaceous closed to sparse in terrestrial and aquatic/regularly flooded land **(HCO)**
6. Urban and rural areas, including not built up area **(URB)**
7. Bare Rocks and Soil and/or Other Unconsolidated Material(s) **(BS)**
8. Seasonal/perennial, natural/artificial, standing and flowing water bodies **(WAT)**

The aggregation table is shown in the above graphic.

5. Quality Assessment

A quality assessment of the land cover database was undertaken to check and improve the quality of the final product. A point-based approach was used to assess the accuracy of both the land cover and land cover change database of Malawi, through the intersection of a dot grid with a cell size of 10*10 km with the land cover database.

The result according to the full resolution land cover database shows a total class accuracy of 89.2%; at national level.

The quality assessment of the land cover change database was performed through the intersection of a dot grid with the cell size of 5*5 km with the land cover change database.

The total class change accuracy for the full resolution database is 91.7 %; at national level.

Based on these results, the quality assessment indicates a very high accuracy of the land cover change database of Malawi.

Figure 10: Dot grid with the cell size of 100 sqkm intersected with the land cover change database

ANNEX I: Legend Table

Class User Name LCCS Class Name	Map Code	Simplified Code	LCCS Classifiers	AGGR
A11 - Cultivated and managed terrestrial areas				
Tree Crop(s) TREE PLANTATION	1Tcfp	AGTP	A1 = Tree Crops - W7 = Plantation(s)	AG
Permanently Cropped Area With Small Sized Field(s) Of Rainfed Tree Crop(s) TREE ORCHARDS	1TcsOr	AGOR	A1 = Tree Crops B2 = Small Sized Field(s) (< 2ha) XX = C1 = Monoculture D1 = Rainfed Cultivation D9 = Permanently Cropped Area - - W8 = Orchard(s)	
Permanently Cropped Area With Large to Medium Sized Field(s) Of Rainfed Shrub Crop(s) TEA PLANTATION	1Tea	ATEA	A2 = Shrub Crops B1 = Large To Medium Sized Field(s) (> 2ha) XX = C1 = Monoculture D1 = Rainfed Cultivation D9 = Permanently Cropped Area - - S0804 = Tea (Camellia sinensis (L.) O.K.)	
Permanently Cropped Area With Small Sized Field(s) Of Rainfed Shrub Crop(s)	1Scs	AGSR	A2 = Shrub Crops B2 = Small Sized Field(s) (< 2ha) XX = C1 = Monoculture D1 = Rainfed Cultivation D9 = Permanently Cropped Area	
Rainfed Herbaceous Crop(s) With Large to Medium Sized Field(s)	1Hclm	AGHL	A3 = Herbaceous Crops B1 = Large To Medium Sized Field(s) (> 2ha) XX = C1 = Monoculture D1 = Rainfed Cultivation	
Irrigated Herbaceous Crop(s) With Large to Medium Sized Field(s) SUGAR CANE	1SC	ASUG	A3 = Herbaceous Crops B1 = Large To Medium Sized Field(s) (> 2ha) XX = C1 = Monoculture D3 = Irrigated (General) - - S0915 = Sugar Cane (Saccharum officinarum)	
Rainfed Herbaceous Crop(s) With Small Sized Field(s)	1Hcs	AGHS	A3 = Herbaceous Crops B2 = Small Sized Field(s) (< 2ha) XX = C1 = Monoculture D1 = Rainfed Cultivation	

ANNEX I: Legend Table

Class User Name LCCS Class Name	Map Code	Simplified Code	LCCS Classifiers	AGGR
Rainfed Herbaceous Crop(s) With Small Sized Field(s) + Sparse Trees, Single Layer	1Hcs + 2Ts	AGTR	A3 = Herbaceous Crops	AG
			B2 = Small Sized Field(s) (< 2ha)	
			XX =	
			C1 = Monoculture	
			D1 = Rainfed Cultivation	
			+	
			A3 = Trees (Main Layer)	
			A14 = Sparse (20-10) - 1% (Main Layer)	
			B2 = > 30 - 3m (Trees Height Main Layer)	
			XXXXXX =	
			F1 = Single Layer	
"Post Flooding Cultivation Of Small Sized Field(s) Of Herbaceous Crop(s) (One Additional Crop) (Herbaceous Terrestrial Crop Sequentially)" CULTIVATED DAMBO	1HcMspf	AGFL	A3 = Herbaceous Crops	
			B2 = Small Sized Field(s) (< 2ha)	
			XX =	
			C2 = Intercropped (Second Crop)	
			D2 = Post Flooding Cultivation	
			-	
			C3 = One Additional Crop	
			C7 = Herbaceous Terrestrial Crop (Additional Crop)	
			C19 = Sequential Period	
			-	
			S9 = Industrial Crops	
A12 – Natural or semi-natural terrestrial vegetation				
Closed Broadleaved Deciduous Trees	2Tcbd	TREC	A3 = Trees (Main Layer)	TCO
			A10 = Closed > (70-60)% (Main Layer)	
			B2 = > 30 - 3m (Trees Height Main Layer)	
			XX =	
			D1 = Broadleaved	
			E2 = Deciduous	
Open Woodland with Herbaceous Layer	2TO	TREO	A3 = Trees (Main Layer)	
			A11 = Open General (70-60) - (20-10)% (Main Layer)	
			B2 = > 30 - 3m (Trees Height Main Layer)	
			XXXXXX =	
			F2 = Second and/or Third Layer Present	
			F4 = Herbaceous Vegetation (Second or Third Layer)	
			F7 = Closed (> 70-60%) To Open (70-60) - (20-10)% (Second or Third Layer)	
			G4 = 3 - 0.03m (Herbaceous Height Second or Third Layer)	
Closed Herbaceous Vegetation with Sparse Trees TREES AND SHRUBS SAVANNHA	2HcTs	HBCL	A2 = Herbaceous Vegetation (Main Layer)	HCO
			A10 = Closed > (70-60)% (Main Layer)	
			B4 = 3 - 0.03m (Herbaceous Height Main Layer)	
			XXXXXX =	
			F2 = Second and/or Third Layer Present	
			F5 = Trees (Second or Third Layer)	
			F10 = Sparse (20-10) - 5%	
			G2 = > 30 - 3m (Trees Height Second or Third Layer)	

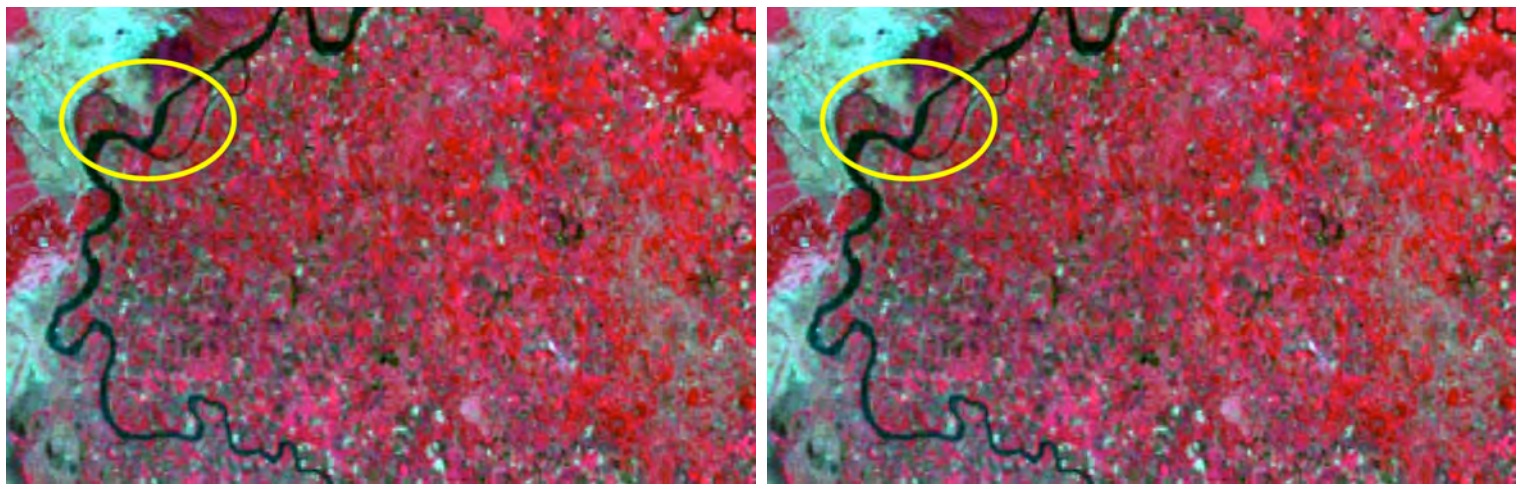
Class User Name LCCS Class Name	Map Code	Simplified Code	LCCS Classifiers	AGGR
Closed to Open Shrubland (Thicket)	2Sc	SRCO	A4 = Shrubs (Main Layer)	SCO
			A20 = Closed to Open (100-15)%	
			B3 = 5 - 0.3m (Shrubs Height Main Layer)	
Herbaceous Closed to Open Vegetation	2HCO	HBCO	A2 = Herbaceous Vegetation (Main Layer)	HCO
			A20 = Closed to Open (100-15)%	
A23 – Cultivated aquatic or regularly flooded areas				
Small Sized Field(s) Of Graminoid Crops On Waterlogged Soil RICE FIELDS	3Rc	ARIC	A1 = Graminoid Crops	AG
			B2 = Small Sized Field(s) (< 2ha)	
			XX =	
			C3 = On Waterlogged Soil	
A24 – Natural or semi-natural aquatic vegetation				
Closed Herbaceous Vegetation On Permanently Flooded Land PERMANENT MARSCH	4Hcpf	HBFP	A2 = Herbaceous Vegetation (Main Layer)	HCO
			A12 = Closed > (70-60)% (Main Layer)	
			B4 = 3 - 0.03m (Herbaceous Height Main Layer)	
			C1 = On Permanently Flooded Land	
			-	
			-	
			R1 = Fresh Water	
Closed Herbaceous Vegetation On Temporarily Flooded Land DAMBO	4HcpfD	HBFT	A2 = Herbaceous Vegetation (Main Layer)	
			A12 = Closed > (70-60)% (Main Layer)	
			B4 = 3 - 0.03m (Herbaceous Height Main Layer)	
			C2 = On Temporarily Flooded Land	
			-	
			-	
			R1 = Fresh Water	
B15 - Artificial surfaces and associates area(s)				
Built Up Area(s)	5Bu	URBA	A1 = Built Up Area(s)	URB
B16 – Bare area(s)				
Bare Rock And/Or Coarse Fragments	6Br	BARE	A3 = Bare Rock And/Or Coarse Fragments	BS
B27 – Artificial water bodies, snow and ice				
Perennial Artificial Waterbodies (Standing). ARTIFICIAL LAKE	8WAs	WATA	A1 = Artificial Waterbodies	WAT
			B1 = Perennial	
			-	
			A5 = (Standing)	
B28 – Natural water bodies, snow and ice				
Perennial Natural Waterbodies (Flowing)	8WF	WATP	A1 = Inland Water	WAT
			B1 = Perennial	
			-	
			A4 = (Flowing)	
			-	
			V1 = Fresh	
Perennial Natural Waterbodies (Standing). NATURAL LAKE	8Ws	WANT	A1 = Inland Water	
			B1 = Perennial	
			-	
			A5 = (Standing)	
			-	
			V1 = Fresh	
Non-Perennial Natural Waterbodies (Flowing)	8Wfnp	WANP	A1 = Inland Water	
			B2 = Non-Perennial Or Seasonal	
			-	
			A4 = (Flowing)	
			-	
			V1 = Fresh	

ANNEX II: Photokeys

1HcMspf - Cultivated Dambo

Post flooding cultivation of rainfed small sized field(s) of herbaceous crop(s)

LANDSAT ETM+ 2010

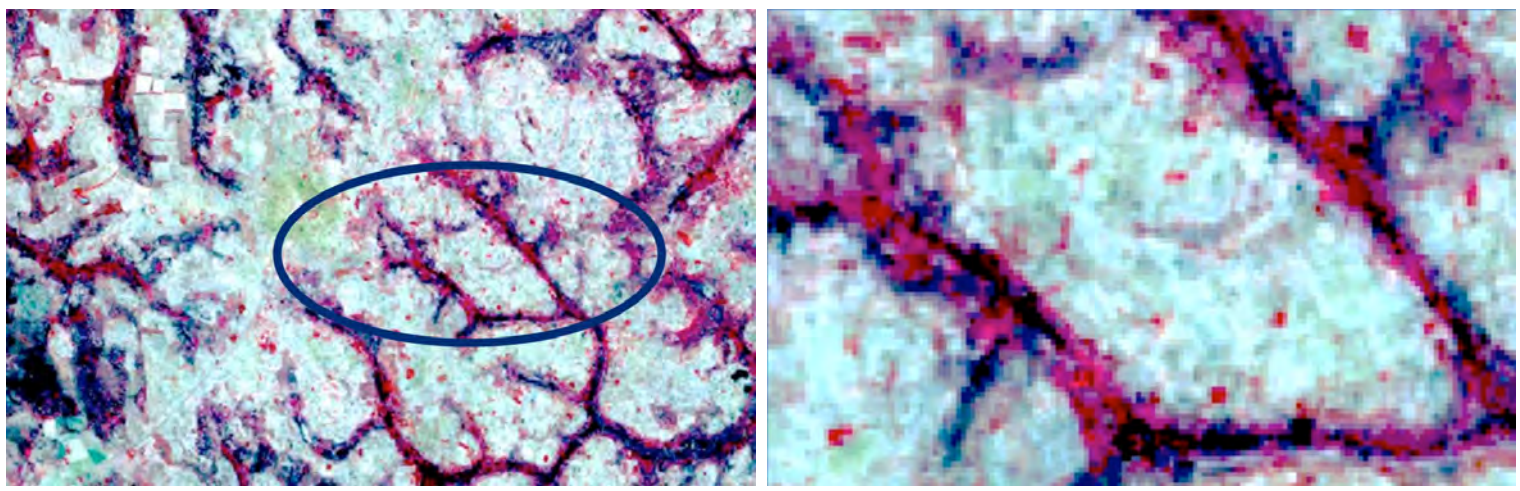


Google Earth

1Hcs - Intense cultivated area

Small sized field(s) of rainfed herbaceous crop(s) (<2ha)

LANDSAT ETM+ 2010

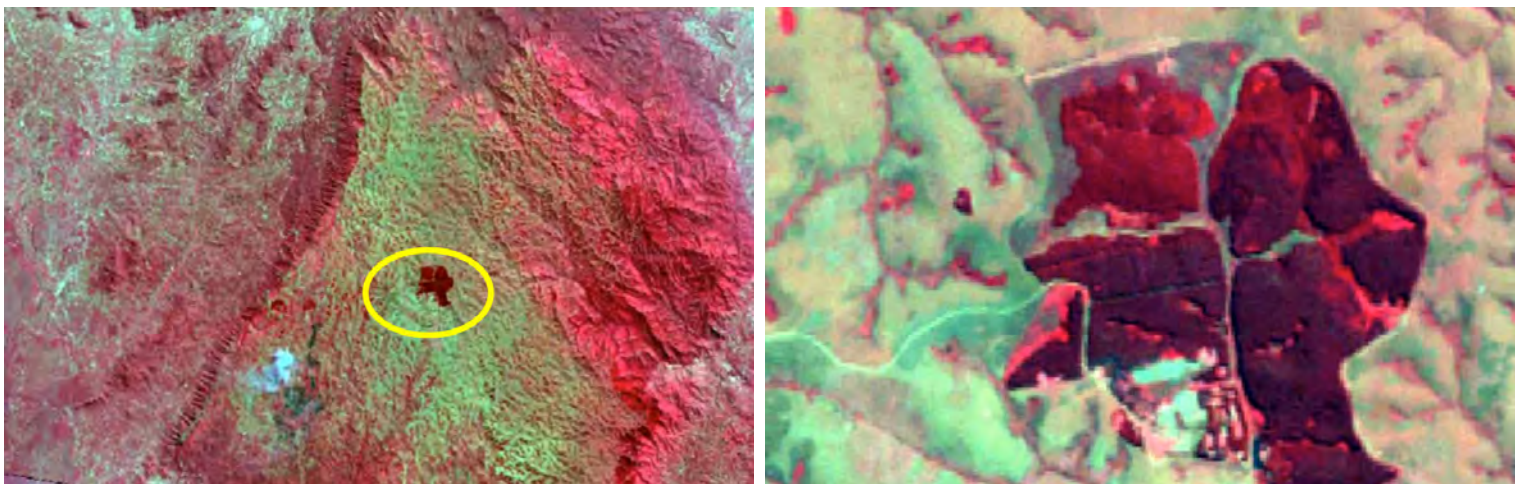


Google Earth

1Tcfp - Tree plantation

Tree crop plantation

LANDSAT ETM+ 2010

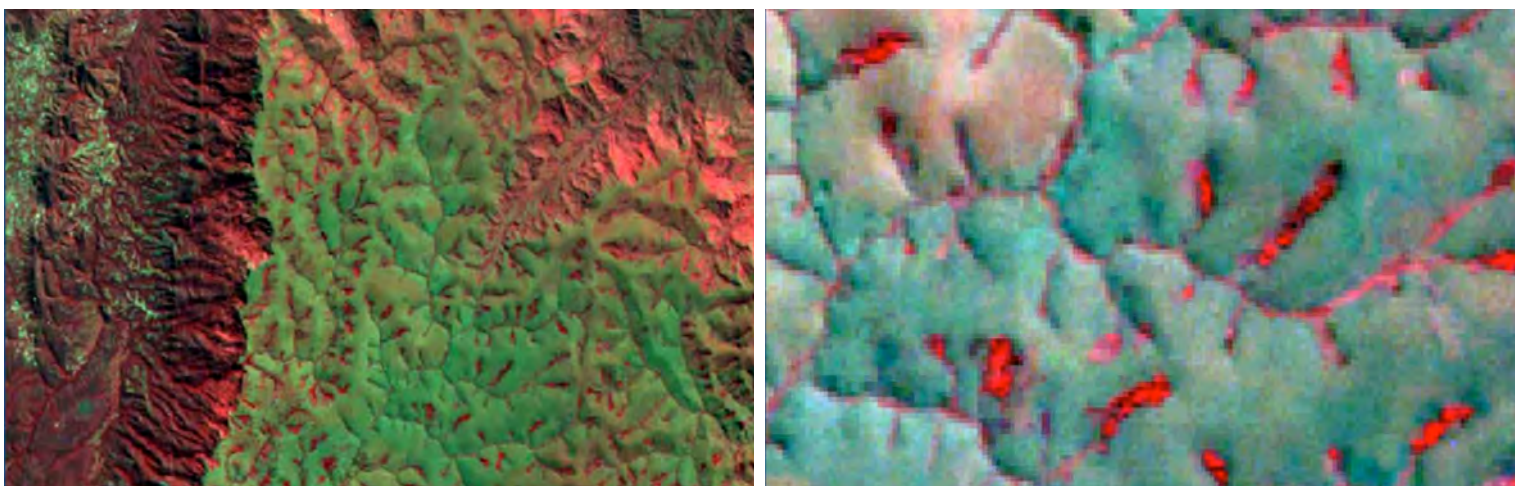


Google Earth

2HCO - Herbaceous natural vegetation

Herbaceous closed to open vegetation (15-100%)

LANDSAT ETM+ 2010

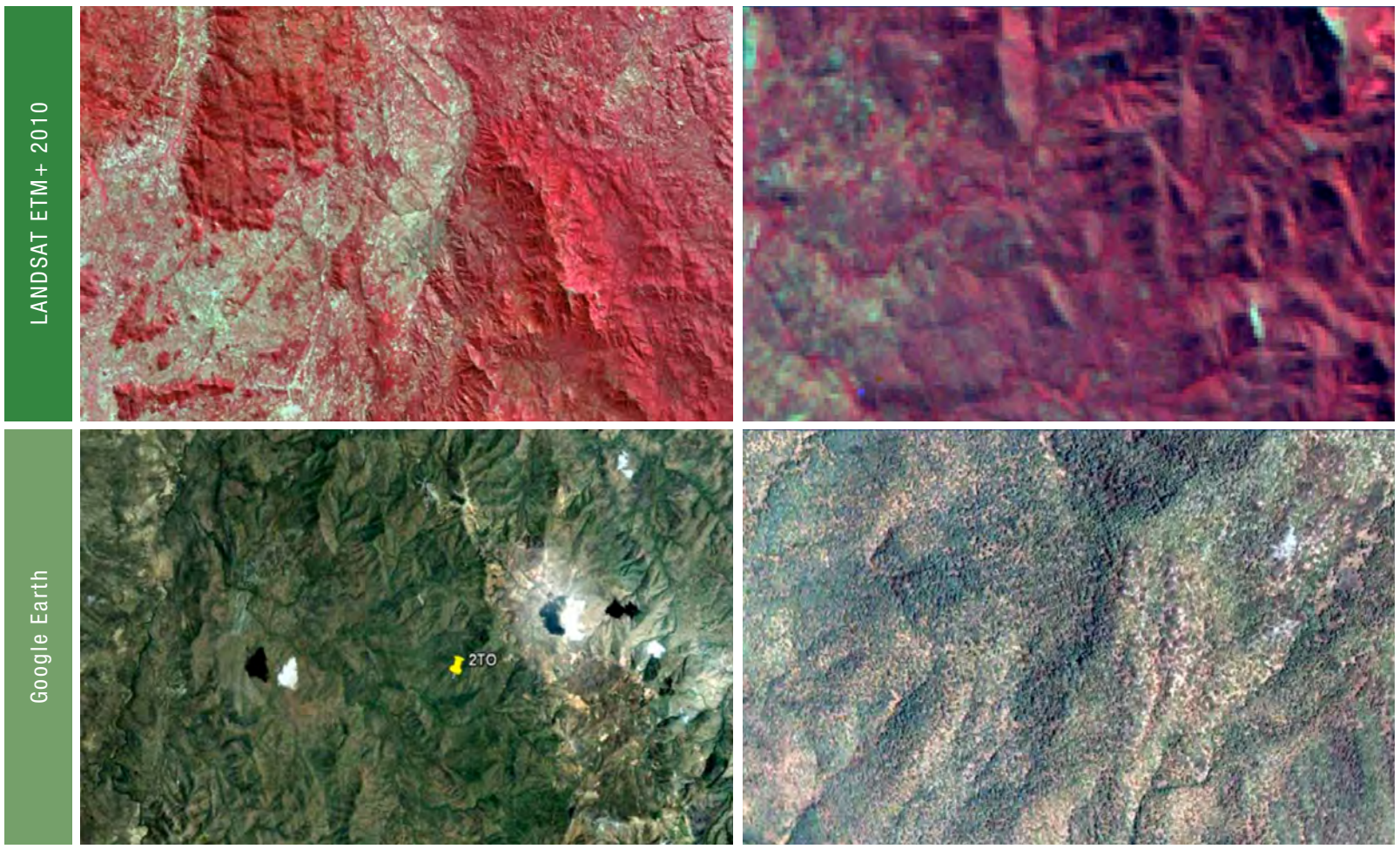


Google Earth

ANNEX III: Field photo and respective Landsat screenshot

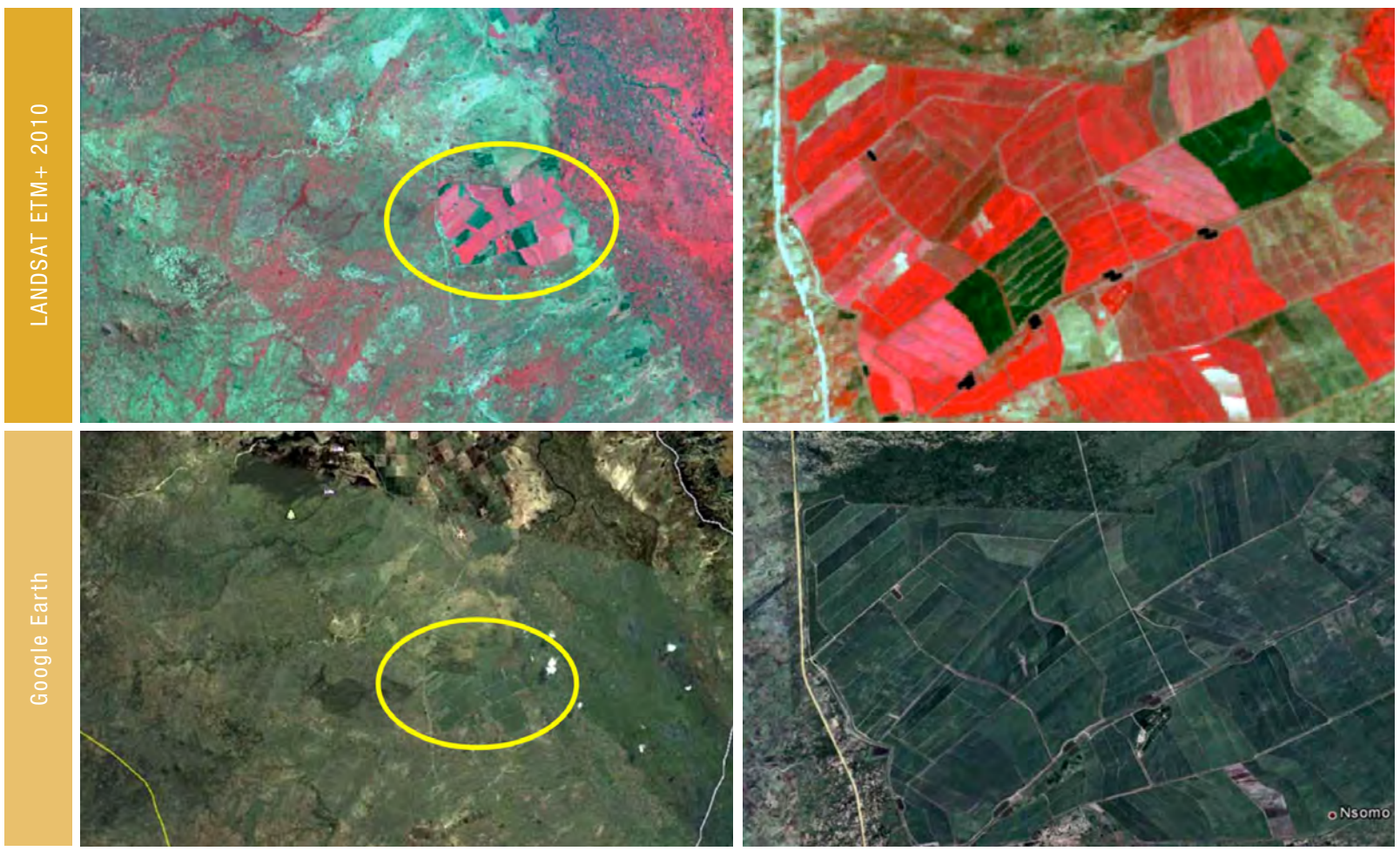
2TO - Woodland natural vegetation

Woodland vegetation open general (15-65%) with herbaceous layer closed to open (15-100%) vegetation



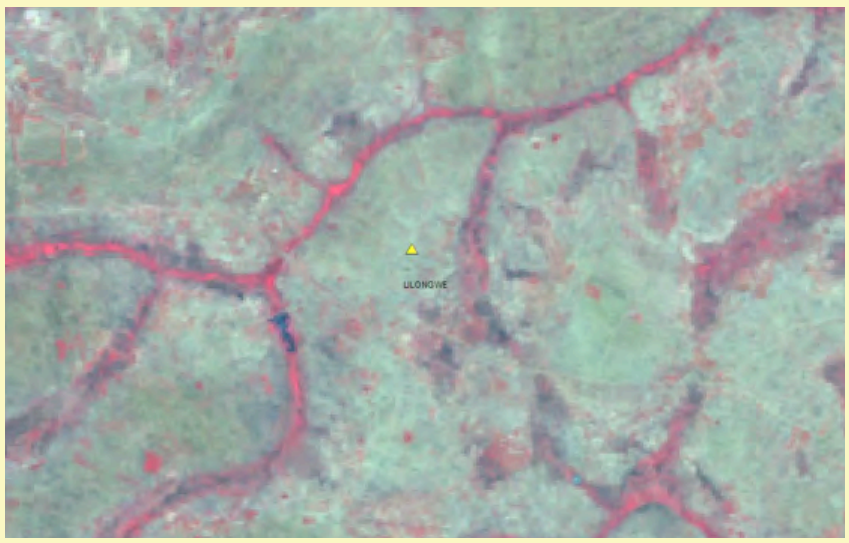
1SC - Sugar cane

Permanently cropped area with irrigated herbaceous crop(s), large to medium (>2ha)



Field Point ID 01:
Small Sized Fields of Rainfed Herbaceous crops (<2ha), 1Hcs (Lilongwe District)

Field photo



LANDSAT 2010

Field Point ID 02:
Permanently Cropped Area With Large to Medium Sized Field(s) Of Rainfed Shrub Crop(s), Tea Plantation: 1Tea (Thyolo District)

Field photo

LANDSAT 2010

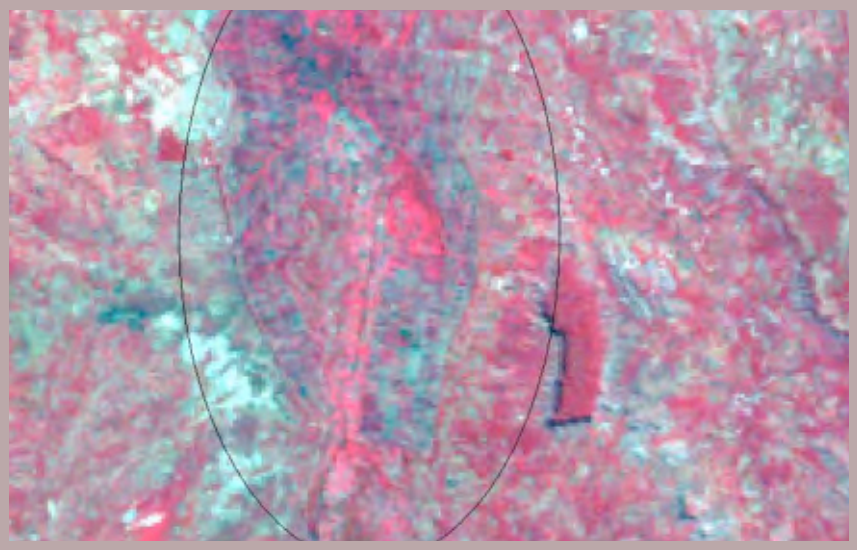
Field Point ID 03
Tree Crop(s), Plantation: 1Tcfp, (Thyolo District)

Field photo

LANDSAT 2010

Field Point ID 04
Small Sized Field(s) Of Graminoid Crops On Waterlogged Soil: Rice crops, 3Rc, (Karonga District)

Field photo



LANDSAT 2010

Field Point ID 05
Irrigated Herbaceous Crop(s) With Large to Medium Sized Field(s), Sugar Cane: 1SC, (Nkhotakota District)

Field photo

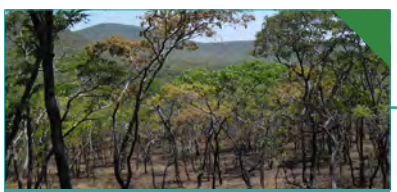
LANDSAT 2010

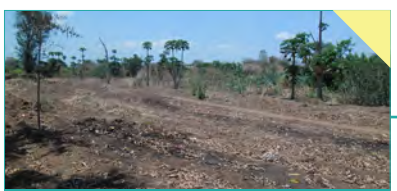
ANNEX IV: Photo Field


8830557N | 587302E DIRECTION: W


8747538N | 593991E DIRECTION: W


8719931N | 539392E DIRECTION: N


8623627N | 557757E DIRECTION: S


8519144N | 636312E DIRECTION: W


8507326N | 640908E DIRECTION: W


8463223N | 558622E DIRECTION: E


8411980N | 764205E DIRECTION: S


8390787N | 755000E DIRECTION: E

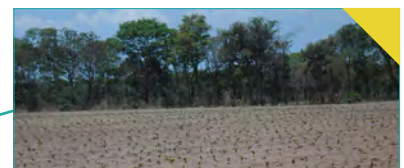

8232370N | 717435E DIRECTION: N


8230715N | 723075E DIRECTION: N


8125731N | 740607E DIRECTION: N


8110495N | 737655E DIRECTION: W


8321328N | 770970E DIRECTION: N


8297582N | 760029E DIRECTION: E


8266348N | 764482E DIRECTION: S


8238673N | 765863E DIRECTION: E


8858602N | 627873E DIRECTION: W


8857971N | 621775E DIRECTION: E


8803582N | 619817E DIRECTION: S

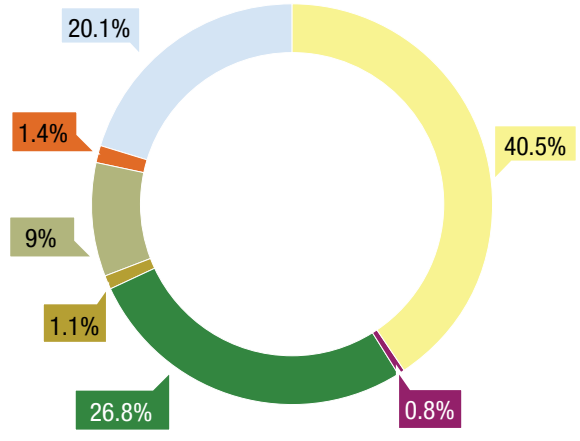

8722360N | 631789E DIRECTION: W


8618990N | 621314E DIRECTION: N

Malawi

INDEX MAP

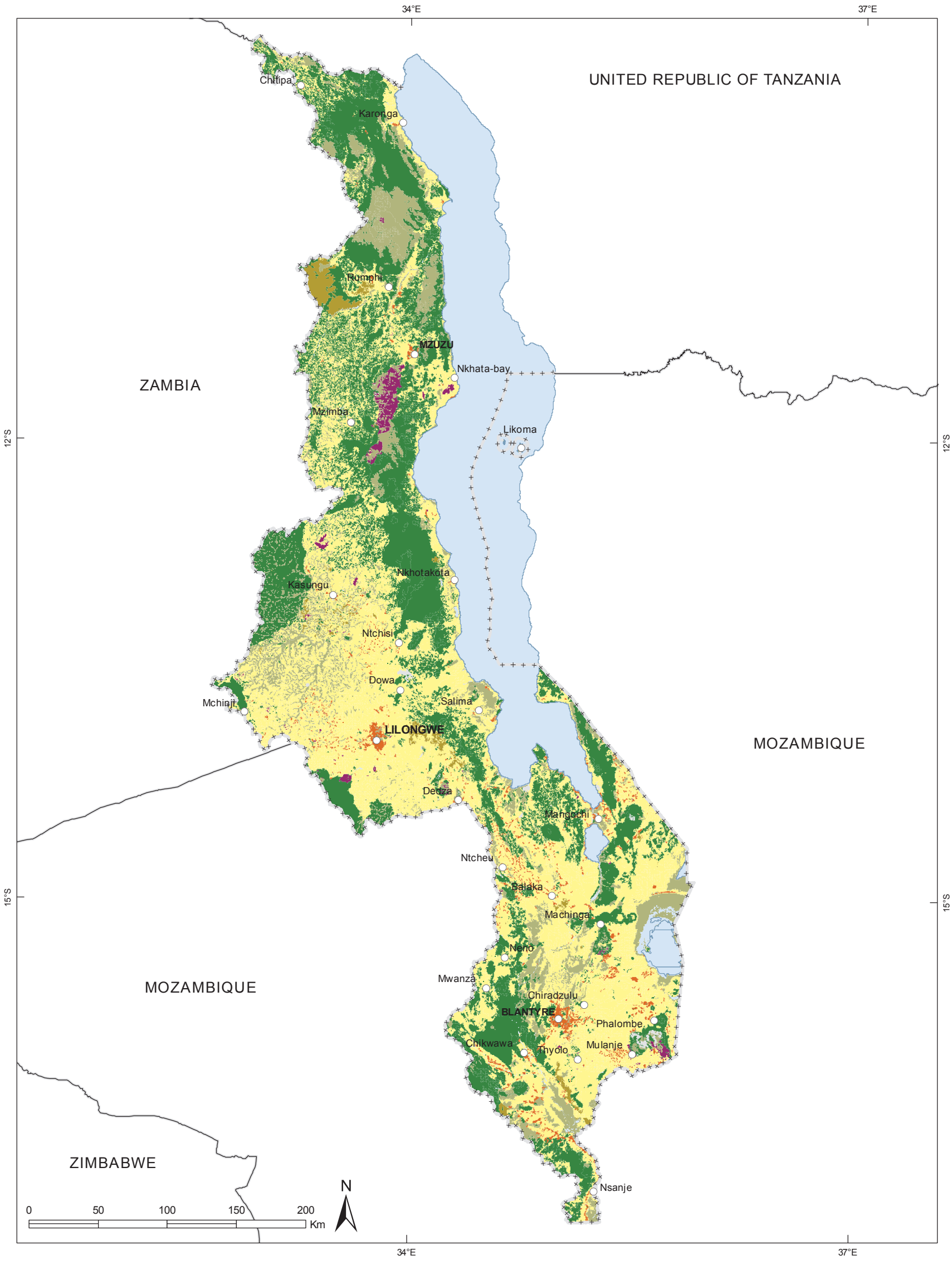
LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES

Districts	AG	TP	TCO	SCO	HCO	BS	URB	WAT
Balaka	175,207.7	0	11,842.6	3,683.0	17,892.3	0	5,925.2	977.0
Blantyre	94,243.4	160.3	36,672.9	604.5	37,222.1	4.3	18,592.7	466.2
Chidzumulu	0	0	6.8	0	324.6	0	0	0
Chikhwawa	196,017.5	153.4	212,264.7	7,179.6	64,218.9	0	18,158.8	3,124.5
Chiradzulu	63,150.5	33.1	3,028.6	0	5,114.4	0	3,433.7	10.4
Chitipa	91,618.2	119.4	241,988.5	0	88,278.1	95.5	965.4	84.6
Dedza	252,168.1	1,921.2	97,746.3	7,266.3	22,501.8	774.7	4,719.8	1,168.6
Dowa	204,345.5	0	28,066.8	0	19,864.7	3,817.4	2,594.0	0
Karonga	74,019.2	0	222,503.2	0	43,330.2	174.1	1,666.8	2,530.4
Kasungu	383,556.7	6,892.1	285,784.8	12,382.2	114,293.1	0	3,388.1	93.2
Likoma	0	0	168.6	0	1,516.4	54.0	0	0
Lilongwe	468,926.4	6,036.5	80,022.9	12,252.7	24,719.5	442.0	23,989.5	344.7
Machinga	194,370.6	211.1	80,893.4	164.2	85,255.7	0	2,381.2	15,980.1
Mangochi	301,137.3	517.6	280,357.7	1,121.6	36,216.0	4,260.8	16,896.8	5,015.6
Mchinji	149,036.4	929.4	13,661.3	42.1	13,838.8	0	1,367.1	26.3
Mulanje	191,389.8	9,896.9	33,666.6	436.8	32,977.2	5,340.9	6,562.7	331.8
Mwanza	49,852.4	0	32,595.3	0	0	0	248.8	179.0
Mzimba	485,749.5	6,802.9	475,788.9	29,318.6	38,613.1	9.6	6,807.2	1,816.8
Neno	88,179.7	0	71,441.5	0	31,463.5	0	408.9	697.7
Nkhata Bay	115,769.5	52,334.2	200,586.0	2.3	67,016.4	368.0	863.7	755.5
Nkhotakota	112,486.8	134.2	293,843.3	1,581.0	18,987.6	341.9	2,362.4	3,631.1
Nsanje	86,496.5	1,130	88,843.2	4,216.3	30,660.8	191.9	10,483.1	2,701.6
Ntcheu	212,995.3	273.0	61,628.2	221.4	27,794.2	1,398.9	16,531.2	235.5
Ntchisi	169,019.6	0	43,060.4	459.4	6,408.2	0	2,937.6	0
Phalombe	99,735.1	14.3	23,386.8	71.7	10,879.6	2,600.7	6,579.3	11,477.4
Rumphi	77,738.7	958.1	178,481.9	45,520.6	153,797.2	0	1,155.2	763.7
Salima	124,868.8	0	43,161.9	0	29,750.7	386.8	2,365.0	1,874.8
Thyolo	142,906.6	1,055.6	9,759.0	5,488.5	5,650.5	0	1,671.9	367.5
Zomba	167,082.6	317.1	5,713.2	268.5	28,079.1	419.5	7,908.8	12,787.6
Lakes*								
Lake Chilwa (Machinga Dist.)	0	0	0	0	273.6	0	0	6,512.5
Lake Chilwa (Zomba Dist.)	15.8	0	17.3	0	291.5	30	0	56,976.3
Lake Chiuta	0	0	0	0	1,022.9	0	0	5,010.8
Lake Machinga	0	0	0	0	245.6	0	0	1,419.5
Lake Malawi	3,108.5	0	7,316.6	39.2	2,069.2	558.2	460.7	2,200,894.9
Lake Malawi (Chidzumulu Dist.)	0	0	0	0	0.7	0	0	0
Lake Malawi (Likoma Dist.)	0	0	0.1	0	0.8	0	0	0
Lake Malombe	38.8	0	0	0	478.1	0	12.4	30,805.9
TOTAL	**4,775,231.2**	**89,890.4**	**3,164,299.2**	**132,320.7**	**1,061,047.2**	**21,269.2**	**171,438.1**	**2,369,061.4**
							GRAND TOTAL	**11,784,557.5**

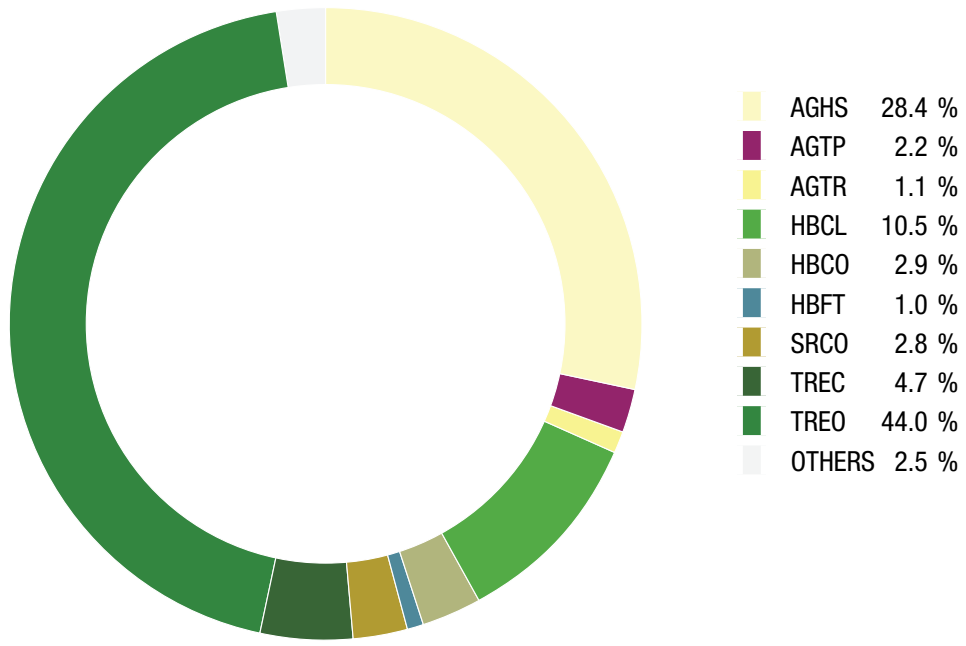
* statistics due to difference between official administrative boundaries (district) and physical boundaries (water)


34°E
37°E
12°S
15°S
UNITED REPUBLIC OF TANZANIA
ZAMBIA
MOZAMBIQUE
MOZAMBIQUE
ZIMBABWE
Chitipa
Karonga
Rumphi
MZUZU
Nkhata-bay
Mzimba
Likoma
Nkhotakota
Kasungu
Ntchisi
Dowa
Salima
Mchinji
LILONGWE
Dedza
Mangochi
Ntcheu
Balaka
Machinga
Neno
Mwanza
Chiradzulu
BLANTYRE
Phalombe
Chikwawa
Thyolo
Mulanje
Nsanje
N
0 50 100 150 200
Km

North Region

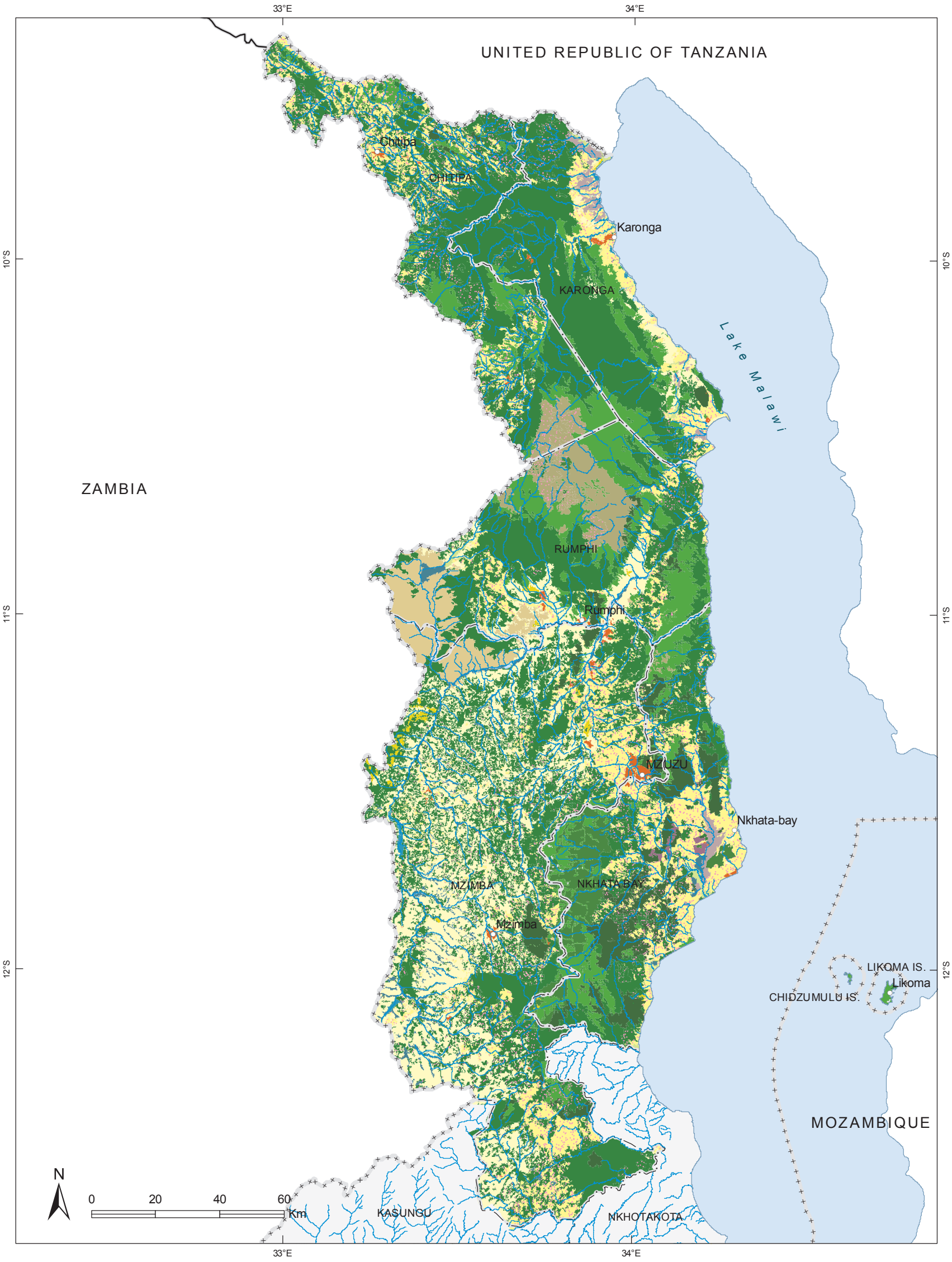
The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated "others".

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT WITHIN REGION

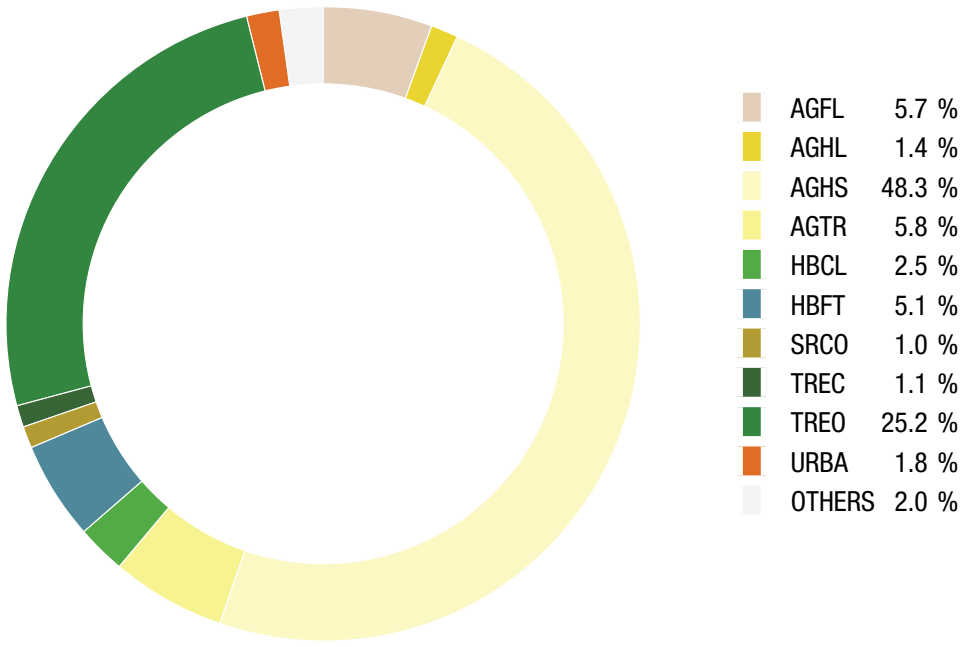
LEGEND	Chidzumulu	Chidzumulu Island (Lake)	Chitipa	Karonga	Likoma	Likoma Island (Lake)	Mzimba	Nkhata Bay	Rumphi	TOTAL	%
AGFL	0	0	2,022.1	4,870.5	0	0	2,157.4	3,991.1	4,402.2	**17,443.4**	0.6
AGHL	0	0	0	277.7	0	0	5,913.7	399.8	1,177.0	**7,768.1**	0.3
AGHS	0	0	89,568.3	29,238.2	0	0	477,654.5	101,430.2	71,232.0	**769,123.2**	28.4
AGOR	0	0	0	474.3	0	0	0	0	14.3	**488.5**	0
AGSR	0	0	0	0	0	0	0	0	0	**0.0**	0
AGTP	0	0	119.4	0	0	0	6,802.9	52,334.2	958.1	**60,214.6**	2.2
AGTR	0	0	27.7	28,521.7	0	0	0	0	913.3	**29,462.7**	1.1
ARIC	0	0	0	10,636.9	0	0	0	6,663.8	0	**17,300.7**	0.6
ASUG	0	0	0	0	0	0	23.9	0	0	**23.9**	0
ATEA	0	0	0	0	0	0	0	3,284.7	0	**3,284.7**	0.1
BARE	0	0	95.5	174.1	54.0	0	9.6	368.0	0	**701.2**	0
HBCL	324.6	0.7	68,676.7	41,678.8	1,516.4	0.8	15,547.4	63,083.3	93,159.7	**283,988.4**	10.5
HBCO	0	0	19,601.4	0	0	0	42.9	1,311.5	57,197.1	**78,152.9**	2.9
HBFP	0	0	0	1,564.8	0	0	2,326.4	37.1	0	**3,928.3**	0.1
HBFT	0	0	0	86.6	0	0	20,696.4	2,584.5	3,440.3	**26,807.9**	1.0
SRCO	0	0	0	0	0	0	29,318.6	2.3	45,520.6	**74,841.5**	2.8
TREC	0	0	3,056.4	2,083.5	0	0	24,612.9	90,718.9	7,790.5	**128,262.2**	4.7
TREO	6.8	0	238,932.2	220,419.7	168.6	0.1	451,176.0	109,867.1	170,691.4	**1,191,261.9**	44.0
URBA	0	0	965.4	1,666.8	0	0	6,807.2	863.7	1,155.2	**11,458.3**	0.4
WANP	0	0	51.3	350.9	0	0	973.3	0	433.9	**1,809.4**	0.1
WANT	0	0	0	1,697.3	0	0	247.8	755.5	329.8	**3,030.3**	0.1
WATA	0	0	0	0	0	0	92.1	0	0	**92.1**	0
WATP	0	0	33.4	482.2	0	0	503.6	0	0	**1,019.2**	0
Mixed classes									GRAND TOTAL	**2,710,463**	


33°E
34°E
10°S
11°S
12°S
UNITED REPUBLIC OF TANZANIA
ZAMBIA
MOZAMBIQUE
Lake Malawi
Chitipa
CHITIPA
Karonga
KARONGA
RUMPHI
Rumphi
MZUZU
Nkhata-bay
NKHATA BAY
MZIMBA
Mzimba
LIKOMA IS.
Likoma
CHIDZUMULU IS.
KASUNGU
NKHOTAKOTA
N
0
20
40
60
Km

Central Region

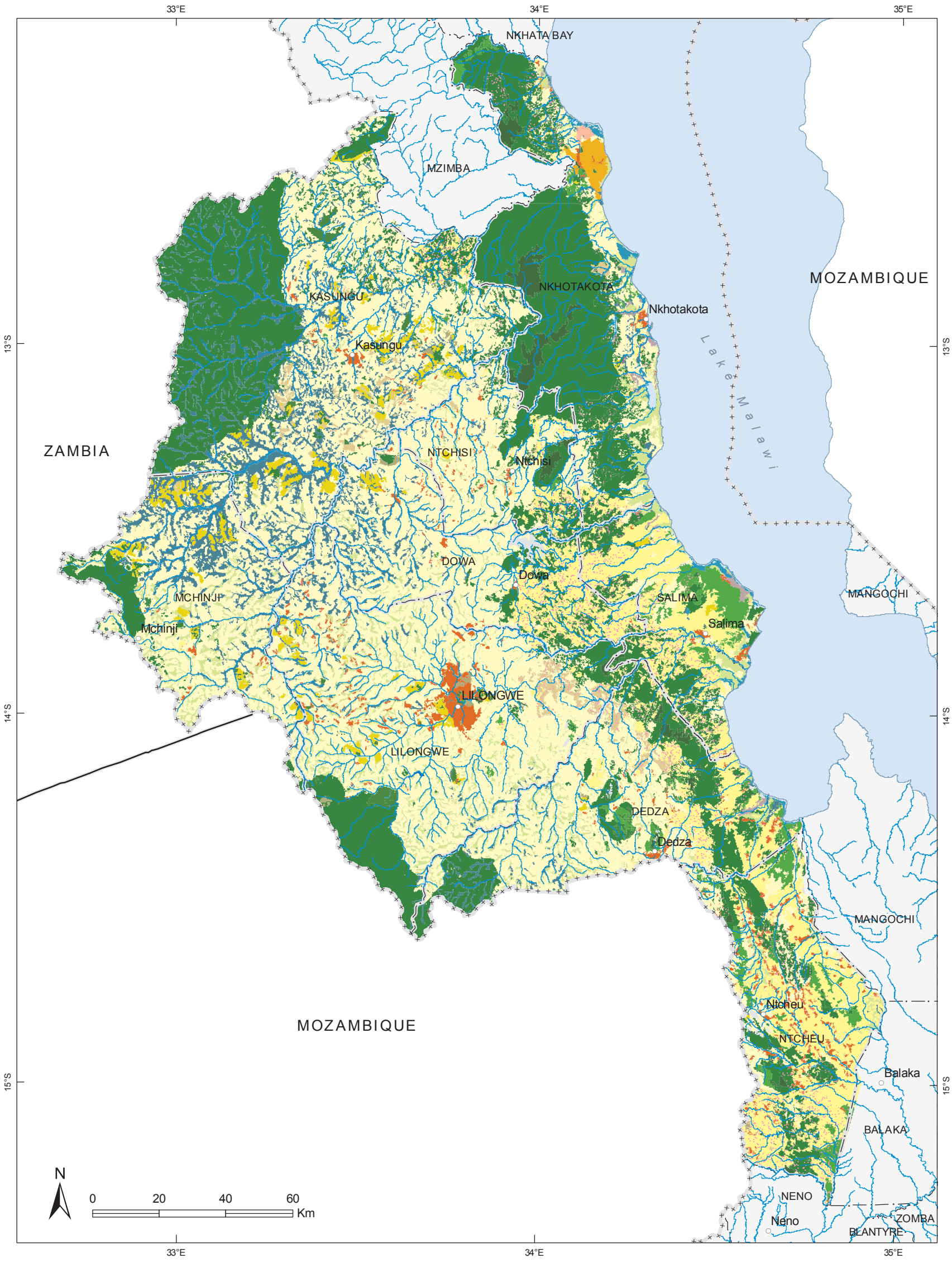
The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT WITHIN REGION

LEGEND		Balaka	Dedza	Dowa	Kasungu	Lilongwe	Mchinji	Nkhotakota	Ntcheu	Ntchisi	Salima	TOTAL	%
	AGFL	17,161.8	32,504.2	9,161.9	6,428.9	66,016.3	30,290.8	20,978.9	7,605.4	9,526.1	7,416.9	**207,091.2**	5.7
	AGHL	943.0	627.1	2,866.2	28,935.5	12,714.1	4,044.9	353.0	194.0	607.4	1,486.1	**52,771.5**	1.4
	AGHS	116,672.3	190,570.8	192,317.4	348,192.2	389,983.2	114,700.6	74,393.3	105,035.2	158,731.2	68,134.3	**1,758,730.6**	48.3
	AGOR	140.7	0	0	0	0	0	0	162.5	0	525.9	**829.1**	0
	AGSR	0	0	0	0	0	0	1,914.8	0	0	0	**1,914.8**	0.1
	AGTP	0	1,921.2	0	6,892.1	6,036.5	929.4	134.2	273.0	0	0	**16,186.3**	0.4
	AGTR	38,915.6	27,264.7	0	0	212.8	0	628.7	99,950.7	154.8	44,778.9	**211,906.2**	5.8
	ARIC	0	1,201.2	0	0	0	0	3,028.0	47.5	0	2,526.7	**6,803.4**	0.2
	ASUG	1,374.2	0	0	0	0	0	11,073.8	0	0	0	**12,448.0**	0.3
	ATEA	0	0	0	0	0	0	116.1	0	0	0	**116.1**	0
	BARE	0	774.7	3,817.4	0	442.0	0	341.9	1,398.9	0	386.8	**7,161.6**	0.2
	HBCL	15,557.2	11,259.2	223.8	1,905.1	1,371.0	0	8,236.5	27,099.1	761.5	25,679.7	**92,093.0**	2.5
	HBCO	0	187.6	956.0	988.2	2,099.9	0	0	414.3	25.5	0	**4,671.4**	0.1
	HBFP	778.5	1,504.8	0	1,950.3	355.7	0	5,305.2	0	0	3,866.0	**13,760.5**	0.4
	HBFT	1,556.7	9,550.1	18,685.0	109,449.5	20,892.9	13,838.8	5,445.9	280.9	5,621.3	205.0	**185,526.0**	5.1
	SRCO	3,683.0	7,266.3	0	12,382.2	12,252.7	42.1	1,581.0	221.4	459.4	0	**37,888.2**	1.0
	TREC	1,022.0	5,248.5	0	62.1	1,482.4	301.9	26,260.7	1,942.4	3,666.1	713.5	**40,699.5**	1.1
	TREO	10,820.6	92,497.8	28,066.8	285,722.7	78,540.5	13,359.4	267,582.6	59,685.9	39,394.2	42,448.5	**918,118.9**	25.2
	URBA	5,925.2	4,719.8	2,594.0	3,388.1	23,989.5	1,367.1	2,362.4	16,531.2	2,937.6	2,365.0	**66,179.9**	1.8
	WANP	143.4	0	0	0	0	26.3	0	200.7	0	0	**370.5**	0
	WANT	209.4	948.6	0	32.3	78.0	0	3,631.1	34.8	0	1,654.8	**6,589.0**	0.2
	WATA	0	0	0	60.9	266.7	0	0	0	0	0	**327.6**	0
	WATP	624.2	220	0	0	0	0	0	0	0	220	**1,064.2**	0
	Mixed classes										**GRAND TOTAL**	**3,643,248**	


33°E
34°E
35°E
13°S
14°S
15°S
NKHATA BAY
MZIMBA
KASUNGU
Kasungu
NKHOTAKOTA
Nkhotakota
MOZAMBIQUE
Lake Malawi
ZAMBIA
NTCHISI
Ntchisi
DOWA
Dowa
MCHINJI
Mchinji
SALIMA
Salima
MANGOCHI
LILONGWE
LILONGWE
DEDZA
Dedza
MANGOCHI
Ntcheu
NTCHEU
Balaka
BALAKA
MOZAMBIQUE
NENO
Neno
ZOMBA
BLANTYRE
N
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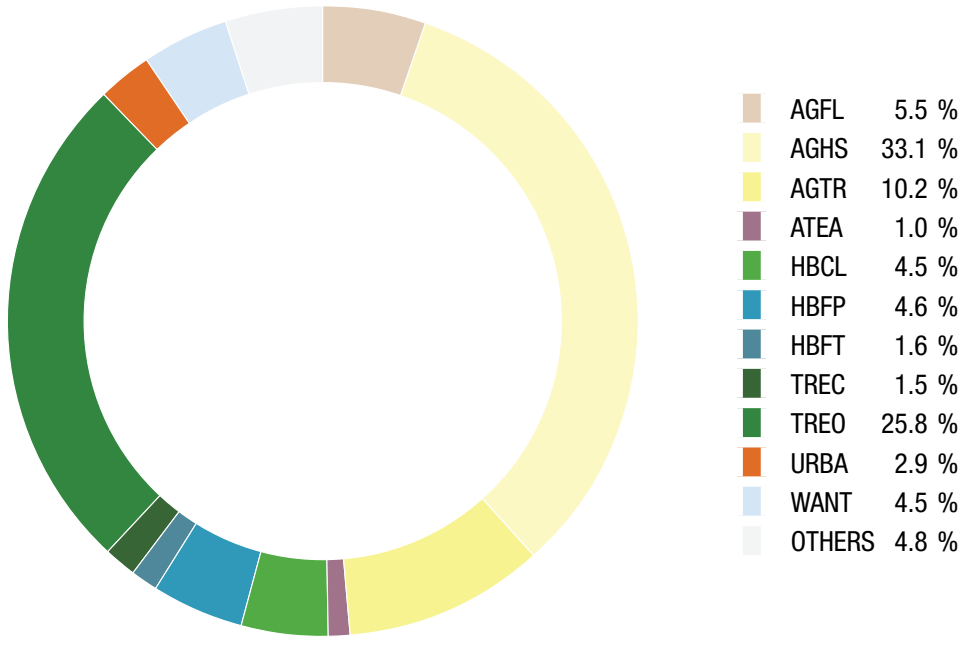
20
40
60
Km

South Region

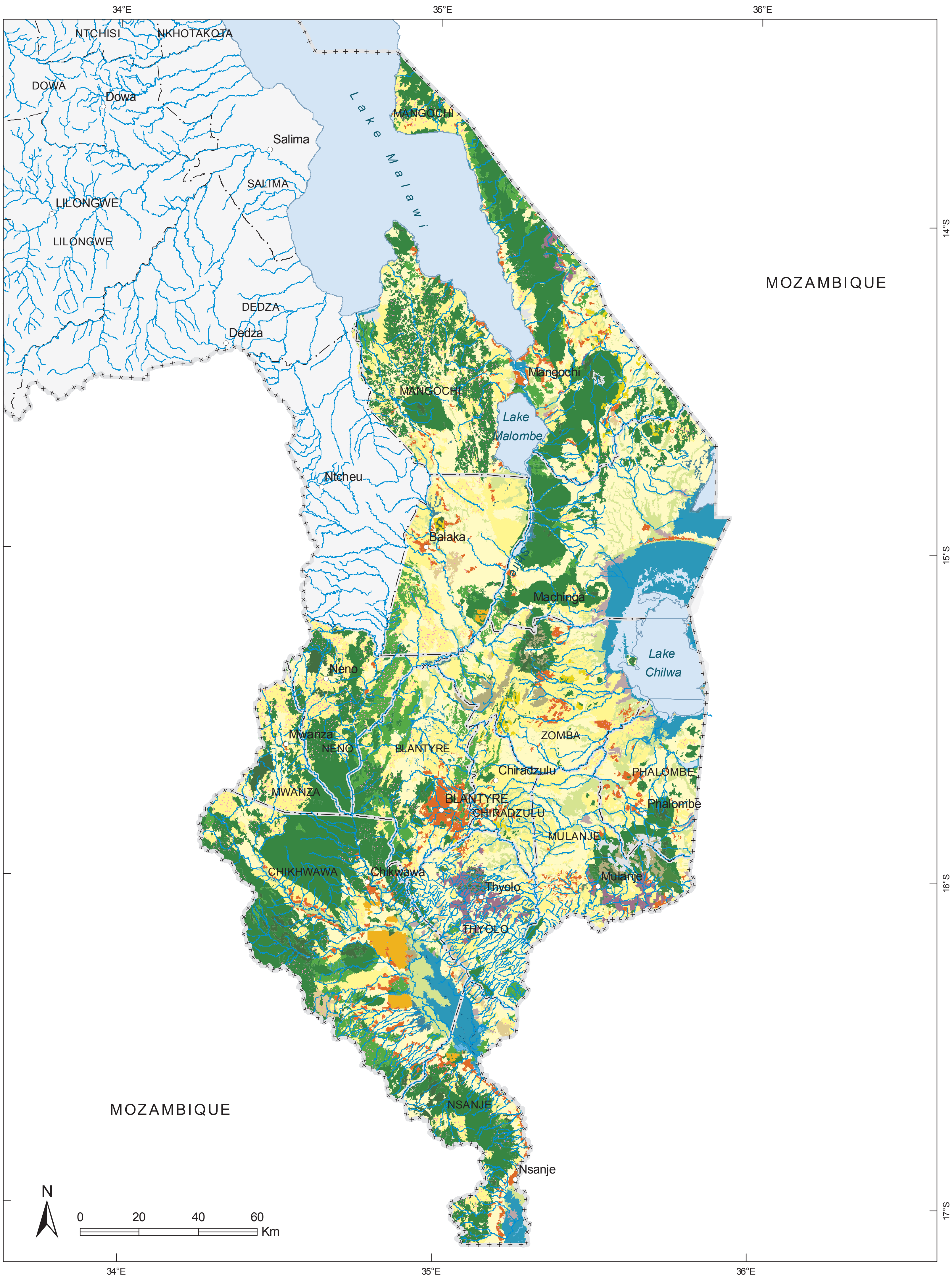
The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT WITHIN REGION

LEGEND	Blantyre	Chikhwawa	Chiradzulu	Chilwa (Machinga Dist.)	Chilwa (Zomba Dist.)	Lake Chiuta	Lake Machinga	Lake Malombe	Machinga	Mangochi	Mulanje	Mwanza	Neno	Nsanje	Phalombe	Thyolo	Zomba	TOTAL	%
AGFL	2,923.8	32,213.6	11,008.1	0	0	0	0	0	31,649.0	18,437.6	21,030.9	43.2	2,714.3	7,147.3	21,867.1	7,763.9	19,446.3	**176,245.1**	5.5
AGHL	272.3	0	1,500.6	0	0	0	0	0	1,405.0	7,242.4	9,834.2	41.9	4,129.7	102.6	0	284.0	5,736.9	**30,549.6**	0.9
AGHS	58,270.9	113,456.5	17,352.9	0	15.8	0	0	32.7	151,366.7	225,398.2	100,269.5	49,706.5	80,941.6	67,082.9	48,729.6	90,166.3	61,182.0	**1,063,972.1**	33.1
AGOR	599.8	203.0	70.5	0	0	0	0	1.5	0	403.0	1,112.0	0	5.7	812.6	106.0	3,221.1	0	**6,535.3**	0.2
AGSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0
AGTP	160.3	153.4	33.1	0	0	0	0	0	211.1	517.6	9,896.9	0	0	1,130	14.3	1,055.6	317.1	**13,489.5**	0.4
AGTR	32,176.6	32,294.3	33,218.4	0	0	0	0	3.8	3,844.5	44,731.2	48,019.9	60.9	388.3	8,829.0	26,108.0	22,099.0	75,636.2	**327,410**	10.2
ARIC	0	935.2	0	0	0	0	0	0.8	6,105.5	805.9	1,191.6	0	0	1,733.8	2,924.4	0	4,960.7	**18,657.9**	0.6
ASUG	0	16,914.9	0	0	0	0	0	0	0	0	0	0	0	788.3	0	0	0	**17,703.2**	0.6
ATEA	0	0	0	0	0	0	0	0	0	4,119.0	9,931.7	0	0	0	0	19,372.3	120.4	**33,543.4**	1.0
BARE	4.3	0	0	0	30	0	0	0	0	4,260.8	5,340.9	0	0	191.9	2,600.7	0	419.5	**12,848.1**	0.4
HBCL	32,895.9	40,632.1	4,855.8	0	0	0	0	35.3	7,903.5	28,996.3	486.2	0	14,636.1	3,382.9	462.4	4,925.0	6,739.3	**145,950.8**	4.5
HBCO	101.9	3,385.9	141.0	0	2.0	0	0	0	331.9	0	6,921.5	0	0	2,319.4	1,601.8	0	11,022.1	**25,827.4**	0.8
HBFP	3,977.1	17,228.9	117.7	273.6	289.6	80.9	245.6	442.7	72,430.2	6,544.3	1,341.0	0	51.1	24,886.7	8,815.4	0	9,776.2	**146,501.0**	4.6
HBFT	247.2	2,972.0	0	0	0	942.0	0	0	4,590.1	675.3	24,228.5	0	16,776.3	71.7	0	725.5	541.6	**51,770.5**	1.6
SRCO	604.5	7,179.6	0	0	0	0	0	0	164.2	1,121.6	436.8	0	0	4,216.3	71.7	5,488.5	268.5	**19,551.8**	0.6
TREC	364.7	11,124.9	236.1	0	0	0	0	0	2,186.8	2,738.5	3,736.0	5,009.2	5,241.9	12,516.4	2,928.0	2,631.4	678.3	**49,392.2**	1.5
TREO	36,308.2	201,139.9	2,792.5	0	17.3	0	0	0	78,706.6	277,619.1	29,930.6	27,586.1	66,199.5	76,326.8	20,458.7	7,127.6	5,034.9	**829,247.9**	25.8
URBA	18,592.7	18,158.8	3,433.7	0	0	0	0	12.4	2,381.2	16,896.8	6,562.7	248.8	408.9	10,483.1	6,579.3	1,671.9	7,908.8	**93,339.1**	2.9
WANP	0	588.6	0	0	0	0	0	0	29.7	21.5	36.1	0	191.5	1,557.3	0	2.3	0	**2,427.1**	0.1
WANT	31.4	36.9	10.4	6,512.5	56,976.3	5,010.8	1,419.5	30,805.9	14,740.4	4,682.9	11.1	0	0	26.8	11,454.0	58.4	12,666.4	**144,443.7**	4.5
WATA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23.0	0	**23.0**	0.0
WATP	434.8	2,498.9	0	0	0	0	0	0	1,210	311.2	284.6	179.0	506.3	1,117.5	23.4	283.8	121.2	**6,970.6**	0.2
Mixed classes																	GRAND TOTAL	**3,216,399**	


34°E
35°E
36°E
14°S
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16°S
17°S
NTCHISI
NKHOTAKOTA
DOWA
Dowa
Salima
SALIMA
LILONGWE
LILONGWE
DEDZA
Dedza
Lake Malawi
MANGOCHI
Mangochi
MANGOCHI
Lake Malombe
Ntcheu
Balaka
Shire
Machinga
Lake Chilwa
Neno
Mwanza
NENO
BLANTYRE
ZOMBA
Chiradzulu
PHALOMBE
MWANZA
BLANTYRE
CHIRADZULU
Phalombe
MULANJE
CHIKHWAWA
Chikwawa
Thyolo
Mulanje
THYOLO
NSANJE
Nsanje
MOZAMBIQUE
MOZAMBIQUE
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0
20
40
60
Km

Land cover by district

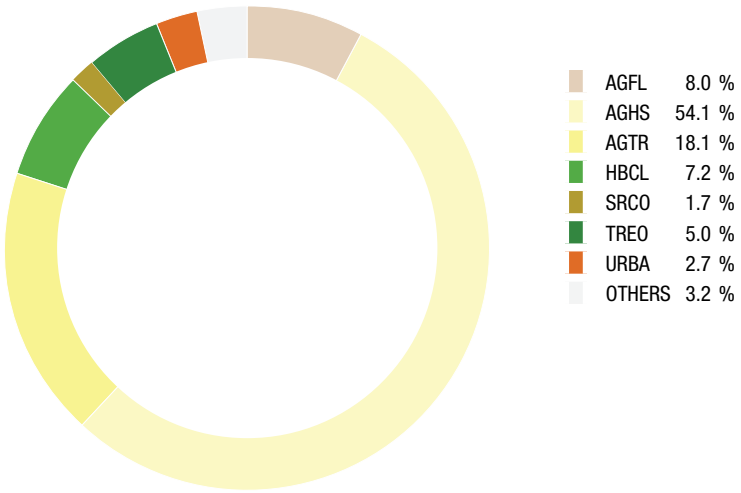
Malawi maps and statistics are compiled for the whole extent of the country. The land cover distribution is reported in the tables as disaggregated at the second administrative level.

Balaka

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

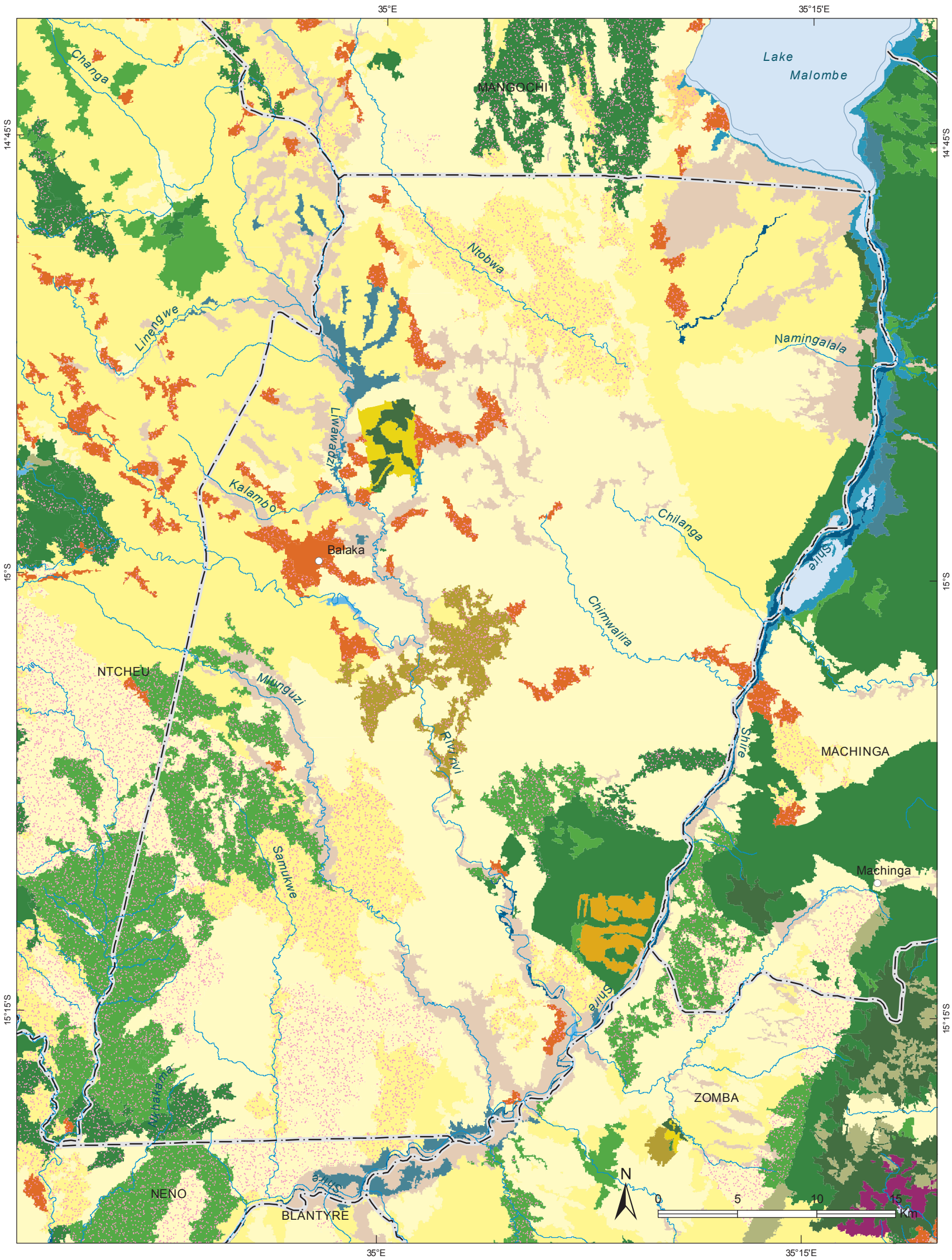
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Kalemba	Msamala	TOTAL	%
	AGFL	8,115.4	9,046.4	17,161.8	8.0
	AGHL	67.2	875.8	943.0	0.4
	AGHS	37,303.1	79,369.2	116,672.3	54.1
	AGOR	85.9	54.8	140.7	0.1
	AGSR	0	0	0	0
	AGTP	0	0	0	0
	AGTR	24,513.5	14,402.1	38,915.6	18.1
	ARIC	0	0	0	0
	ASUG	0	1,374.2	1,374.2	0.6
	ATEA	0	0	0	0
	BARE	0	0	0	0
	HBCL	0	15,557.2	15,557.2	7.2
	HBCO	0	0	0	0
	HBFP	729.1	49.3	778.5	0.4
	HBFT	991.8	564.9	1,556.7	0.7
	SRCO	0	3,683.0	3,683.0	1.7
	TREC	512.5	509.5	1,022.0	0.5
	TREO	2,129.0	8,691.6	10,820.6	5.0
	URBA	1,875.7	4,049.5	5,925.2	2.7
	WANP	0	143.4	143.4	0.1
	WANT	209.4	0	209.4	0.1
	WATA	0	0	0	0
	WATP	361.5	262.7	624.2	0.3
	Mixed classes		**GRAND TOTAL**	**215,527.7**	

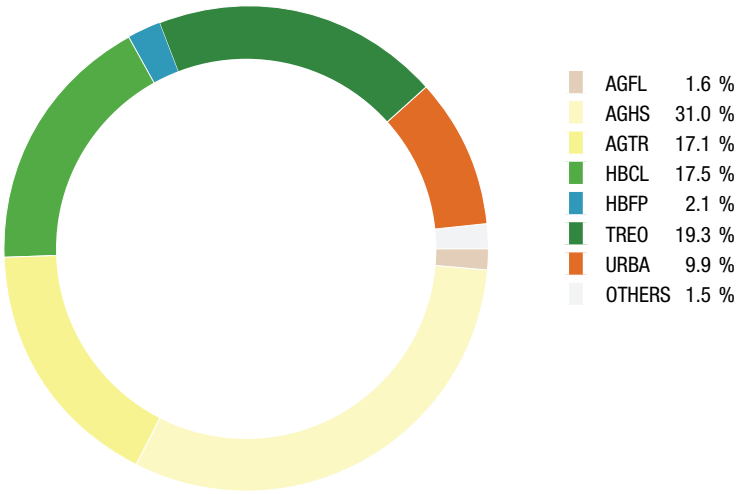

35°E
35°15'E
14°45'S
15°S
15°15'S
Lake
Malombe
MANGOCHI
Changa
Ntobwa
Linengwe
Namingalala
Liwawadzi
Kalambo
Balaka
Chilanga
Chimwalira
Shire
NTCHEU
Mlunguzi
Rivirivi
MACHINGA
Machinga
Samukwe
Nyanama
ZOMBA
NENO
BLANTYRE
N
0
5
10
15
km

Blantyre

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

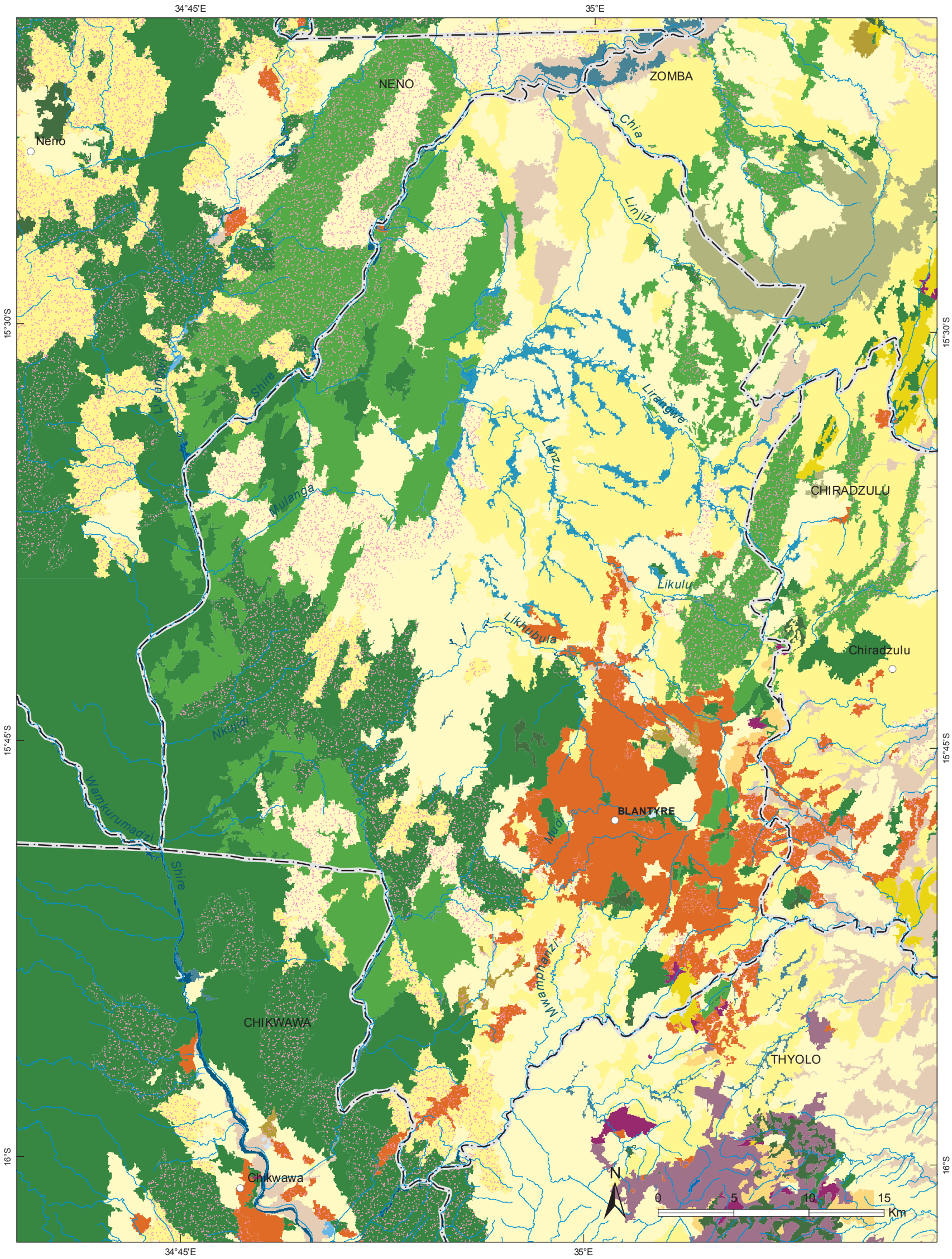
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chigaru	Kapeni	Kuntaja	Kunthembwe	Machinjiri	Makata	Somba	TOTAL	%
	AGFL	2,373.7	53.3	0	0	112.8	348.7	35.4	2,923.8	1.6
	AGHL	0	0	0	0	31.6	0	240.7	272.3	0.1
	AGHS	10,494.9	4,638.5	13,792.5	13,997.7	3,653.2	1,253.7	10,440.4	58,270.9	31.0
	AGOR	0	0	5.7	0	594.1	0	0	599.8	0.3
	AGSR	0	0	0	0	0	0	0	0	0
	AGTP	0	0	0	0	88.2	0	72.1	160.3	0.1
	AGTR	4,831.7	10,815.8	5,213.3	0	4,276.1	2,190.4	4,849.4	32,176.6	17.1
	ARIC	0	0	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0
	BARE	4.3	0	0	0	0	0	0	4.3	0
	HBCL	6,389.4	52.9	6,390.9	12,217.9	3,950.5	1,134.5	2,759.8	32,895.9	17.5
	HBCO	0	0	0	0	101.9	0	0	101.9	0.1
	HBFP	613.7	1,818.1	1,120.1	29.3	9.2	386.8	0	3,977.1	2.1
	HBFT	49.2	18.2	81.6	4.8	42.3	0	51.2	247.2	0.1
	SRCO	0	0	0	0	313.3	0	291.2	604.5	0.3
	TREC	0	0	191.7	0	124.0	0	49.0	364.7	0.2
	TREO	0	47.3	9,154.1	19,329.0	1,661.2	3.4	6,113.3	36,308.2	19.3
	URBA	28.2	672.3	1,348.6	3.7	14,997.9	36.1	1,505.9	18,592.7	9.9
	WANP	0	0	0	0	0	0	0	0	0
	WANT	0	0	0	0	31.4	0	0	31.4	0
	WATA	0	0	0	0	0	0	0	0	0
	WATP	143.8	0	76.8	140.9	0	0	73.3	434.8	0.2
	Mixed classes							GRAND TOTAL	187,966.4	

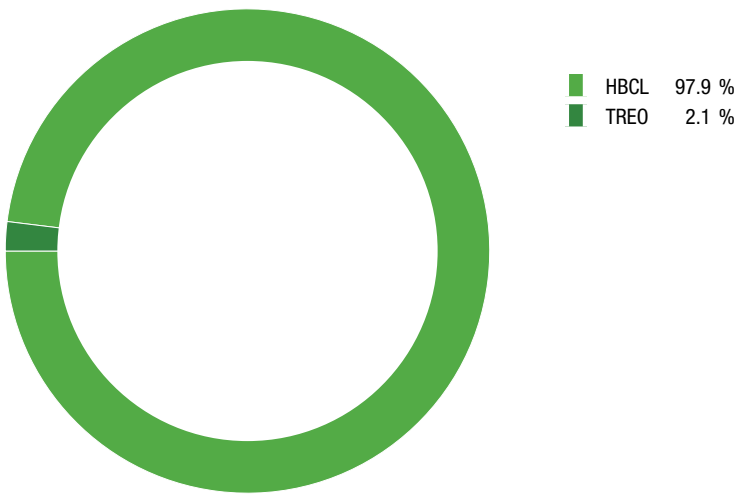

34°45'E
35°E
15°30'S
15°45'S
16°S
NENO
ZOMBA
Neno
Chia
Linjizi
Shire
Lirangwe
Lunzu
Mulanga
CHIRADZULU
Likulu
Likhubula
Chiradzulu
Nkuli
Wamkurumadzi
BLANTYRE
Mudi
Mwamphanzi
CHIKWAWA
THYOLO
Chikwawa
N
0
5
10
15
Km

Chidzumulu

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

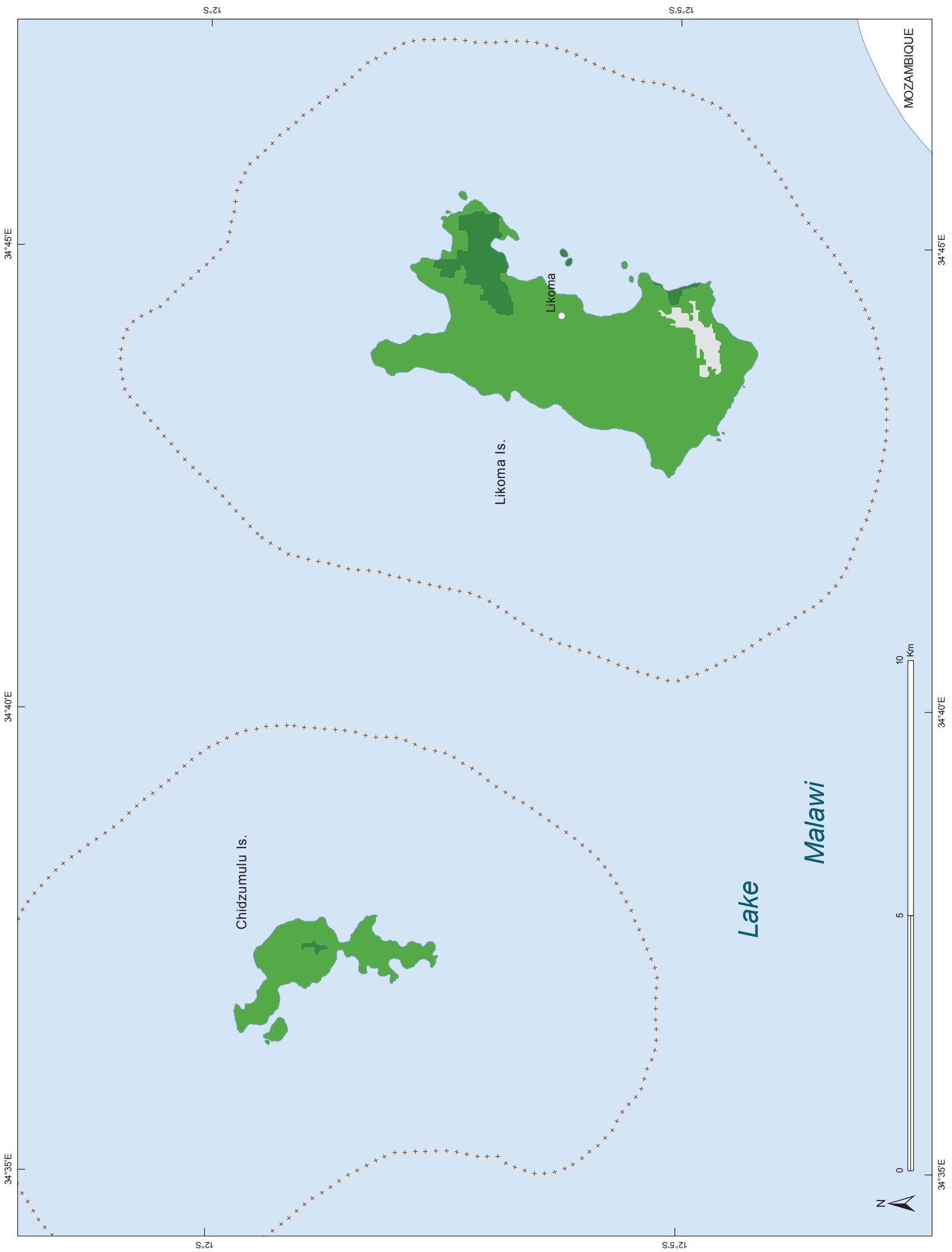
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND	Chidzumulu Island	Chdizumulu Island 1	Chidzumulu Island 2	TOTAL	%
AGFL	0	0	0	0	0
AGHL	0	0	0	0	0
AGHS	0	0	0	0	0
AGOR	0	0	0	0	0
AGSR	0	0	0	0	0
AGTP	0	0	0	0	0
AGTR	0	0	0	0	0
ARIC	0	0	0	0	0
ASUG	0	0	0	0	0
ATEA	0	0	0	0	0
BARE	0	0	0	0	0
HBCL	310.7	13.4	0.6	324.6	97.9
HBCO	0	0	0	0	0
HBFP	0	0	0	0	0
HBFT	0	0	0	0	0
SRCO	0	0	0	0	0
TREC	0	0	0	0	0
TREO	6.8	0	0	6.8	2.1
URBA	0	0	0	0	0
WANP	0	0	0	0	0
WANT	0	0	0	0	0
WATA	0	0	0	0	0
WATP	0	0	0	0	0
Mixed classes			GRAND TOTAL	331.4	

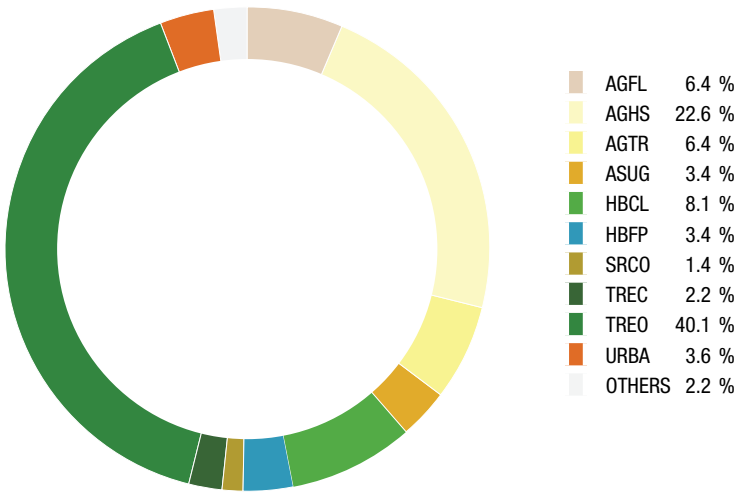

MOZAMBIQUE
Likoma
Likoma Is.
Chidzumulu Is.
Lake
Malawi
34°45'E
34°40'E
34°35'E
12°S
12°5'S
N
0
5
10
Km

Chikwawa

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

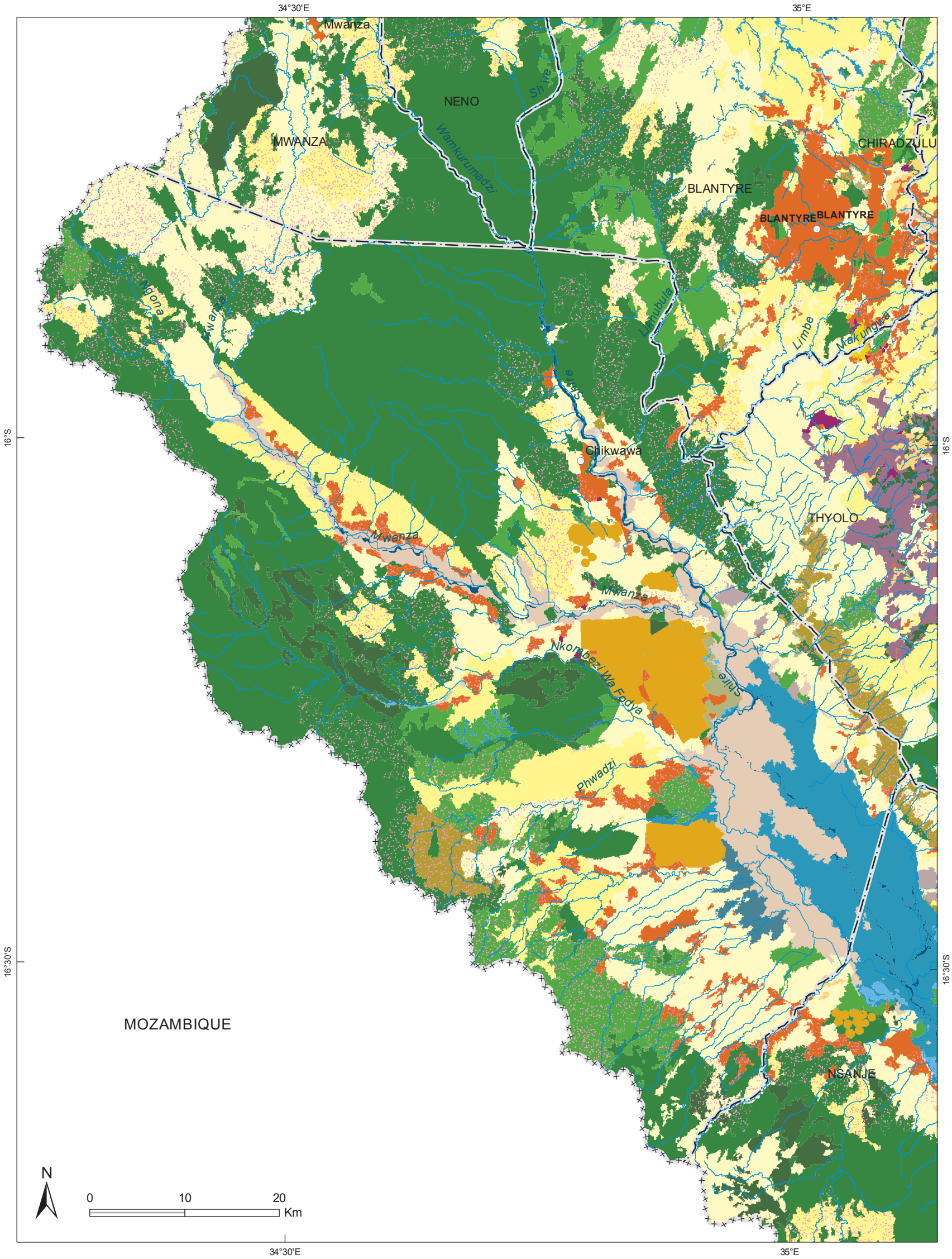
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chapananga	Kasisi	Katunga	Lundu	Makhwira	Maseya	Ngabu	TOTAL	%
	AGFL	4,685.6	934.1	2,081.2	2,717.3	11,901.2	1,835.7	8,058.4	32,213.6	6.4
	AGHL	0	0	0	0	0	0	0	0	0
	AGHS	40,337.9	7,280.1	7,118.5	7,586.4	10,044.5	6,658.4	34,430.7	113,456.5	22.6
	AGOR	0	5.5	11.7	0	93.7	3.7	88.4	203.0	0
	AGSR	0	0	0	0	0	0	0	0	0
	AGTP	56.7	10	23.2	14.1	0	49.3	0	153.4	0
	AGTR	13,452.2	64.8	603.8	2,331.2	180	0	15,662.3	32,294.3	6.4
	ARIC	0	0	0	0	935.2	0	0	935.2	0.2
	ASUG	98.9	0	1,028.5	11,158.7	0	961.5	3,667.3	16,914.9	3.4
	ATEA	0	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	0	0	0	0
	HBCL	7,972.7	2,262.6	1,160.8	3,425.2	597.8	5.3	25,207.7	40,632.1	8.1
	HBCO	39.7	0	0	3,205.8	108.4	0	32.1	3,385.9	0.7
	HBFP	406.4	0	0	248.3	15,679.1	0	895.0	17,228.9	3.4
	HBFT	27.8	92.1	0	0	85.5	0	2,766.8	2,972.0	0.6
	SRCO	0	122.3	0	0	2,613.4	0	4,443.9	7,179.6	1.4
	TREC	9,824.6	0	0	229.1	0	18.0	1,053.2	11,124.9	2.2
	TREO	146,045.5	25,555.1	2,104.0	481.3	2,349.4	4,800	19,804.5	201,139.9	40.1
	URBA	4,534.1	993.7	1,553.2	979.9	758.6	628.3	8,710.9	18,158.8	3.6
	WANP	345.9	70.4	5.5	107.7	5.4	53.8	0	588.6	0.1
	WANT	6.2	30.8	0	0	0	0	0	36.9	0
	WATA	0	0	0	0	0	0	0	0	0
	WATP	594.2	571.7	275.6	257.6	455.1	319.3	25.3	2,498.9	0.5
	Mixed classes							GRAND TOTAL	501,117.3	

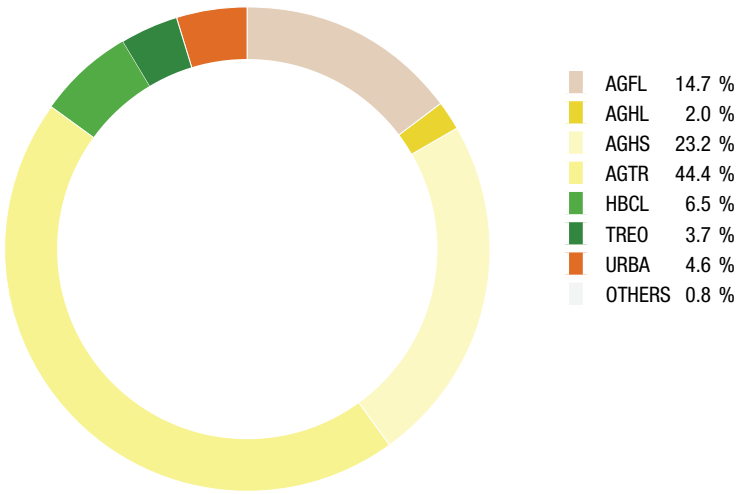

34°30'E
35°E
16°S
16°30'S
Mwanza
NENO
MWANZA
Shire
Wamkurumadzi
CHIRADZULU
BLANTYRE
BLANTYRE
BLANTYRE
Lingoni
Mwanza
Lunhubula
Limbe
Makungwa
Shire
Chikwawa
THYOLO
Mwanza
Nkombezi Wa Fodya
Shire
Phwadzi
MOZAMBIQUE
NSANJE
N
0
10
20
Km

Chiradzulu

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

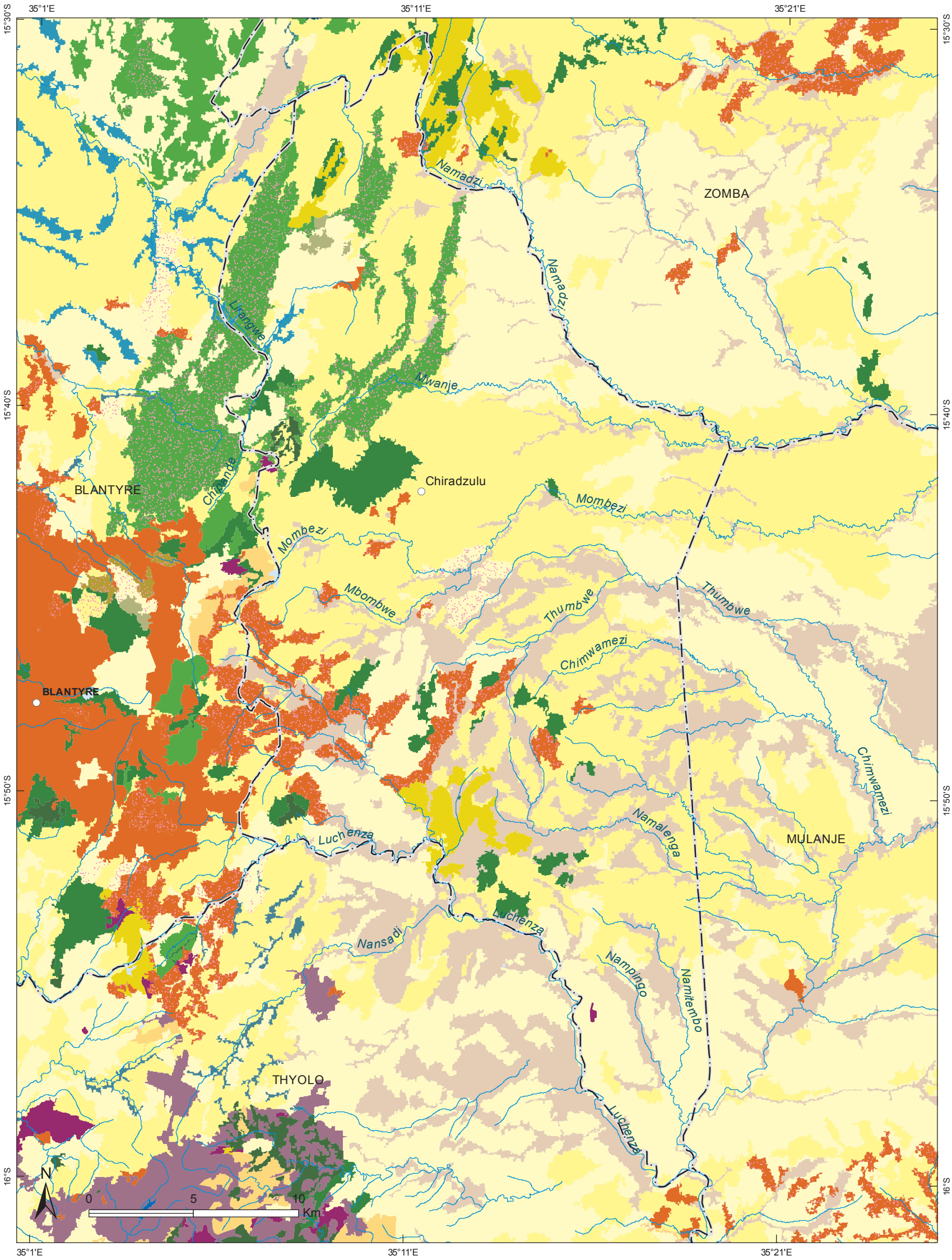
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND	Chitera	Kadewere	Likoswe	Mchema	Mpama	Mpama 2	Nkalo	TOTAL	%
AGFL	905.1	4,709.8	1,944.8	687.8	19.9	0	2,740.7	11,008.1	14.7
AGHL	0	35.5	749.2	1.9	159.3	243.9	310.9	1,500.6	2.0
AGHS	643.6	1,759.7	3,286.0	4,968.8	951.2	1,046.4	4,697.0	17,352.9	23.2
AGOR	44.4	0	26.1	0	0	0	0	70.5	0.1
AGSR	0	0	0	0	0	0	0	0	0
AGTP	2.0	0	0	0	10.2	0	20.9	33.1	0
AGTR	4,859.1	11,838.5	2,348.9	3,882.6	4,077.4	2,596.1	3,615.9	33,218.4	44.4
ARIC	0	0	0	0	0	0	0	0	0
ASUG	0	0	0	0	0	0	0	0	0
ATEA	0	0	0	0	0	0	0	0	0
BARE	0	0	0	0	0	0	0	0	0
HBCL	68.7	377.2	0	322.1	1,853.6	2,234.1	0	4,855.8	6.5
HBCO	0	0	0	0	141.0	0	0	141.0	0.2
HBFP	0	0	0	0	7.4	110.3	0	117.7	0.2
HBFT	0	0	0	0	0	0	0	0	0
SRCO	0	0	0	0	0	0	0	0	0
TREC	0	0	87.2	0	11.5	137.4	0	236.1	0.3
TREO	554.7	383.0	483.9	0.7	558.3	349.8	462.1	2,792.5	3.7
URBA	211.9	506.8	2,537.6	19.1	81.1	77.2	0	3,433.7	4.6
WANP	0	0	0	0	0	0	0	0	0
WANT	7.7	0	0	0	0	2.7	0	10.4	0
WATA	0	0	0	0	0	0	0	0	0
WATP	0	0	0	0	0	0	0	0	0
Mixed classes							GRAND TOTAL	74,770.8	

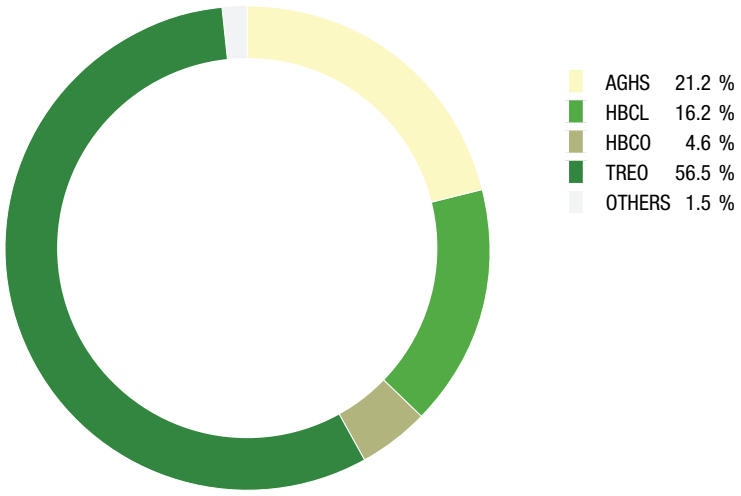

35°1'E
35°11'E
35°21'E
15°30'S
15°40'S
15°50'S
16°S
ZOMBA
MULANJE
BLANTYRE
THYOLO
Chiradzulu
BLANTYRE
Namadzi
Namadzi
Lirangwe
Mwanje
Chirande
Mombezi
Mombezi
Mbombwe
Thumbwe
Thumbwe
Chimwamezi
Chimwamezi
Namalenga
Luchenza
Luchenza
Nansadi
Nampingo
Namitembo
Luchenza
N
0
5
10
Km

Chitipa

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

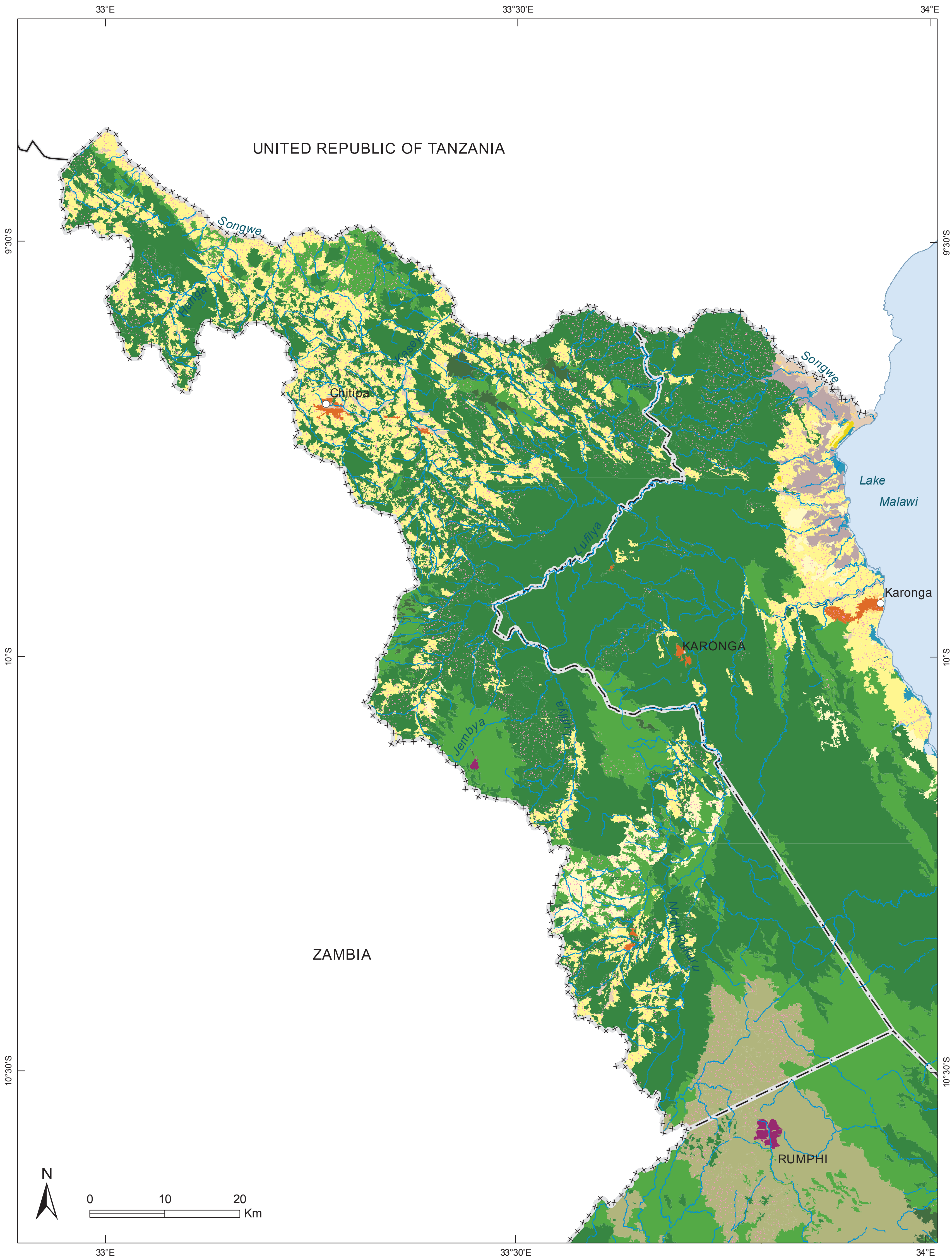
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Kameme	Mwabulambya	Mwenemisiku	Mwenewenya	Nthalire	TOTAL	%
	AGFL	673.6	1,099.9	0	72.6	176.1	2,022.1	0.5
	AGHL	0	0	0	0	0	0	0
	AGHS	15,622.8	37,183.4	12,366.5	5,630.7	18,764.9	89,568.3	21.2
	AGOR	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0
	AGTP	0	0	2.9	116.6	0	119.4	0
	AGTR	23.2	0	0	4.6	0	27.7	0
	ARIC	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0
	BARE	77.0	16.3	2.2	0	0	95.5	0
	HBCL	2,909.2	9,261.8	3,326.0	16,980.4	36,199.2	68,676.7	16.2
	HBCO	0	0	0	0	19,601.4	19,601.4	4.6
	HBFP	0	0	0	0	0	0	0
	HBFT	0	0	0	0	0	0	0
	SRCO	0	0	0	0	0	0	0
	TREC	0	23.1	2,502.5	350.4	180.3	3,056.4	0.7
	TREO	24,214.9	49,334.0	47,296.0	50,804.9	67,282.2	238,932.2	56.5
	URBA	56.0	746.0	0	0	163.5	965.4	0.2
	WANP	0	0	0	51.3	0	51.3	0
	WANT	0	0	0	0	0	0	0
	WATA	0	0	0	0	0	0	0
	WATP	0	0	33.4	0	0	33.4	0
	Mixed classes					**GRAND TOTAL**	**423,149.8**	

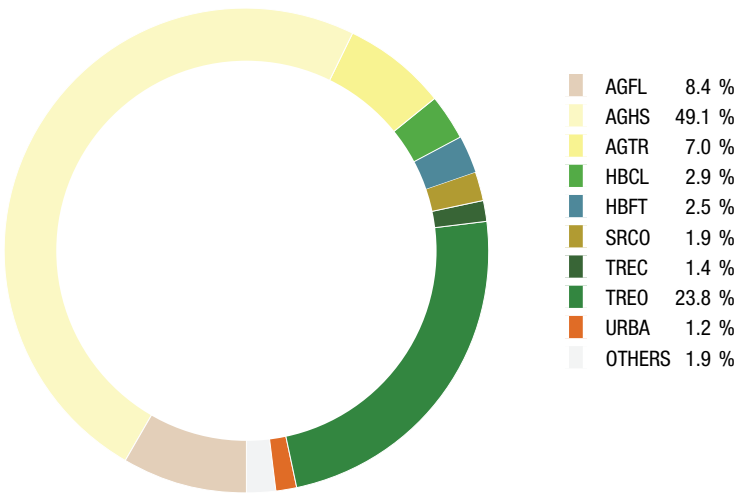

33°E
33°30'E
34°E
9°30'S
10°S
10°30'S
UNITED REPUBLIC OF TANZANIA
Songwe
Chitipa
Lufilya
Jembya
Lake
Malawi
Karonga
KARONGA
ZAMBIA
RUMPHI
N
0
10
20
Km

Dedza

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

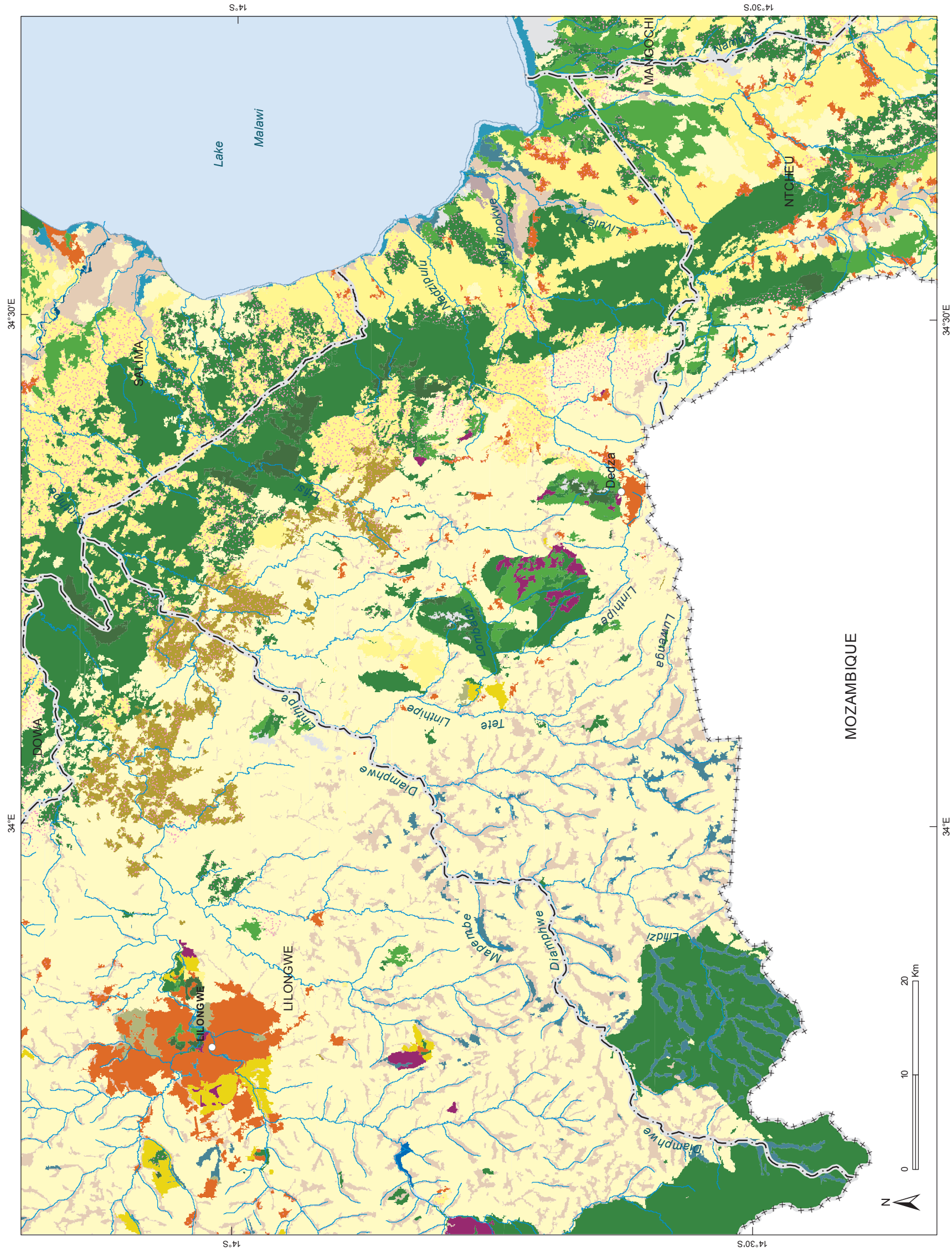
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chilikumwendo	Kachindamoto	Kamenyagwaza	Kaphuka	Kasumbu	Pemba	Tambala	TOTAL	%
	AGFL	5,818.5	3,060.7	514.2	5,895.1	1,195.3	14,797.2	1,223.3	32,504.2	8.4
	AGHL	0	0	0	607.7	19.4	0	0	627.1	0.2
	AGHS	18,642.2	5,579.9	15,697.5	37,974.6	34,510.6	46,489.9	31,676.1	190,570.8	49.1
	AGOR	0	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0	0
	AGTP	0	0	18.1	1,569.7	333.4	0	0	1,921.2	0.5
	AGTR	0	23,324.9	28.6	2,112.5	0	480.6	1,318.1	27,264.7	7.0
	ARIC	0	1,201.2	0	0	0	0	0	1,201.2	0.3
	ASUG	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0
	BARE	0	306.8	0	283.3	170.3	14.3	0	774.7	0.2
	HBCL	0	4,521.3	0	3,122.5	2,788.7	826.6	0	11,259.2	2.9
	HBCO	0	0	0	187.6	0	0	0	187.6	0
	HBFP	0	1,230.2	0	0	0	274.6	0	1,504.8	0.4
	HBFT	816.2	1,035.3	0	124.1	0	7,574.5	0	9,550.1	2.5
	SRCO	0	0	0	0	2,070.7	19.7	5,175.9	7,266.3	1.9
	TREC	0	144.0	36.3	423.1	3,639.4	0	1,005.7	5,248.5	1.4
	TREO	115.2	25,342.3	2,596.4	9,380.7	13,496.5	25,540.8	16,025.9	92,497.8	23.8
	URBA	0	1,985.4	552.8	557.7	805.5	604.6	213.8	4,719.8	1.2
	WANP	0	0	0	0	0	0	0	0	0
	WANT	0	946.1	0	0	0	2.5	0	948.6	0.2
	WATA	0	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	220	0	220	0.1
	Mixed classes							GRAND TOTAL	388,266.8	

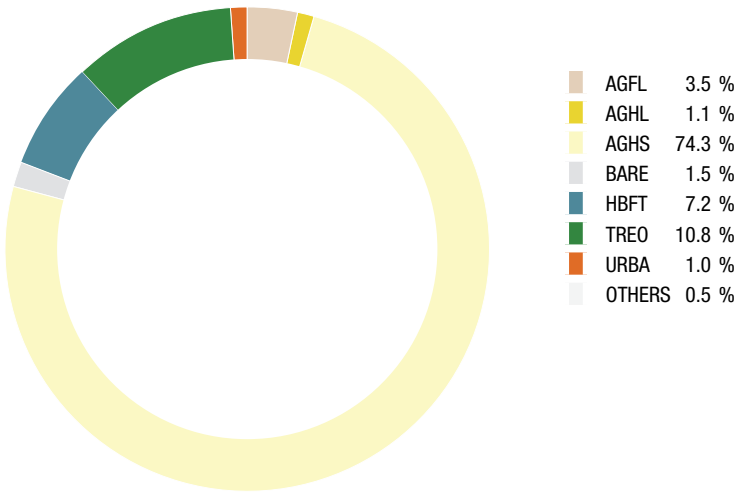

14°S
14°30'S
34°30'E
34°E
Lake Malawi
MANGOCHI
NTCHEU
SALIMA
DOWA
LILONGWE
Dedza
Nadzipulu
Lwiwezi
Linthipe
Tete
Diamphwe
Mapembe
Lumenga
Limdzi
MOZAMBIQUE
0
10
20
Km
N

Dowa

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

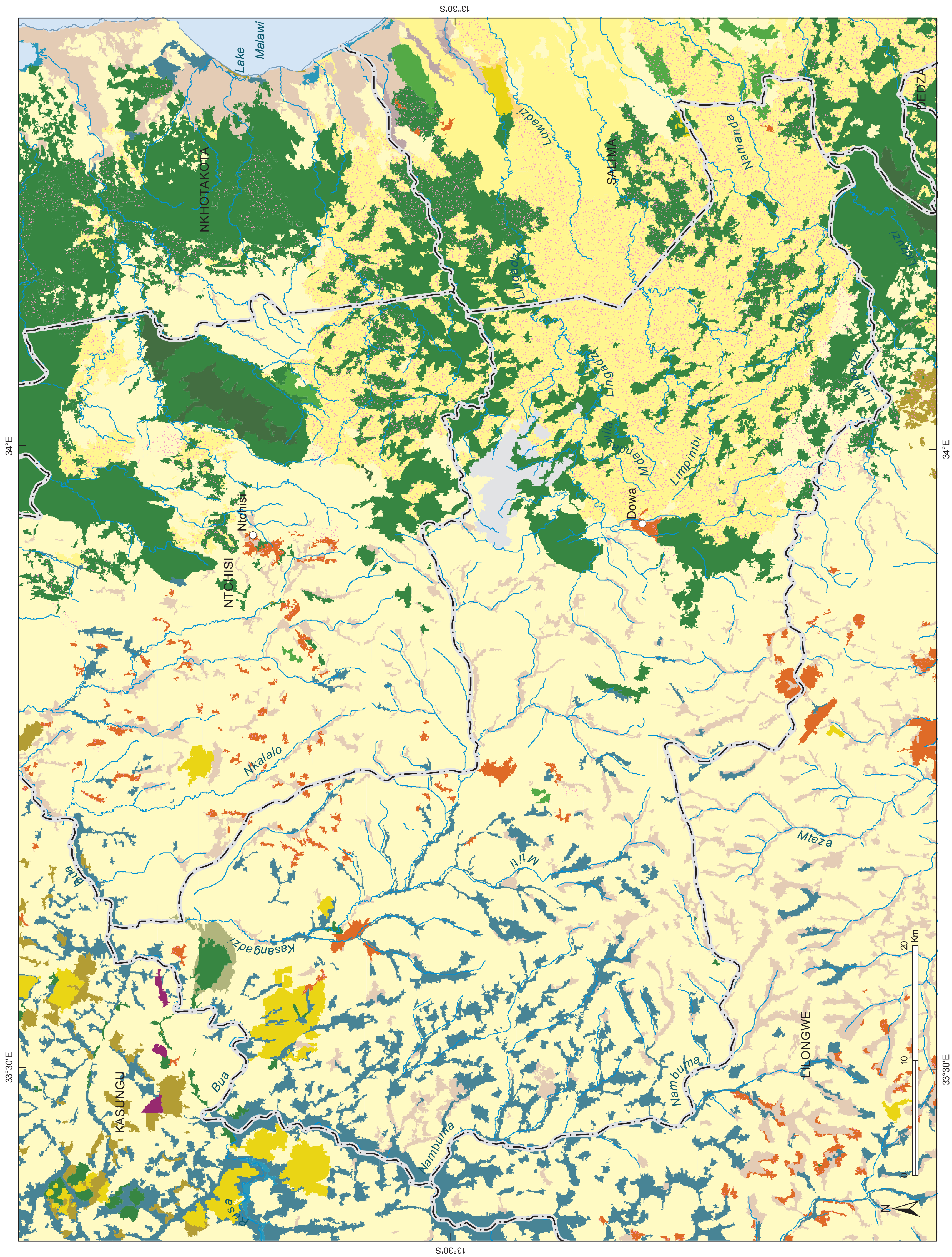
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chakhaza	Chiwere	Kayembe	Mkukula	Mponela	Msakambewa	TOTAL	%
	AGFL	1,131.2	46.8	3,364.5	1,810.5	963.2	1,845.7	9,161.9	3.5
	AGHL	2,856.1	10.2	0	0	0	0	2,866.2	1.1
	AGHS	41,564.6	42,825.7	33,580.3	29,542.1	15,204.0	29,600.8	192,317.4	74.3
	AGOR	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0	0	0
	AGTR	0	0	0	0	0	0	0	0
	ARIC	0	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	3,817.4	3,817.4	1.5
	HBCL	0	222.6	0	0	1.1	0	223.8	0.1
	HBCO	956.0	0	0	0	0	0	956.0	0.4
	HBFP	0	0	0	0	0	0	0	0
	HBFT	8,905.9	0	8,635.3	217.2	806.9	119.6	18,685.0	7.2
	SRCO	0	0	0	0	0	0	0	0
	TREC	0	0	0	0	0	0	0	0
	TREO	1,250.5	10,085.9	25.1	8,288.7	37.0	8,379.7	28,066.8	10.8
	URBA	1,235.7	292.0	0	565.2	501.1	0	2,594.0	1.0
	WANP	0	0	0	0	0	0	0	0
	WANT	0	0	0	0	0	0	0	0
	WATA	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	0	0	0
	Mixed classes						GRAND TOTAL	258,688	

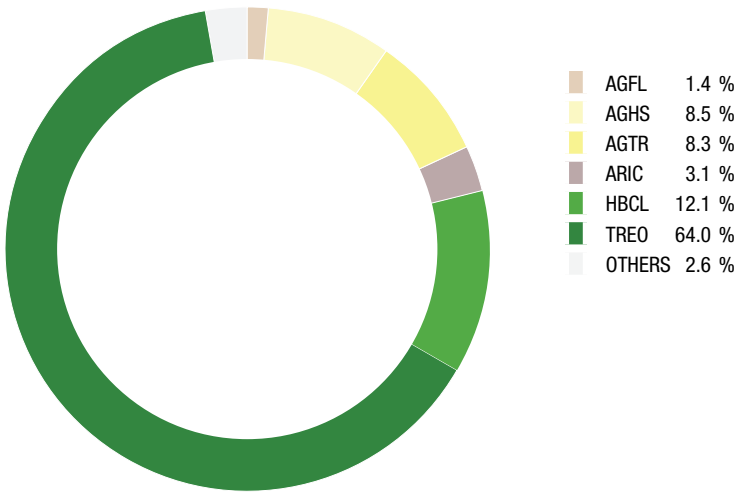

13°30'S
Lake Malawi
NKHOTAKOTA
SALIMA
DEDZA
Luwadzi
Namanda
Lingadzi
Limpimbi
Dowa
Ntchisi
NTCHISI
34°E
Nkalalo
Mteza
Bua
Kasangadzi
LILONGWE
KASUNGU
Nambuma
33°30'E
0
10
20
Km
N

Karonga

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

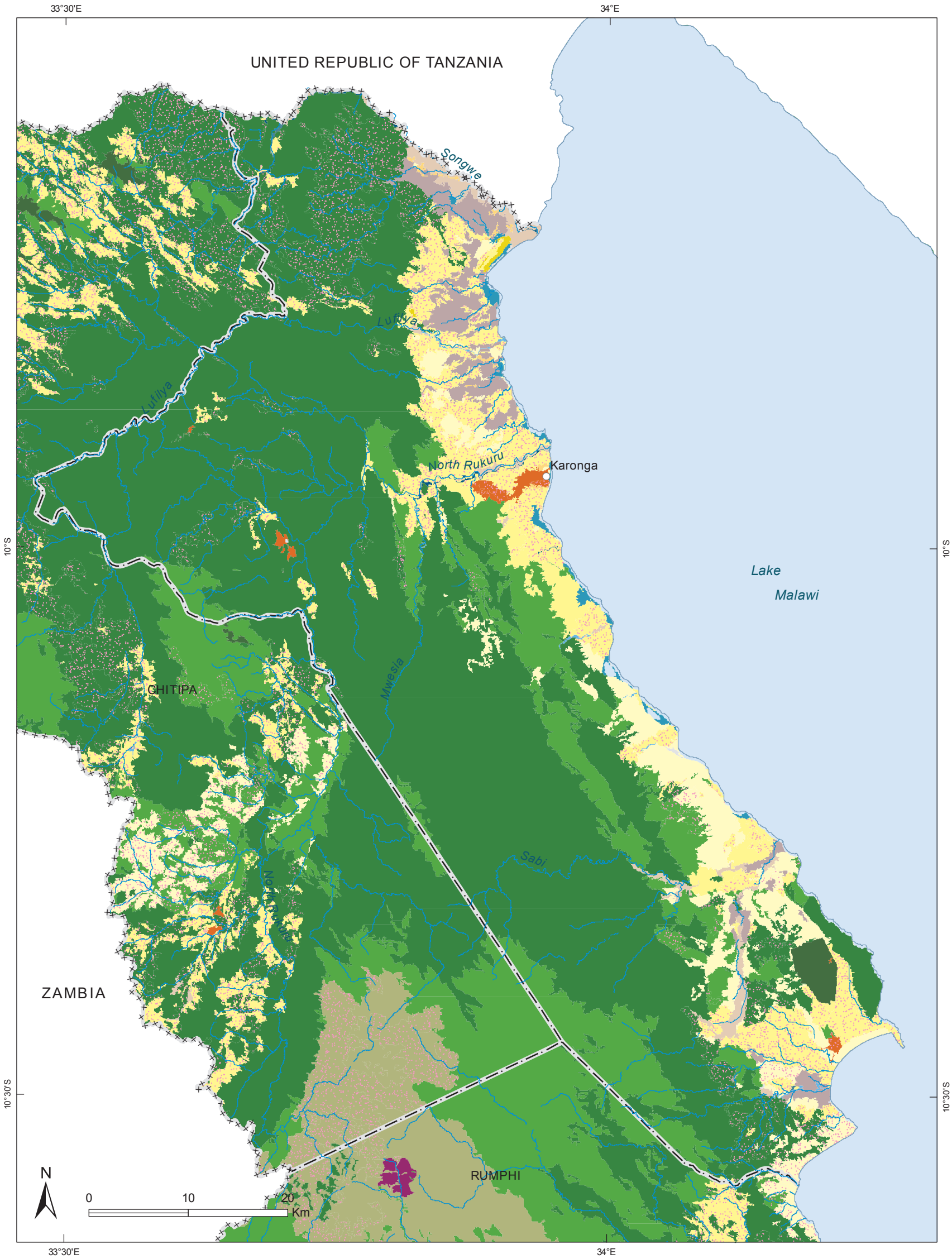
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Kyungu	Mwakaboko	Mwirang'ombe	Wasambo	TOTAL	%
	AGFL	422.7	2,449.7	1,317.5	680.6	4,870.5	1.4
	AGHL	0	277.7	0	0	277.7	0.1
	AGHS	8,264.2	2,984.4	6,363.0	11,626.5	29,238.2	8.5
	AGOR	112.6	359.0	0	2.7	474.3	0.1
	AGSR	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0
	AGTR	16,147.5	6,135.7	2,830.9	3,407.6	28,521.7	8.3
	ARIC	1,321.0	7,235.1	709.9	1,370.9	10,636.9	3.1
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	90.8	68.6	0	14.8	174.1	0.1
	HBCL	32,827.8	11.1	6,894.5	1,945.4	41,678.8	12.1
	HBCO	0	0	0	0	0	0
	HBFP	898.6	609.0	57.2	0	1,564.8	0.5
	HBFT	0	65.2	0	21.4	86.6	0
	SRCO	0	0	0	0	0	0
	TREC	8.7	0	0	2,074.8	2,083.5	0.6
	TREO	161,104.6	37,893.4	7,574.6	13,847.0	220,419.7	64.0
	URBA	1,446.2	0	0	220.6	1,666.8	0.5
	WANP	145.2	109.7	0	96.0	350.9	0.1
	WANT	955.0	116.9	261.5	363.8	1,697.3	0.5
	WATA	0	0	0	0	0	0
	WATP	235.3	247.0	0	0	482.2	0.1
	Mixed classes				**GRAND TOTAL**	**344,224.03**	

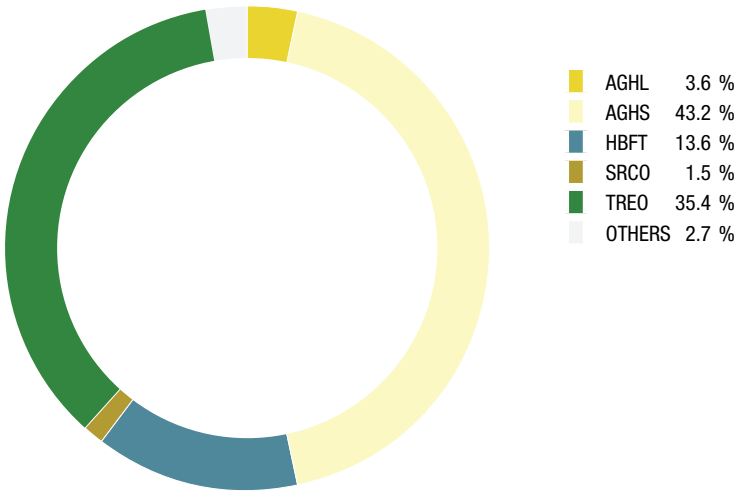

33°30'E
34°E
UNITED REPUBLIC OF TANZANIA
Songwe
Lufilya
Lufilya
North Rukuru
Karonga
10°S
Lake
Malawi
CHITIPA
Mwesia
Sabi
North Rukuru
ZAMBIA
10°30'S
N
0
10
20
Km
RUMPHI
33°30'E
34°E

Kasungu

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated "others".

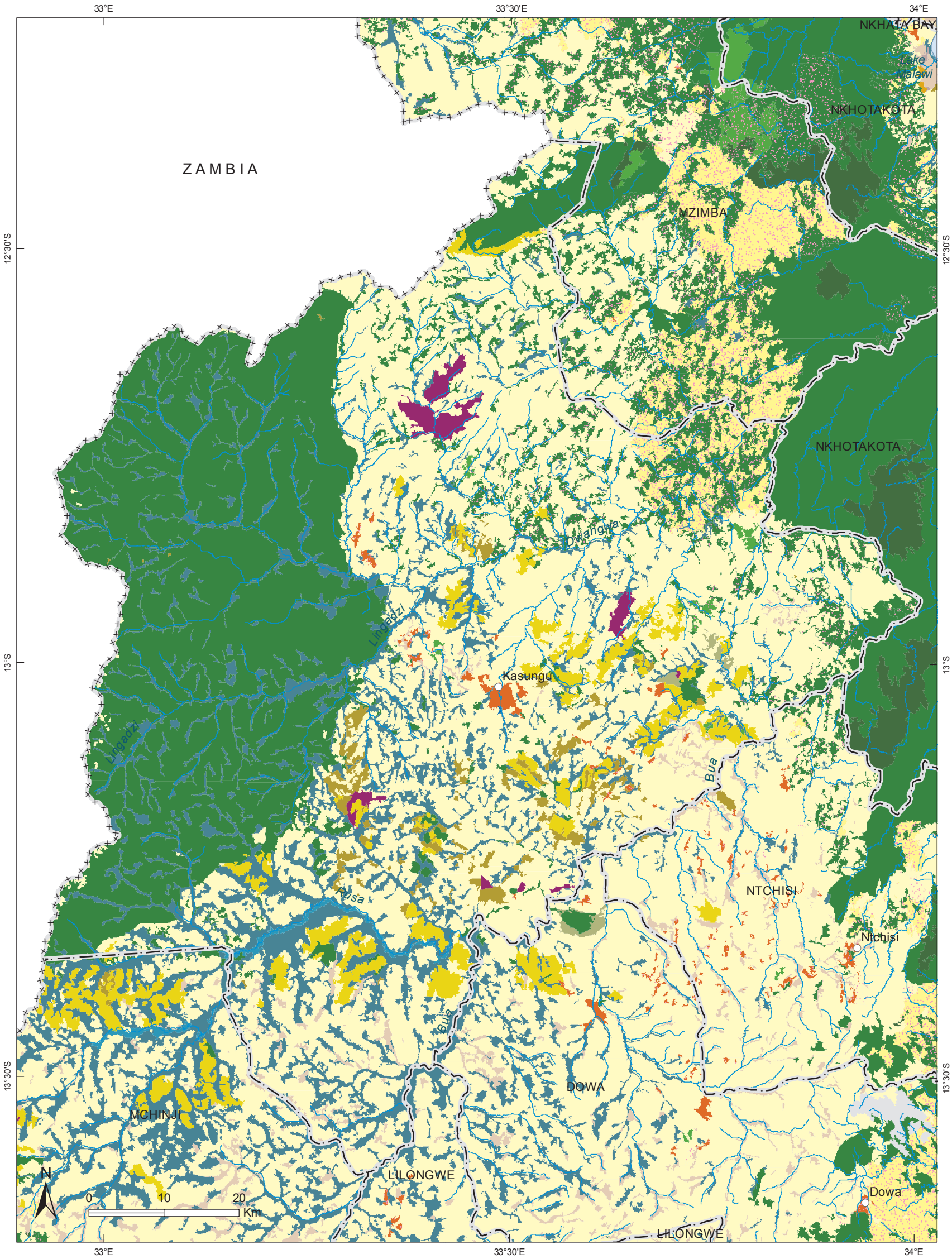
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chilo-wama-tambe	Chi-sikwa	Chulu	Kalulu-ma	Kaomba	Kape-lula	Kasungu Game Reserve	Kawam-ba	Lukwa	M'n-yanja	Mwase	Njombwa	Santhe	Simlem-ba	Wimbe	TOTAL	%
	AGFL	1,387.9	0	0	0	87.7	545.1	0	0	126.0	0	778.2	0	3,458.6	0	45.5	6,428.9	0.8
	AGHL	3,068.4	11.2	784.9	1,426.7	1,999.5	0	0	3,159.3	426.4	225.9	1,355.9	705.9	6,848.8	0	8,922.6	28,935.5	3.6
	AGHS	20,615.2	3,660.9	40,240.2	24,050.1	23,173.6	21,278.9	6,207.8	26,892.5	18,652.1	19,864.2	9,822.8	18,760.2	37,738.9	20,547.7	56,687.1	348,192.2	43.2
	AGOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	1,442.3	0.3	0	0	0	3.6	765.5	3,084.2	0	432.9	0	0	1,163.4	6,892.1	0.9
	AGTR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ARIC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HBCL	169.3	0	0	0	0	0	0	0	0	323.4	188.5	0	0	0	1,223.9	1,905.1	0.2
	HBCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	988.2	988.2	0.1
	HBFP	0	0	0	0	0	0	0	369.9	0	0	0	0	1,580.3	0	0	1,950.3	0.2
	HBFT	3,912.5	0	4,651.4	2,290.6	3,864.6	153.0	25,743.5	19,792.3	8,865.8	1,282.1	4,679.3	3,540.3	23,272.1	341.2	7,061.0	109,449.5	13.6
	SRCO	2,033.5	0	804.0	0	925.3	14.7	82.8	2,112.0	3,022.2	0	0	2,690.5	71.6	0	625.7	12,382.2	1.5
	TREC	0	0	0	0	0	62.1	0	0	0	0	0	0	0	0	0	62.1	0
	TREO	256.9	10,150.3	4,353.0	6,304.3	838.3	11,701.6	208,111.8	12,172.4	3,928.4	4,522.7	146.4	518.7	1,069.1	9,842.3	11,806.5	285,722.7	35.4
	URBA	507.7	0	472.8	0	1,532.2	0	0	0	90.6	0	426.9	30.3	0	0	327.6	3,388.1	0.4
	WANP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WANT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32.3	32.3	0
	WATA	0	0	0	0	36.6	0	0	0	0	0	0	0	0	0	24.3	60.9	0
	WATP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mixed classes															GRAND TOTAL	806,390.1	

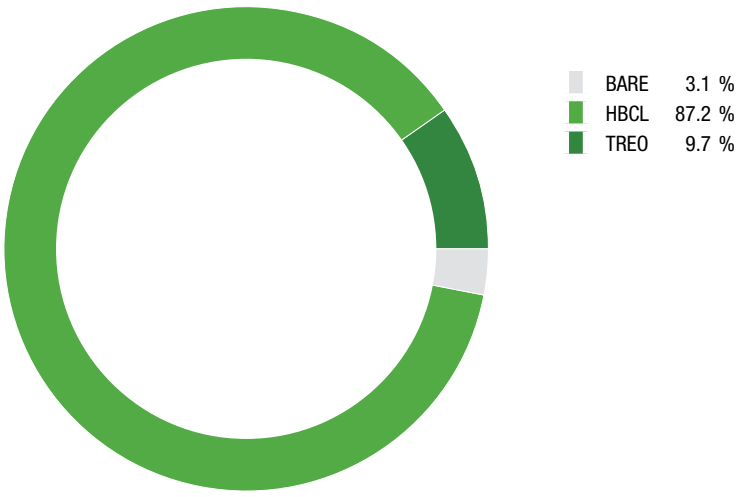

33°E
33°30'E
34°E
12°30'S
13°S
13°30'S
ZAMBIA
NKHATA BAY
Lake Malawi
NKHOTAKOTA
MZIMBA
NKHOTAKOTA
Dwangwa
Lingadzi
Lingadzi
Kasungu
Bua
Rusa
NTCHISI
Ntchisi
Bua
DOWA
MCHINJI
LILONGWE
Dowa
LILONGWE
N
0
10
20
Km

Likoma

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

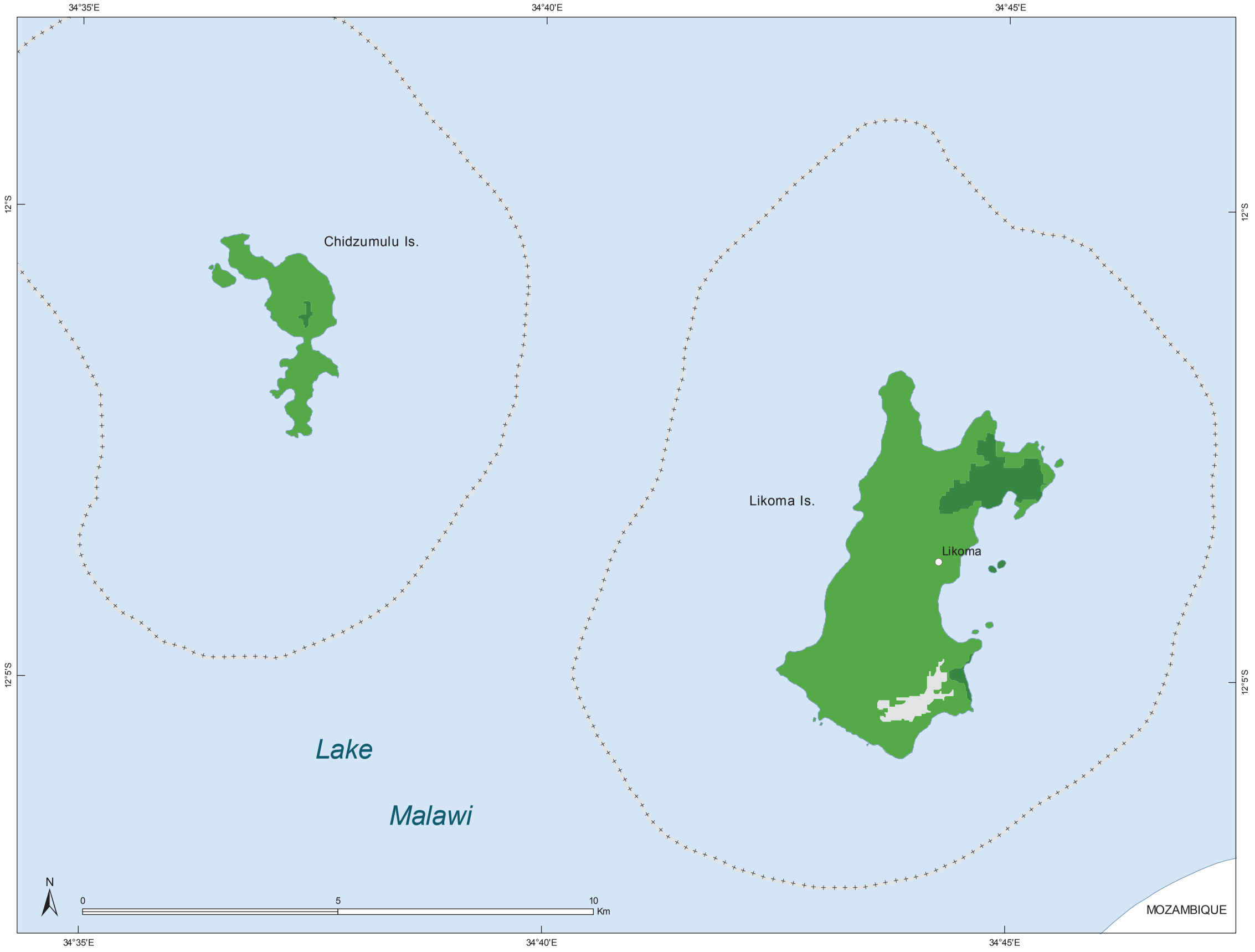
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND	Likoma Island	Likoma Island 10	Likoma Island 2	Likoma Island 3	Likoma Island 4	Likoma Island 5	Likoma Island 6	Likoma Island 7	Likoma Island 8	Likoma Island 9	TOTAL	%
AGFL	0	0	0	0	0	0	0	0	0	0	0	0
AGHL	0	0	0	0	0	0	0	0	0	0	0	0
AGHS	0	0	0	0	0	0	0	0	0	0	0	0
AGOR	0	0	0	0	0	0	0	0	0	0	0	0
AGSR	0	0	0	0	0	0	0	0	0	0	0	0
AGTP	0	0	0	0	0	0	0	0	0	0	0	0
AGTR	0	0	0	0	0	0	0	0	0	0	0	0
ARIC	0	0	0	0	0	0	0	0	0	0	0	0
ASUG	0	0	0	0	0	0	0	0	0	0	0	0
ATEA	0	0	0	0	0	0	0	0	0	0	0	0
BARE	54.0	0	0	0	0	0	0	0	0	0	54.0	3.1
HBCL	1,510.8	0.1	0.2	0.4	0.9	1.5	0	0	2.1	0.4	1,516.4	87.2
HBCO	0	0	0	0	0	0	0	0	0	0	0	0
HBFP	0	0	0	0	0	0	0	0	0	0	0	0
HBFT	0	0	0	0	0	0	0	0	0	0	0	0
SRCO	0	0	0	0	0	0	0	0	0	0	0	0
TREC	0	0	0	0	0	0	0	0	0	0	0	0
TREO	165.0	0	0	0	0	0	1.6	2.0	0	0	168.6	9.7
URBA	0	0	0	0	0	0	0	0	0	0	0	0
WANP	0	0	0	0	0	0	0	0	0	0	0	0
WANT	0	0	0	0	0	0	0	0	0	0	0	0
WATA	0	0	0	0	0	0	0	0	0	0	0	0
WATP	0	0	0	0	0	0	0	0	0	0	0	0
Mixed classes											GRAND TOTAL	1,738.9

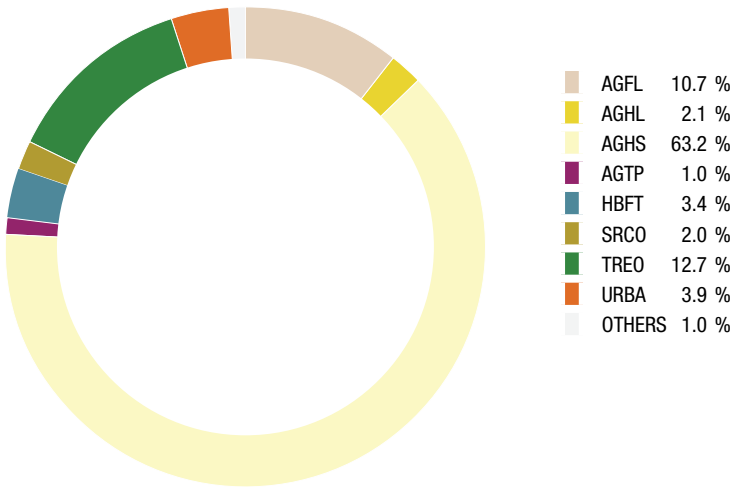

34°35'E
34°40'E
34°45'E
12°S
12°5'S
Chidzumulu Is.
Likoma Is.
Likoma
Lake
Malawi
MOZAMBIQUE
N
0
5
10
Km

Lilongwe

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated "others".

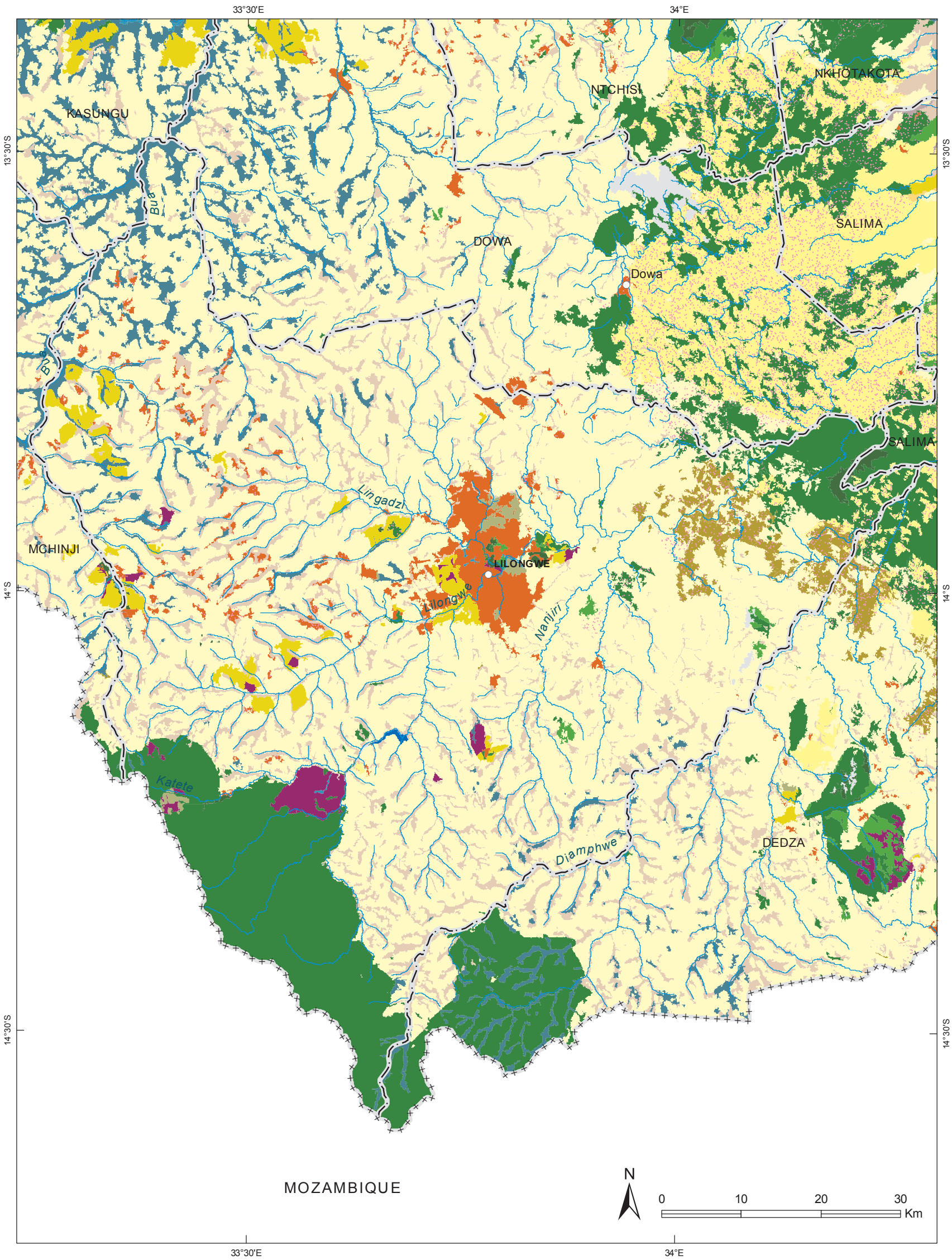
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND	Chadza	Chimutu	Chiseka	Chitukula	Kabudula	Kalolo	Kalumba	Kalumbu	Khongoni	Lilongwe City	Malili	Mazengera	Mtema	Njewa	Tsabango	TOTAL	%
AGFL	5,321.3	1,197.6	19,474.1	1,506.1	10,294.2	9,339.1	543.2	2,927.4	2,874.4	2,129.1	5,059.8	1,409.3	2,611.4	974.5	354.7	66,016.3	10.7
AGHL	372.1	0	1,031.7	0	481.5	2,230.5	76.9	0	3,695.0	2,714.8	976.5	0	0	1,135.0	0	12,714.1	2.1
AGHS	29,852.9	33,528.3	69,306.0	9,801.4	39,905.6	39,881.7	4,634.5	13,692.0	34,113.7	16,250.1	25,316.2	44,276.9	15,607.1	7,685.4	6,131.3	389,983.2	63.2
AGOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AGSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AGTP	449.6	1.9	4,526.5	0	0	545.3	0	0	0	308.4	122.5	0	0	0	82.1	6,036.5	1.0
AGTR	0	0	0	0	0	0	24.4	5.9	0	159.6	0	22.9	0	0	0	212.8	0
ARIC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BARE	0	0	0	0	0	0	0	0	0	0	0	442.0	0	0	0	442.0	0.1
HBCL	661.1	0	0	0	0	0	0	0	0	241.6	0	468.3	0	0	0	1,371.0	0.2
HBCO	0	0	503.4	0	0	0	0	0	0	1,558.3	38.2	0	0	0	0	2,099.9	0.3
HBFP	0	0	68.5	0	1.5	0	0	0	0	259.0	0	0	0	26.8	0	355.7	0.1
HBFT	867.5	2.4	1,169.3	258.1	3,303.7	2,312.2	0	364.0	11,157.8	40.7	790.2	0	381.6	245.6	0	20,892.9	3.4
SRCO	0	2,703.8	0	0	0	0	1.4	0	0	0	16.2	9,506.4	0	0	24.8	12,252.7	2.0
TREC	0	0	109.6	0	0	93.3	0	0	0	511.6	4.0	735.2	0	28.8	0	1,482.4	0.2
TREO	111.1	1,918.3	59,319.6	0	4.9	773.2	0	0	27.2	624.3	18.8	15,554.5	0	182.9	5.7	78,540.5	12.7
URBA	220.5	570.9	325.0	0	1,655.7	2,034.4	372.1	0	1,614.2	14,417.8	1,883.2	12.7	30.8	598.5	253.6	23,989.5	3.9
WANP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WANT	0	0	78.0	0	0	0	0	0	0	0	0	0	0	0	0	78.0	0
WATA	0	0	266.7	0	0	0	0	0	0	0	0	0	0	0	0	266.7	0
WATP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed classes																GRAND TOTAL	616,734.0

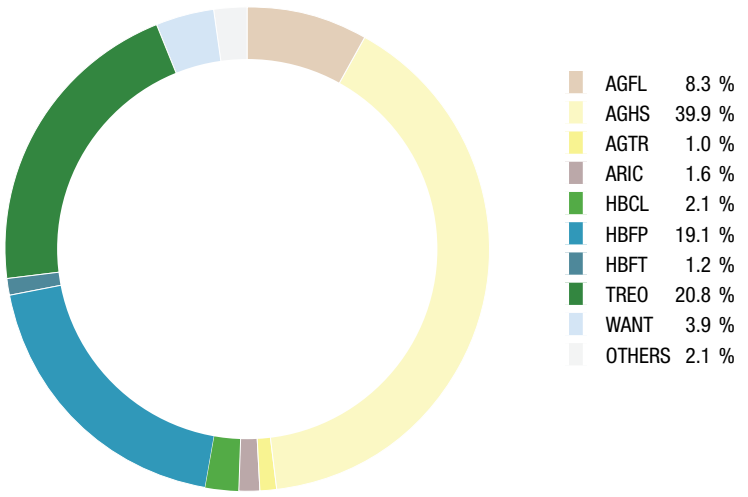

33°30'E
34°E
13°30'S
14°S
14°30'S
KASUNGU
NTCHISI
NKHOTAKOTA
SALIMA
DOWA
Dowa
Bua
Bua
Lingadzi
MCHINJI
LILONGWE
Lilongwe
Namiiri
Katete
Diamphwe
DEDZA
MOZAMBIQUE
N
0
10
20
30
Km

Machinga

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

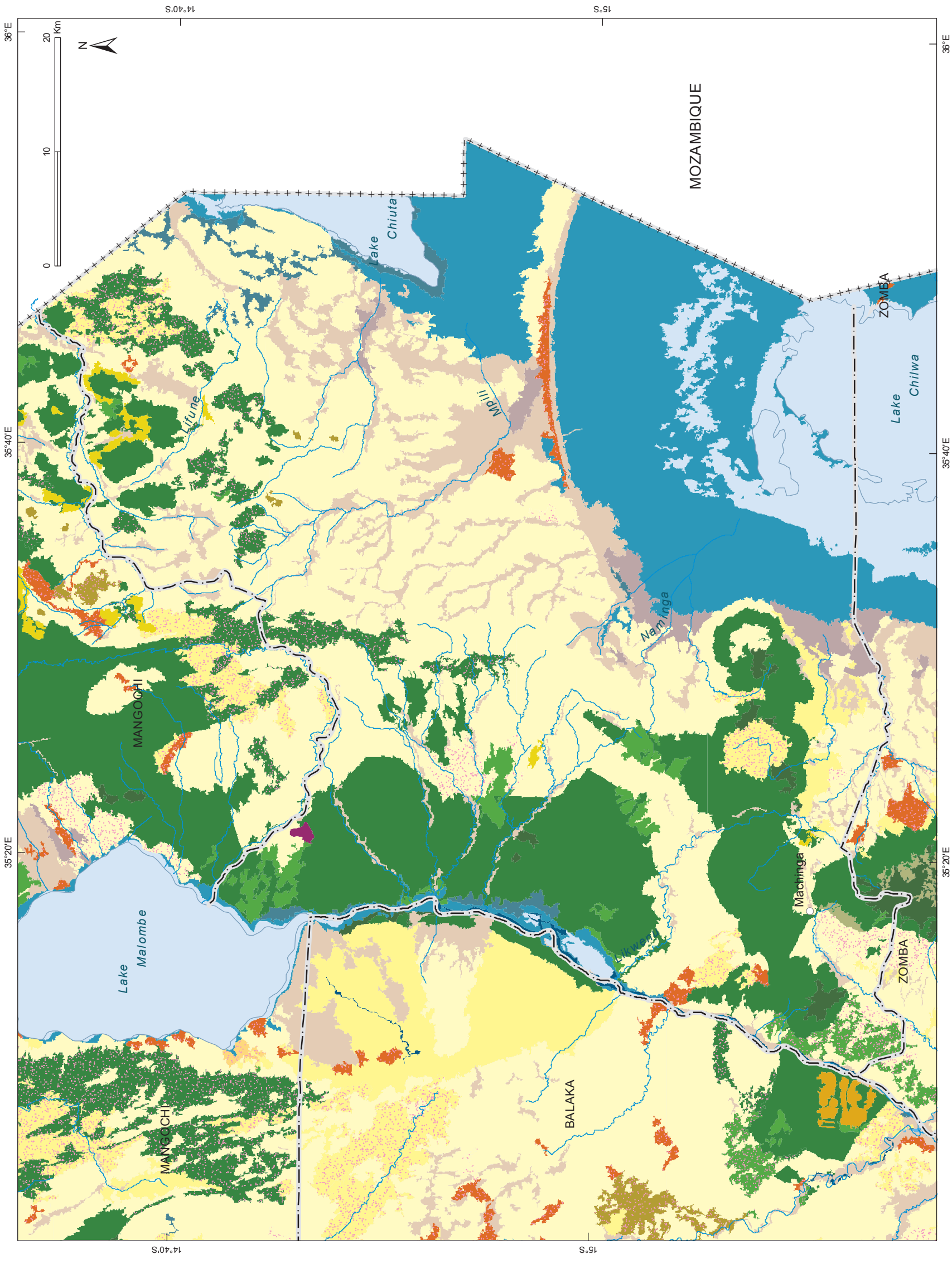
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chamba	Chikwewo	Kawinga	Liwonde	Mlomba	Mposa	N/A 3	Ngokwe	Nyambi	Sitola	TOTAL	%
	AGFL	788.0	7,046.7	13,031.9	1,903.8	2,961.7	948.7	0	756.0	3,015.8	1,196.4	31,649.0	8.3
	AGHL	0	0	0	148.6	0	0	0	0	1,187.2	69.2	1,405.0	0.4
	AGHS	5,404.3	18,026.7	34,279.3	38,147.1	9,845.7	2,777.4	0	11,295.9	18,271.9	13,318.4	151,366.7	39.9
	AGOR	0	0	0	0	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	0	211.1	0	0	0	0	0	0	211.1	0.1
	AGTR	2,404.0	0	0	0	0	1,280.9	0	0	0	159.5	3,844.5	1.0
	ARIC	0	684.7	829.5	0	2,351.3	2,240	0	0	0	0	6,105.5	1.6
	ASUG	0	0	0	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	0	0	0	0	0	0	0
	HBCL	0	0	0	5,168.8	17.4	0	0	0	270.9	2,446.5	7,903.5	2.1
	HBCO	0	0	0	0	0	0	0	0	0	331.9	331.9	0.1
	HBFP	0	5,543.0	36,167.4	1,965.5	12,275.7	6,508.6	9,251.0	675.5	43.5	0	72,430.2	19.1
	HBFT	0	1,147.5	0	1,132.3	125.7	0	0	2,184.5	0	0	4,590.1	1.2
	SRCO	0	80.9	83.3	0	0	0	0	0	0	0	164.2	0
	TREC	617.5	0	0	192.1	0	334.4	0	0	0	1,042.9	2,186.8	0.6
	TREO	5,488.5	496.6	995.5	41,579.2	32.7	3,895.6	0	527.3	11,261.9	14,429.4	78,706.6	20.8
	URBA	0	0	1,640.4	474.9	0	0	0	0	96.3	169.6	2,381.2	0.6
	WANP	0	0	0	0	0	0	0	0	0	29.7	29.7	0
	WANT	0	88.4	876.4	1,301.9	1,117.1	376.1	10,501.9	476.4	0	2.2	14,740.4	3.9
	WATA	0	0	0	0	0	0	0	0	0	0	0	0
	WATP	0	0	0	998.0	0	0	0	0	0	212.1	1,210	0.3
	Mixed classes										GRAND TOTAL	379,256.4	

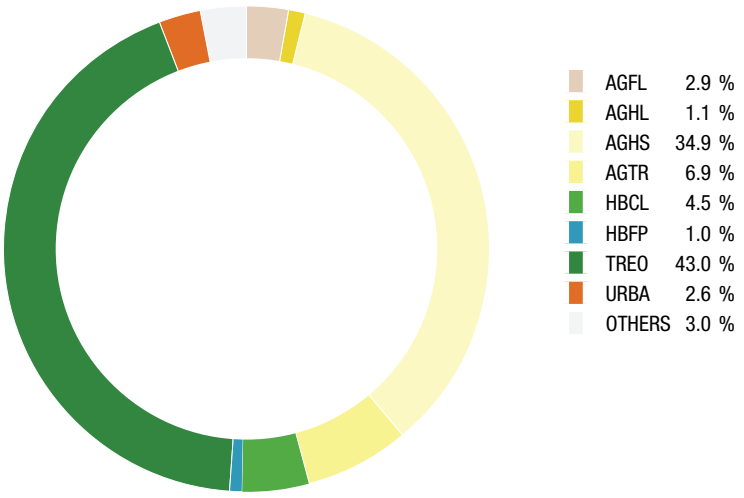

14°40'S
15°S
36°E
35°40'E
35°20'E
N
0
10
20
Km
MOZAMBIQUE
Lake Chiuta
Lifune
Mpili
Namunga
Lake Chilwa
ZOMBA
MANGOCHI
Lake Malombe
Likwenu
Machinga
BALAKA

Mangochi

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

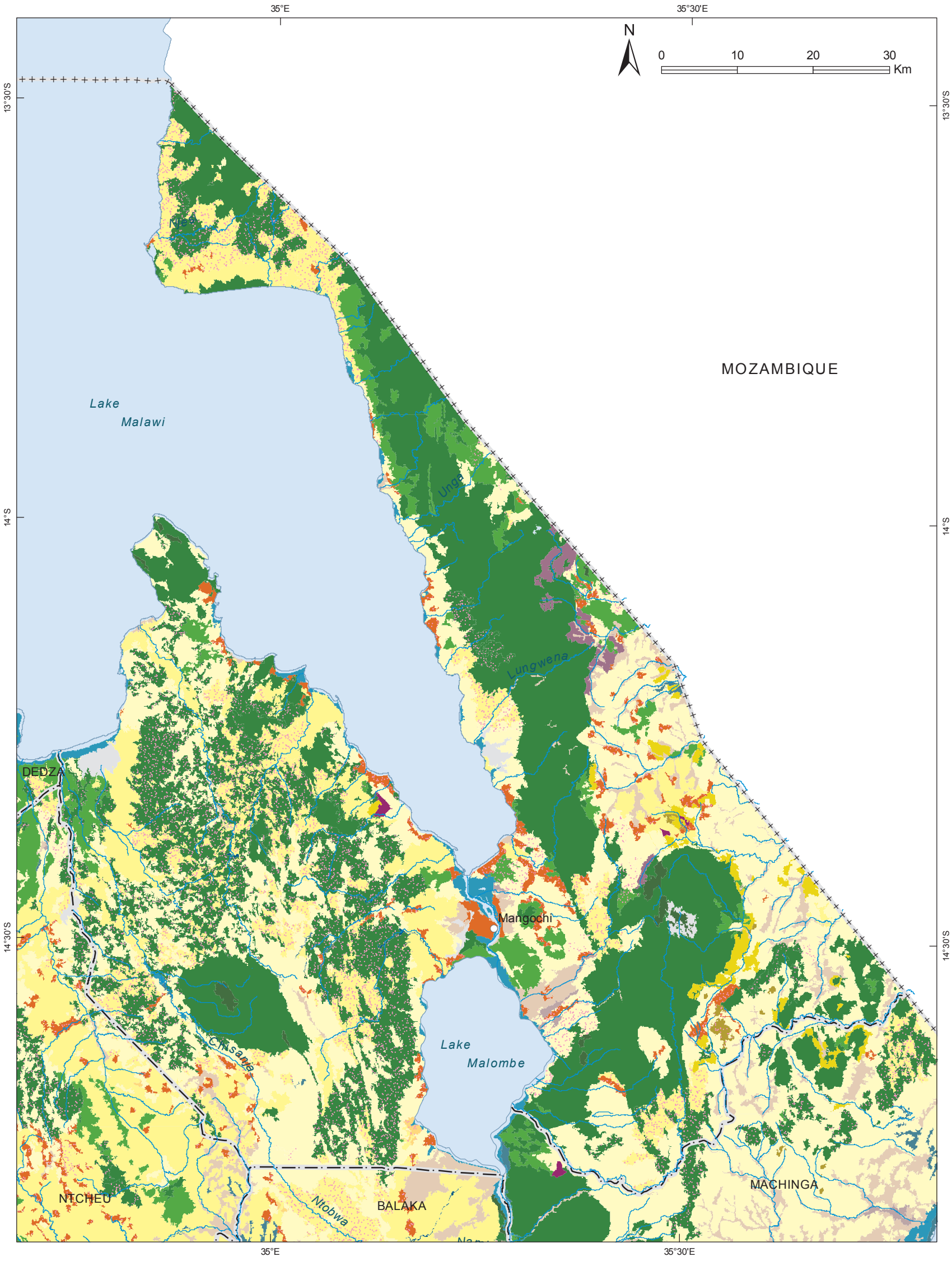
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Bwana Nyambi	Chimwala	Chowe	Jalasi	Katuli	Makanjira	Mponda	Namabvi	Nankumba	TOTAL	%
	AGFL	4,272.2	3,129.3	3,316.3	2,680.3	3,650.2	194.4	832.4	2.9	359.5	18,437.6	2.9
	AGHL	4,120.6	0	0	2,068.5	854.8	0	198.5	0	0	7,242.4	1.1
	AGHS	30,679.4	40,988.9	27,074.4	19,731.5	16,197.6	17,315.0	25,241.9	10,129.8	38,039.6	225,398.2	34.9
	AGOR	0	403.0	0	0	0	0	0	0	0	403.0	0.1
	AGSR	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	0	155.0	0	0	362.7	0	0	517.6	0.1
	AGTR	353.1	8,821.6	0	5,571.7	0	4,522.1	8,796.9	0	16,665.8	44,731.2	6.9
	ARIC	0	0	710	0	0	0	95.9	0	0	805.9	0.1
	ASUG	0	0	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	362.0	3,756.9	0	0	0	0	4,119.0	0.6
	BARE	278.2	0	0	1,623.5	0	0.2	494.4	0	1,864.5	4,260.8	0.7
	HBCL	440.7	20.8	4,166.5	2,125.9	4,439.5	9,609.7	2,259.2	1,005.1	4,929.1	28,996.3	4.5
	HBCO	0	0	0	0	0	0	0	0	0	0	0
	HBFP	61.0	762.1	1,196.6	221.6	0	500.1	2,002.9	257.2	1,542.9	6,544.3	1.0
	HBFT	0	148.4	0	0	319.9	0	207.0	0	0	675.3	0.1
	SRCO	947.5	0	0	174.1	0	0	0	0	0	1,121.6	0.2
	TREC	326.4	636.4	268.2	1,121.9	63.3	0	0	0	322.2	2,738.5	0.4
	TREO	35,800.8	36,008.9	17,726.9	26,203.2	12,712.0	38,769.3	25,560.5	25,437.8	59,399.7	277,619.1	43.0
	URBA	1,202.2	2,021.3	2,370.6	2,497.8	1,819.4	732.4	4,429.8	679.6	1,143.6	16,896.8	2.6
	WANP	0	0	0	0	0	0	0	21.5	0	21.5	0
	WANT	0	549.7	587.0	56.4	46.6	371.3	1,097.6	59.0	1,915.4	4,682.9	0.7
	WATA	0	0	0	0	0	0	0	0	0	0	0
	WATP	0	140.2	0	0	0	0	101.3	0	69.7	311.2	0
	Mixed classes									GRAND TOTAL	645,523.4	

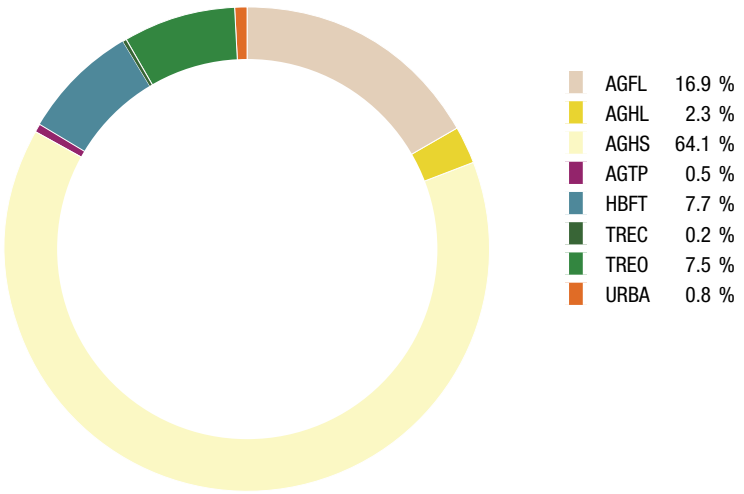

35°E
35°30'E
N
0
10
20
30
Km
13°30'S
14°S
14°30'S
MOZAMBIQUE
Lake
Malawi
Nkhata
Lungwena
Mangochi
Lake
Malombe
Chisanje
DEDZA
NTCHEU
BALAKA
Ntobwa
MACHINGA

Mchinji

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

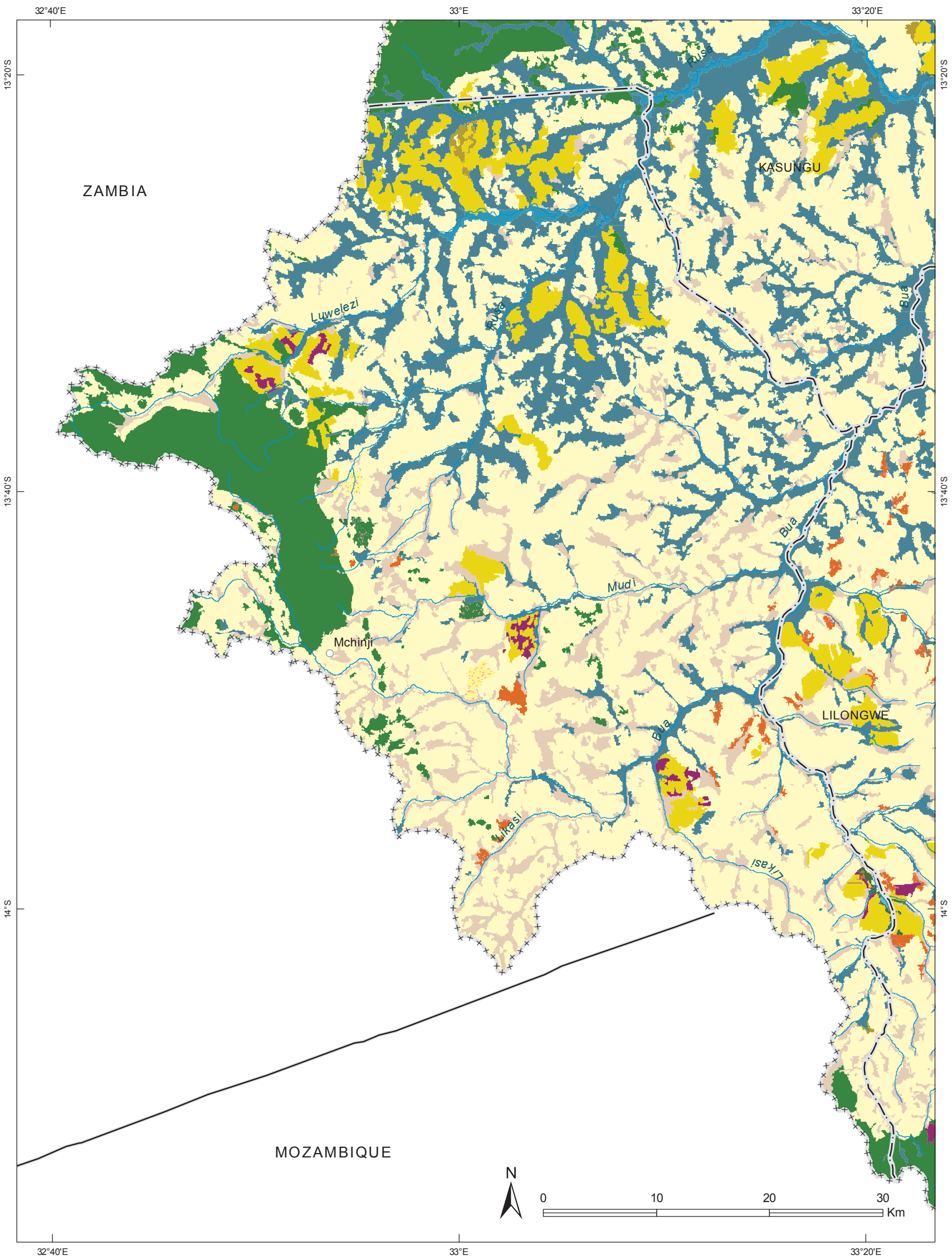
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Mavwere	Mduwa	Mlonyeni	Zulu	TOTAL	%
	AGFL	8,458.0	8,012.4	4,906.8	8,913.6	30,290.8	16.9
	AGHL	2,460.6	1,078.1	0	506.2	4,044.9	2.3
	AGHS	30,860.8	35,386.6	17,961.4	30,491.9	114,700.6	64.1
	AGOR	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0
	AGTP	527.8	0	0	401.6	929.4	0.5
	AGTR	0	0	0	0	0	0
	ARIC	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	0	0	0	0	0	0
	HBCL	0	0	0	0	0	0
	HBCO	0	0	0	0	0	0
	HBFP	0	0	0	0	0	0
	HBFT	2,714.3	7,038.9	488.1	3,597.4	13,838.8	7.7
	SRCO	42.1	0	0	0	42.1	0
	TREC	259.6	42.3	0	0	301.9	0.2
	TREO	1,496.2	6,527.7	2,510.7	2,824.9	13,359.4	7.5
	URBA	586.0	104.0	251.4	425.8	1,367.1	0.8
	WANP	26.3	0	0	0	26.3	0
	WANT	0	0	0	0	0	0
	WATA	0	0	0	0	0	0
	WATP	0	0	0	0	0	0
	Mixed classes				GRAND TOTAL	178,901.36	

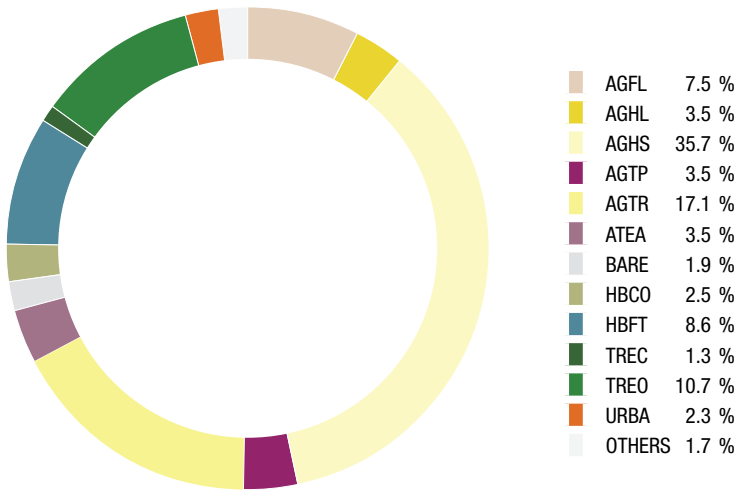

32°40'E
33°E
33°20'E
13°20'S
13°40'S
14°S
ZAMBIA
KASUNGU
LILONGWE
MOZAMBIQUE
Mchinji
Luwelezi
Rusa
Bua
Mud
Likasi
N
0
10
20
30
Km

Mulanje

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

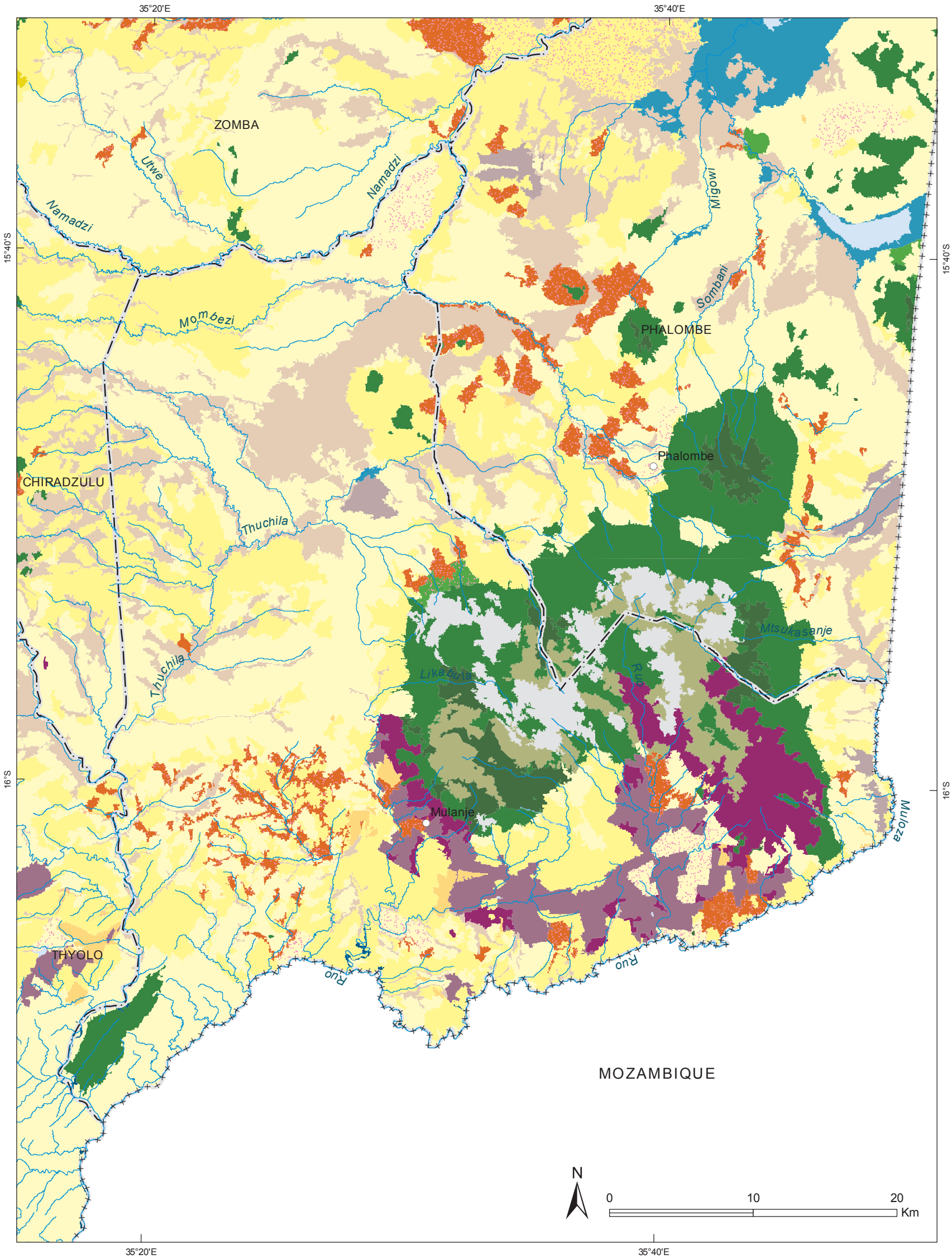
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chicumbu	Juma	Laston Njema	Mabuka	Mkanda	Nthilamanja	TOTAL	%
	AGFL	573.3	6,582.7	217.9	992.2	11,709.2	955.6	21,030.9	7.5
	AGHL	0	0	0	0	9,834.2	0	9,834.2	3.5
	AGHS	6,446.0	15,795.5	5,286.2	12,310	52,995.0	7,436.8	100,269.5	35.7
	AGOR	296.2	0	124.0	675.8	15.9	0.2	1,112.0	0.4
	AGSR	0	0	0	0	0	0	0	0
	AGTP	1.1	0	857.9	8,494.5	543.4	0	9,896.9	3.5
	AGTR	7,097.1	12,258.2	1,850.1	14,280.1	10,028.2	2,506.2	48,019.9	17.1
	ARIC	0	0	501.3	0	690.3	0	1,191.6	0.4
	ASUG	0	0	0	0	0	0	0	0
	ATEA	124.2	0	2,396.8	7,392.3	18.4	0	9,931.7	3.5
	BARE	0	0	0	3,598.1	1,742.8	0	5,340.9	1.9
	HBCL	0	0	0	0	486.2	0	486.2	0.2
	HBCO	0	0	79.5	6,258.3	583.7	0	6,921.5	2.5
	HBFP	0	0	0	0	1,341.0	0	1,341.0	0.5
	HBFT	0	0	0	0	24,228.5	0	24,228.5	8.6
	SRCO	0	0	0	0	436.8	0	436.8	0.2
	TREC	0	0	22.8	3,287.8	425.4	0	3,736.0	1.3
	TREO	0	0	187.8	9,629.0	20,113.8	0	29,930.6	10.7
	URBA	2,620.7	127.3	1,580.6	1,043.7	677.3	513.0	6,562.7	2.3
	WANP	0	0	0	36.1	0	0	36.1	0
	WANT	0	0	0	11.1	0	0	11.1	0
	WATA	0	0	0	0	0	0	0	0
	WATP	0	0	0	284.2	0	0.4	284.6	0.1
	Mixed classes						GRAND TOTAL	280,603	

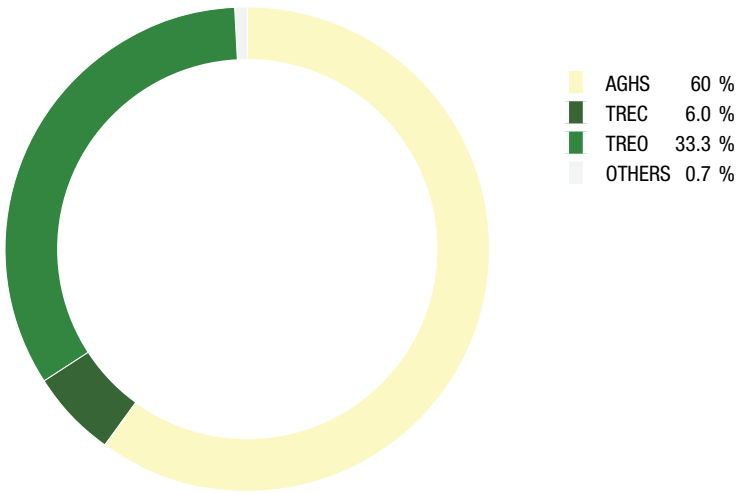

35°20'E
35°40'E
15°40'S
16°S
ZOMBA
Utwe
Namadzi
Namadzi
Migowi
Sombani
Mombezi
PHALOMBE
Phalombe
CHIRADZULU
Thuchila
Thuchila
Mtsukasanje
Likabula
Ruo
Mulanje
Mulozа
THYOLO
Ruo
Ruo
MOZAMBIQUE
N
0
10
20
Km

Mwanza

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

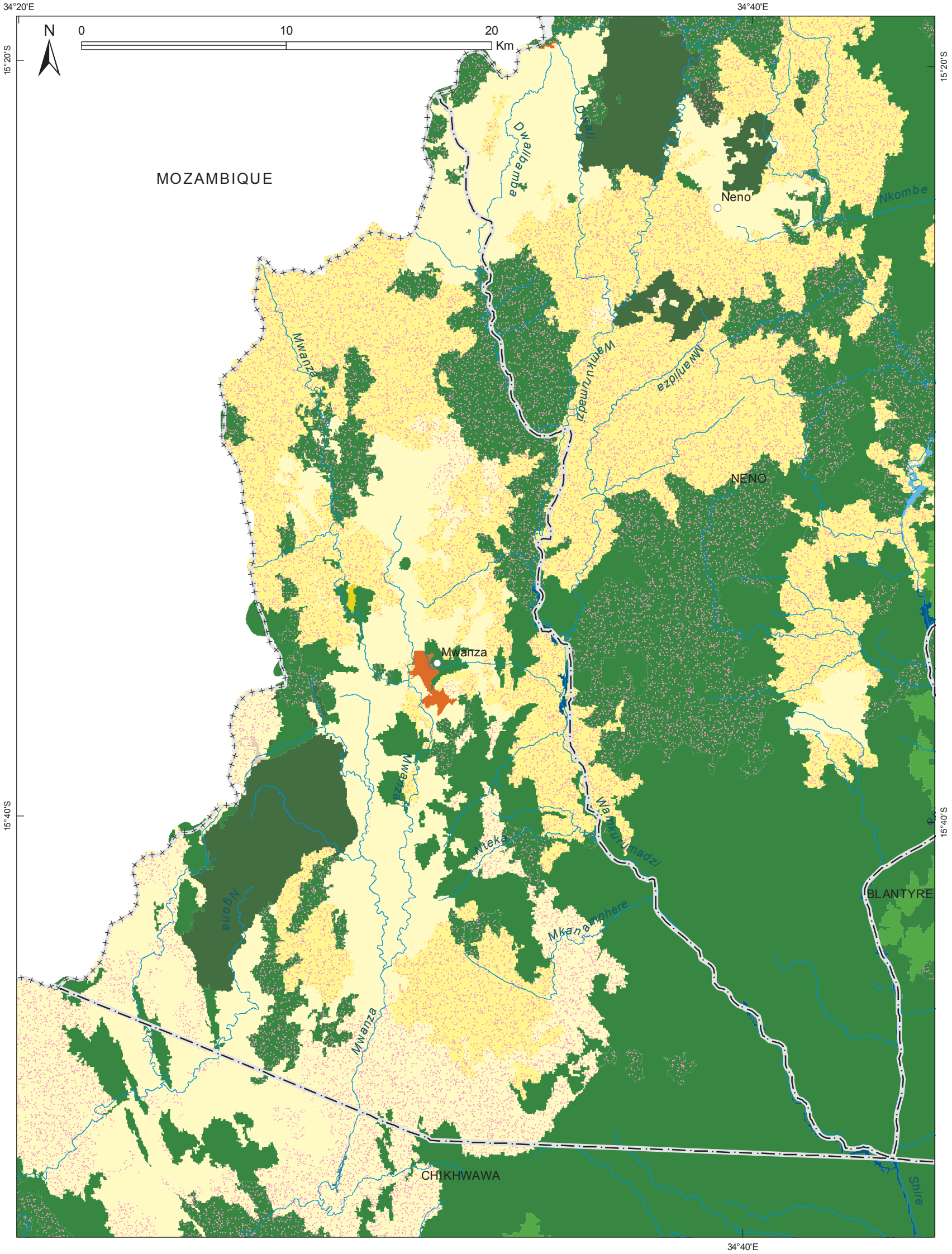
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Kanduku	Nthache	TOTAL	%
	AGFL	41.7	0.1	41.9	0.1
	AGHL	0	43.2	43.2	0.1
	AGHS	31,390.7	18,315.8	49,706.5	60
	AGOR	60.9	0	60.9	0.1
	AGSR	0	0	0	0
	AGTP	0	0	0	0
	AGTR	0	0	0	0
	ARIC	0	0	0	0
	ASUG	0	0	0	0
	ATEA	0	0	0	0
	BARE	0	0	0	0
	HBCL	0	0	0	0
	HBCO	0	5,009.2	5,009.2	6.0
	HBFP	22,218.1	5,368.0	27,586.1	33.3
	HBFT	0	0	0	0
	SRCO	0	0	0	0
	TREC	0	0	0	0
	TREO	248.8	0	248.8	0.3
	URBA	0	0	0	0
	WANP	0	0	0	0
	WANT	179.0	0	179.0	0.2
	WATA	0	0	0	0
	WATP	0	0	0	0
	Mixed classes		**GRAND TOTAL**	**82,875.37**	

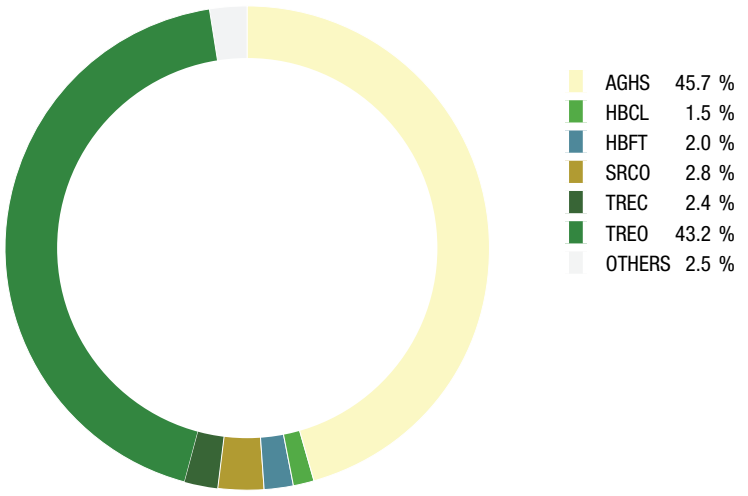

34°20'E
34°40'E
15°20'S
15°40'S
N
0
10
20
Km
MOZAMBIQUE
Dwambwa
Dwambwa
Neno
Nkombe
Mwanza
Wamkurumadzi
Mwanjidza
NENO
Mwanza
Mwanza
Wamkurumadzi
Wteka
Ngona
Mkanamphere
Mwanza
BLANTYRE
CHIKHWAWA
Shire

Mzimba

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

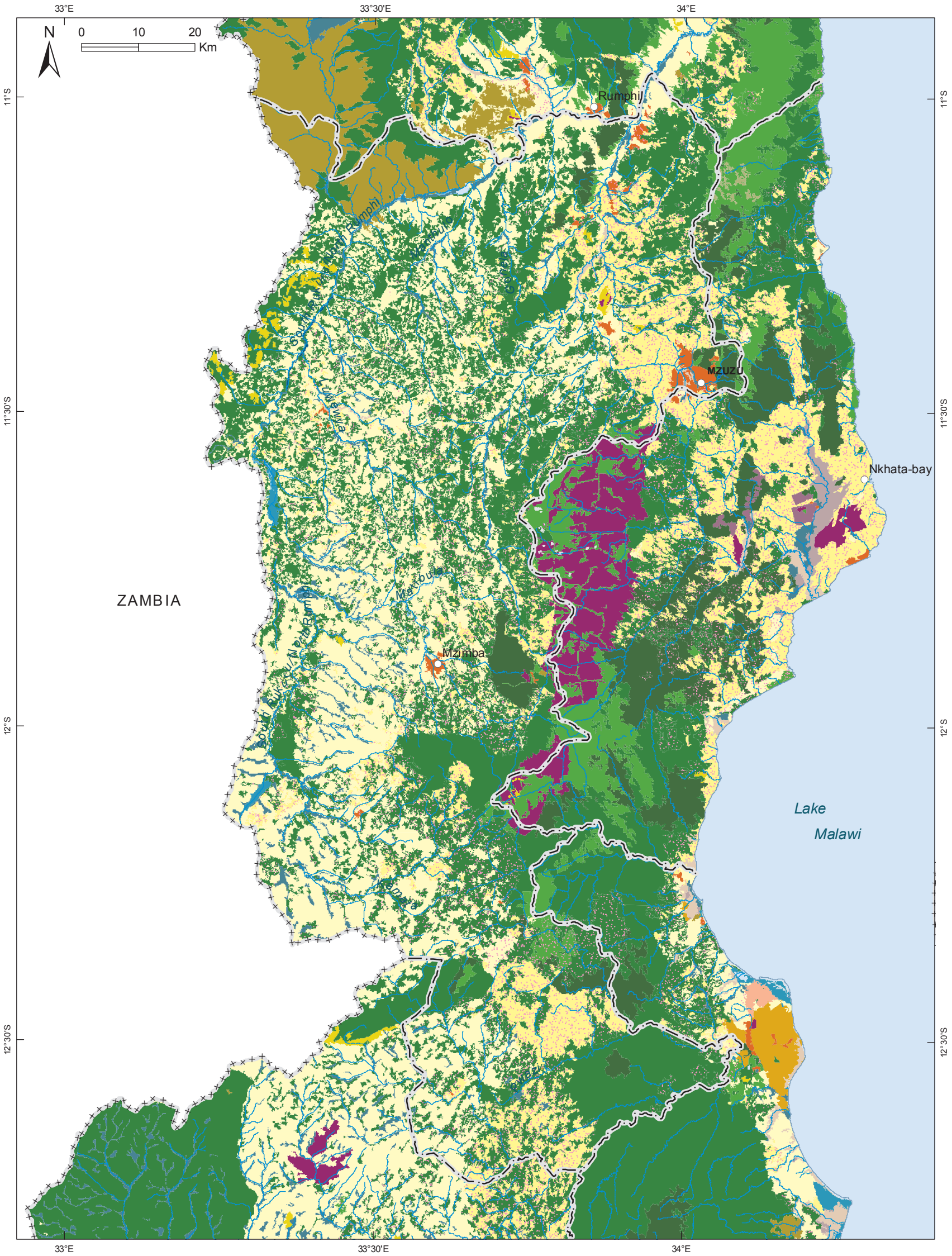
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chindi	Jaravikuwa	Kampingosibande	Mabulabo	M'mbelwa	Mpherembe	Mtwalo	Mzikubola	Mzukuzuku	Mzuzu City	TOTAL	%
	AGFL	480.6	3.2	20.8	19.6	0	309.3	1,005.0	0	0	319.0	2,157.4	0.2
	AGHL	3,103.9	0	0	0	159.2	1,665.5	975.4	9.7	0	0	5,913.7	0.6
	AGHS	92,976.3	5,222.8	36,247.3	69,919.1	81,133.7	33,579.1	94,640.8	41,653.0	18,482.2	3,800.3	477,654.5	45.7
	AGOR	0	0	0	0	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	3,153.2	0	0	0	156.0	3,493.7	0	0	6,802.9	0.7
	AGTR	0	0	0	0	0	0	0	0	0	0	0	0
	ARIC	0	0	0	0	0	0	0	0	0	0	0	0
	ASUG	0	0	0	23.9	0	0	0	0	0	0	23.9	0
	ATEA	0	0	0	0	0	0	0	0	0	0	0	0
	BARE	0	0	9.6	0	0	0	0	0	0	0	9.6	0
	HBCL	6.5	661.8	2,537.3	5,356.9	0	0	2,401.8	4,334.7	0	248.4	15,547.4	1.5
	HBCO	0	0	0	0	0	0	42.9	0	0	0	42.9	0
	HBFP	1,539.1	0	0	0	787.2	0	0	0	0	0	2,326.4	0.2
	HBFT	3,989.8	843.0	827.6	937.8	7,158.7	2,555.4	2,628.1	102.9	1,467.0	186.3	20,696.4	2.0
	SRCO	0	0	0	14.1	0	29,134.2	58.4	111.9	0	0	29,318.6	2.8
	TREC	0	0.5	3,383.6	6,647.3	0	0	8,196.0	5,296.1	0	1,089.4	24,612.9	2.4
	TREO	73,162.1	8,364.5	47,619.6	85,355.9	25,804.7	39,329.5	84,934.8	78,765.7	7,192.3	646.8	451,176.0	43.2
	URBA	202.3	774.0	455.4	21.5	590.1	0	1,176.0	350.6	129.4	3,107.9	6,807.2	0.7
	WANP	153.2	87.6	75.4	0	397.2	193.9	65.9	0	0	0	973.3	0.1
	WANT	33.5	0	0	0	0	194.3	20	0	0	0	247.8	0
	WATA	0	0	0	0	0	14.4	77.7	0	0	0	92.1	0
	WATP	498.7	0	0	0	0	5.0	0	0	0	0	503.6	0
	Mixed classes										GRAND TOTAL	1,044,907	

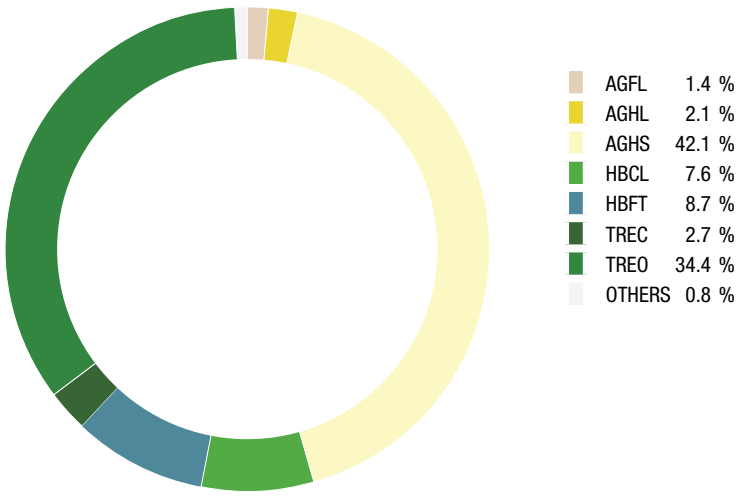

33°E
33°30'E
34°E
N
0
10
20
Km
11°S
11°30'S
12°S
12°30'S
Rumphi
MZUZU
Nkhata-bay
Mzimba
ZAMBIA
Lake
Malawi

Neno

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

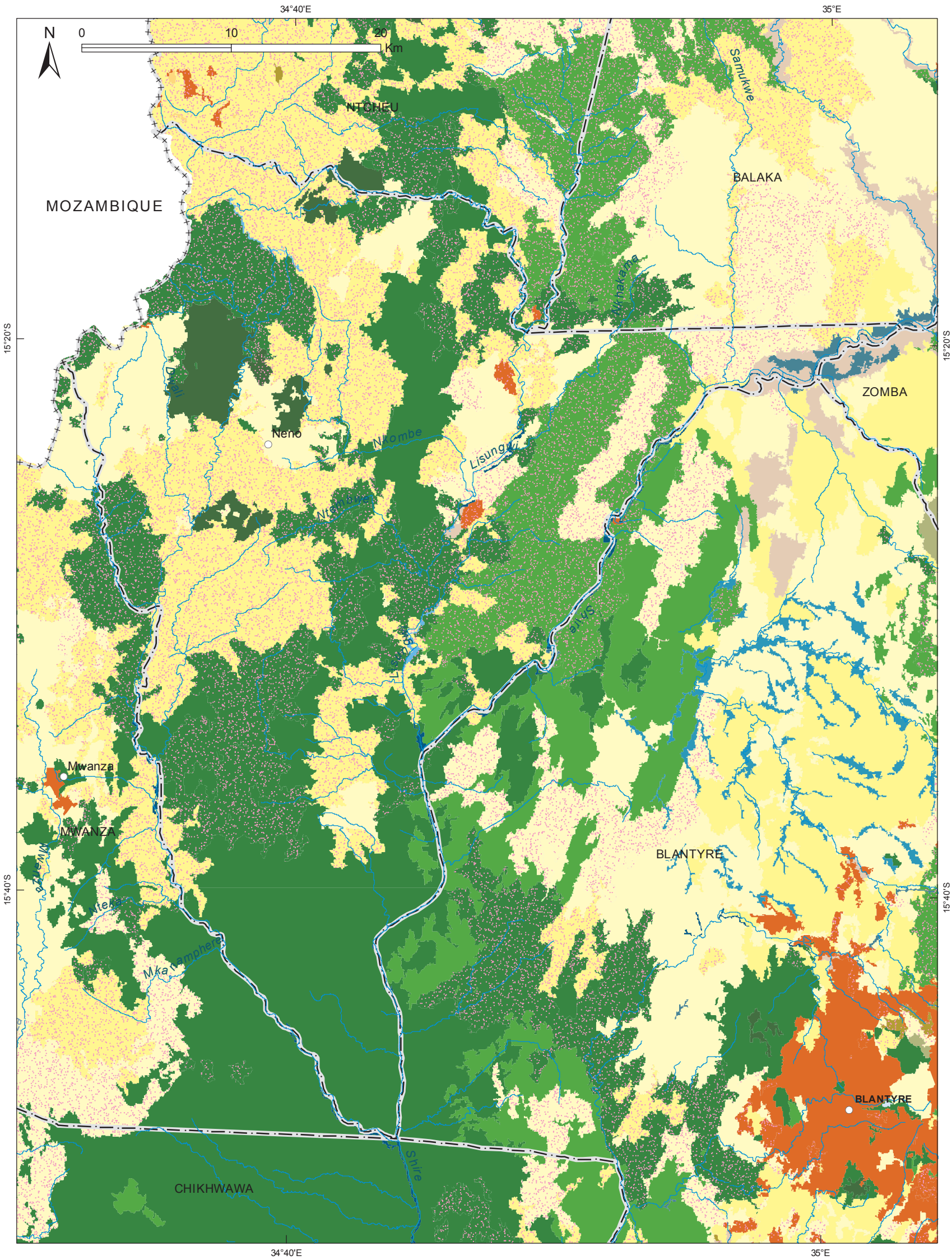
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Dambe	Mauli	Ngozi	Symon	TOTAL	%
	AGFL	1,743.9	0	0	970.5	2,714.3	1.4
	AGHL	4,129.7	0	0	0	4,129.7	2.1
	AGHS	34,742.4	14,360.4	15,503.6	16,335.2	80,941.6	42.1
	AGOR	5.7	0	0	0	5.7	0
	AGSR	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0
	AGTR	0	0	0	388.3	388.3	0.2
	ARIC	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	0	0	0	0	0	0
	HBCL	0	474.8	0	14,161.3	14,636.1	7.6
	HBCO	0	0	0	0	0	0
	HBFP	51.1	0	0	0	51.1	0
	HBFT	16,291.5	3.6	0	481.3	16,776.3	8.7
	SRCO	0	0	0	0	0	0
	TREC	3,780.1	0	1,461.8	0	5,241.9	2.7
	TREO	5,849.5	38,401.4	11,679.2	10,269.5	66,199.5	34.4
	URBA	13.1	0	0	395.8	408.9	0.2
	WANP	37.8	0	42.6	111.1	191.5	0.1
	WANT	0	0	0	0	0	0
	WATA	0	0	0	0	0	0
	WATP	0	162.3	0	343.9	506.3	0.3
	Mixed classes				**GRAND TOTAL**	**192,191.27**	

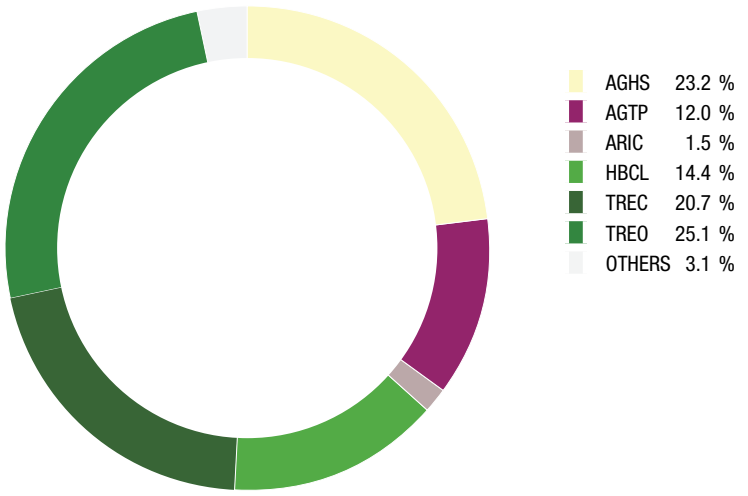

34°40'E
35°E
N
0
10
20
Km
NTCHEU
MOZAMBIQUE
Samukwe
BALAKA
Nkhakana
15°20'S
ZOMBA
Neno
Nkombe
Lisungwi
Ntchaure
Shire
Mwanza
MWANZA
Mkalamphere
BLANTYRE
CHIKHWAWA
15°40'S

Nkhata Bay

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated "others".

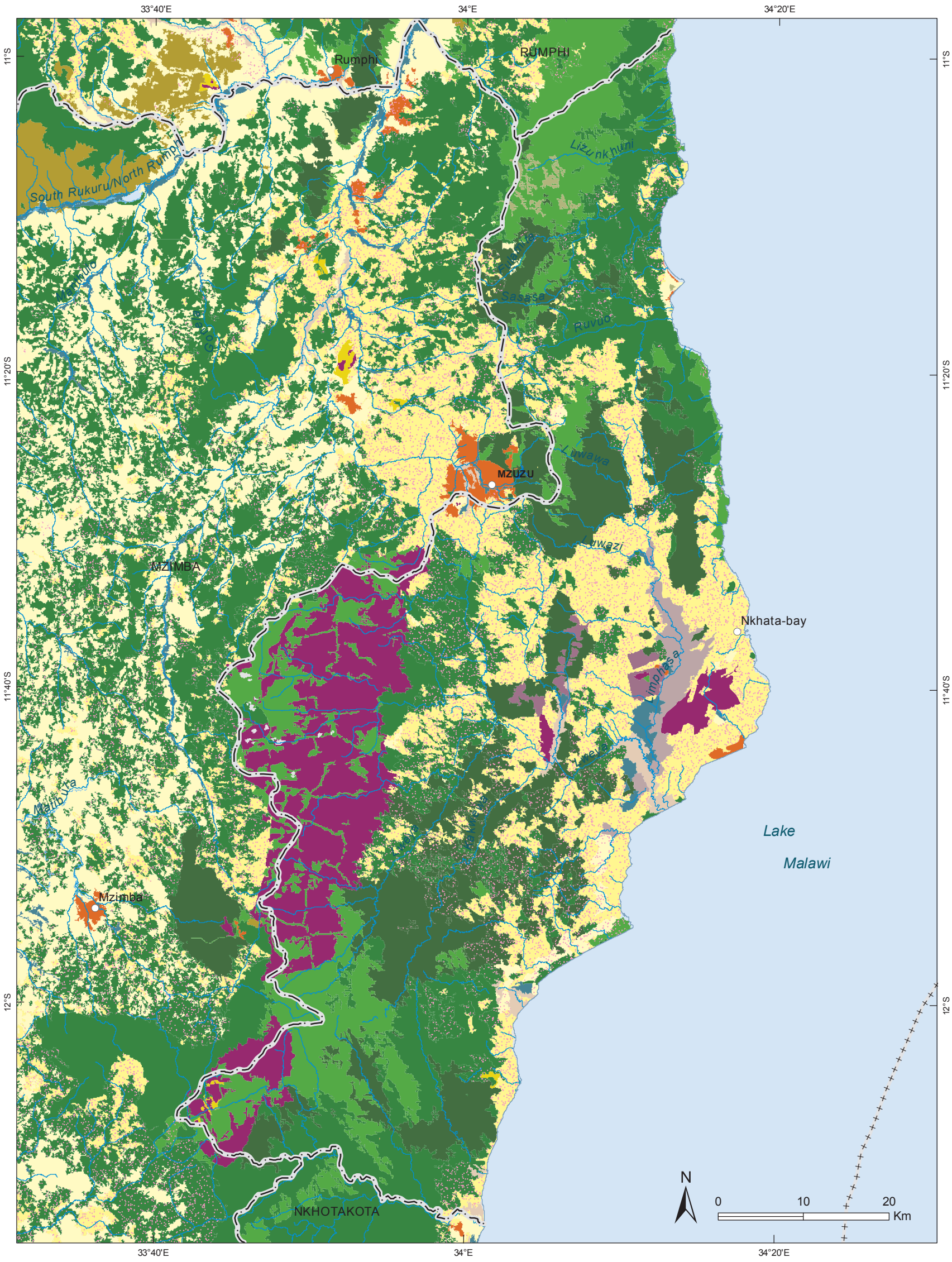
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND	Boghoyo	Fukama-laza	Fukama-piri	Kabun-duli	Malanda	Malen-gamzo-ma	Mankham-bira	Mkondo-we	Mkum-bira	Musisya	N/A 1	N/A 2	Nyalu-wanga	Timbiri	Zilakoma	TOTAL	%
AGFL	0	769.0	706.2	935.9	1,176.2	0	0	0	0	0	0	0	0	0	403.7	3,991.1	0.9
AGHL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	399.8	399.8	0.1
AGHS	276.7	4,458.5	8,014.5	30,011.9	9,371.7	2,391.5	4,612.6	153.4	6,204.1	5,257.0	0	0	7,897.1	20,850.4	1,930.8	101,430.2	23.2
AGOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AGSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AGTP	0	291.8	0	43,772.6	0	0	2,986.2	0	111.3	0	0	0	0	97.7	5,074.4	52,334.2	12.0
AGTR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIC	0	936.0	0	0	571.2	0	748.7	0	825.6	0	0	0	0	3,582.3	0	6,663.8	1.5
ASUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATEA	0	0	0	1,564.1	0	0	0	0	0	0	0	0	0	1,720.6	0	3,284.7	0.8
BARE	0	0	47.3	306.7	0	0	0	0	0	0	0	0	0	0	14.1	368.0	0.1
HBCL	38.9	0	368.4	25,155.1	0	560.8	0	3,814.2	20.3	11,338.5	3,101.7	567.9	1,715.0	2,703.3	13,699.4	63,083.3	14.4
HBCO	0	0	0	0	0	0	0	0.1	0	1,311.4	0	0	0	0	0	1,311.5	0.3
HBFP	0	0	21.7	0	0	0	0	0	0	9.8	0	0	0	0	5.7	37.1	0
HBFT	0	504.9	199.8	186.4	599.7	0	137.3	0	0	0	0	0	0	956.5	0	2,584.5	0.6
SRCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.3	2.3	0
TREC	0	83.9	5,637.6	37,281.7	5,391.0	761.4	0	0	408.8	9,018.1	51.2	0	4,413.5	14,922.3	12,749.2	90,718.9	20.7
TREO	1,920.7	647.9	7,547.6	36,498.6	1,531.7	377.4	0	4,642.6	127.8	23,990.8	309.1	1,176.4	7,161.5	3,373.1	20,561.8	109,867.1	25.1
URBA	0	14.9	0	329.6	0	0	393.6	0	0	80.6	0	0	0	45.0	0	863.7	0.2
WANP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WANT	10.1	4.4	49.8	0	32.3	59.3	87.5	32.1	166.8	245.0	0	12.9	0	33.4	22.0	755.5	0.2
WATA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WATP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed classes															GRAND TOTAL	437,695.6	

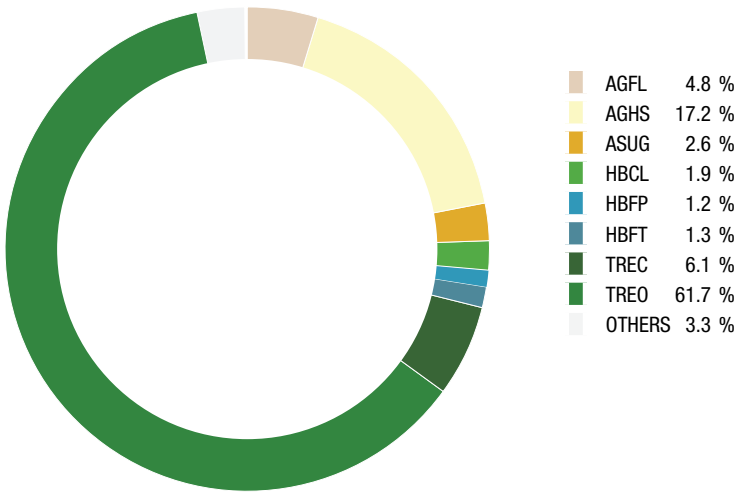

33°40'E
34°E
34°20'E
11°S
11°20'S
11°40'S
12°S
Rumphi
RUMPHI
South Rukuru/North Rumphi
Lizunkhuni
Ruvuvu
Lwawa
Lwazi
MZUZU
MZIMBA
Nkhata-bay
Mzimba
NKHOTAKOTA
Lake
Malawi
N
0
10
20
Km

Nkhotakota

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

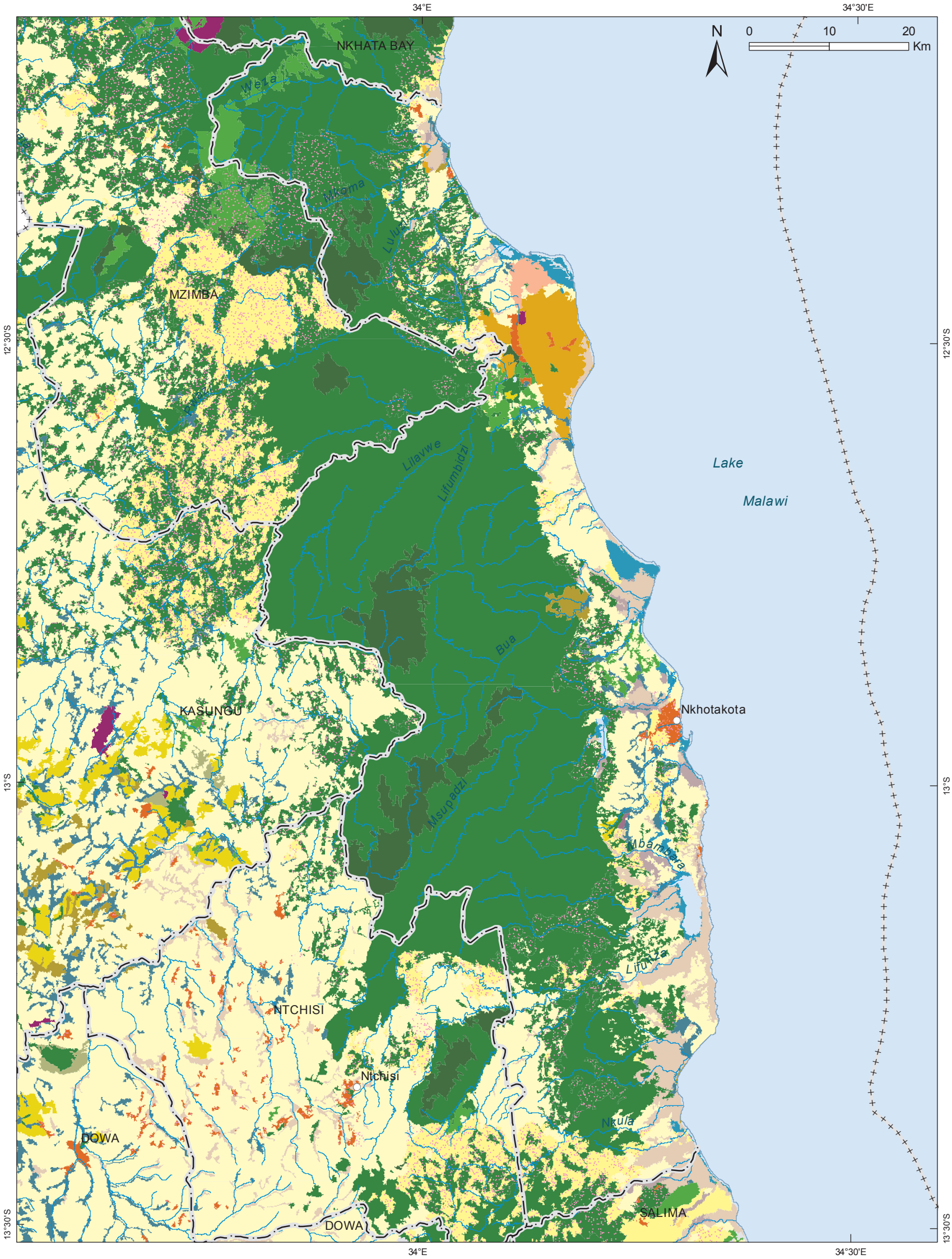
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Kafuliza	Kanyenda	Malengachanzi	Mphonde	Mwansambo	Mwazama	TOTAL	%
	AGFL	948.1	3,114.4	2,594.1	1,832.0	144.4	12,345.9	20,978.9	4.8
	AGHL	0	103.3	249.7	0	0	0	353.0	0.1
	AGHS	4,178.8	21,064.7	15,085.5	5,579.3	10,940.9	17,544.2	74,393.3	17.2
	AGOR	0	0	0	0	0	0	0	0
	AGSR	0	1,914.8	0	0	0	0	1,914.8	0.4
	AGTP	91.7	1,203.0	90.5	126.0	0	69.8	1,581.0	0.4
	AGTR	0	134.2	0	0	0	0	134.2	0
	ARIC	0	301.9	303.5	23.3	0	0	628.7	0.1
	ASUG	208.1	80.3	2,203.2	433.4	0	103.0	3,028.0	0.7
	ATEA	236.7	10,837.2	0	0	0	0	11,073.8	2.6
	BARE	0	0	116.1	0	0	0	116.1	0
	HBCL	4.3	321.1	0	0	0	16.5	341.9	0.1
	HBCO	4,351.3	2,593.5	0	1,291.7	0	0	8,236.5	1.9
	HBFP	0	0	0	0	0	0	0	0
	HBFT	86.2	2,896.1	1,066.9	591.2	0	664.9	5,305.2	1.2
	SRCO	222.8	1,276.2	2,108.0	873.0	0	965.9	5,445.9	1.3
	TREC	5,603.5	9,136.6	11,350.1	0	169.0	1.6	26,260.7	6.1
	TREO	40,780.2	101,332.0	77,989.8	5,279.4	12,331.6	29,869.6	267,582.6	61.7
	URBA	212.4	810.8	1,339.3	0	0	0	2,362.4	0.5
	WANP	0	0	0	0	0	0	0	0
	WANT	94.3	908.2	773.0	209.2	0	1,646.4	3,631.1	0.8
	WATA	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	0	0	0
	Mixed classes						**GRAND TOTAL**	**433,368**	

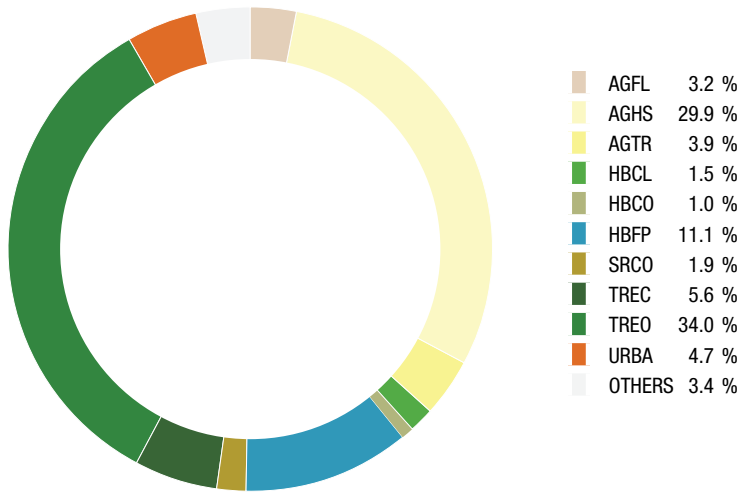

34°E
34°30'E
N
0
10
20
Km
NKHATA BAY
MZIMBA
KASUNGU
NTCHISI
DOWA
SALIMA
Nkhotakota
Ntchisi
Lake
Malawi
Mela
Mkoma
Lulu
Lilavwe
Lifumbidzi
Bua
Msupadzi
Mbambara
Liwonga
Nkula
12°30'S
13°S
13°30'S

Nsanje

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

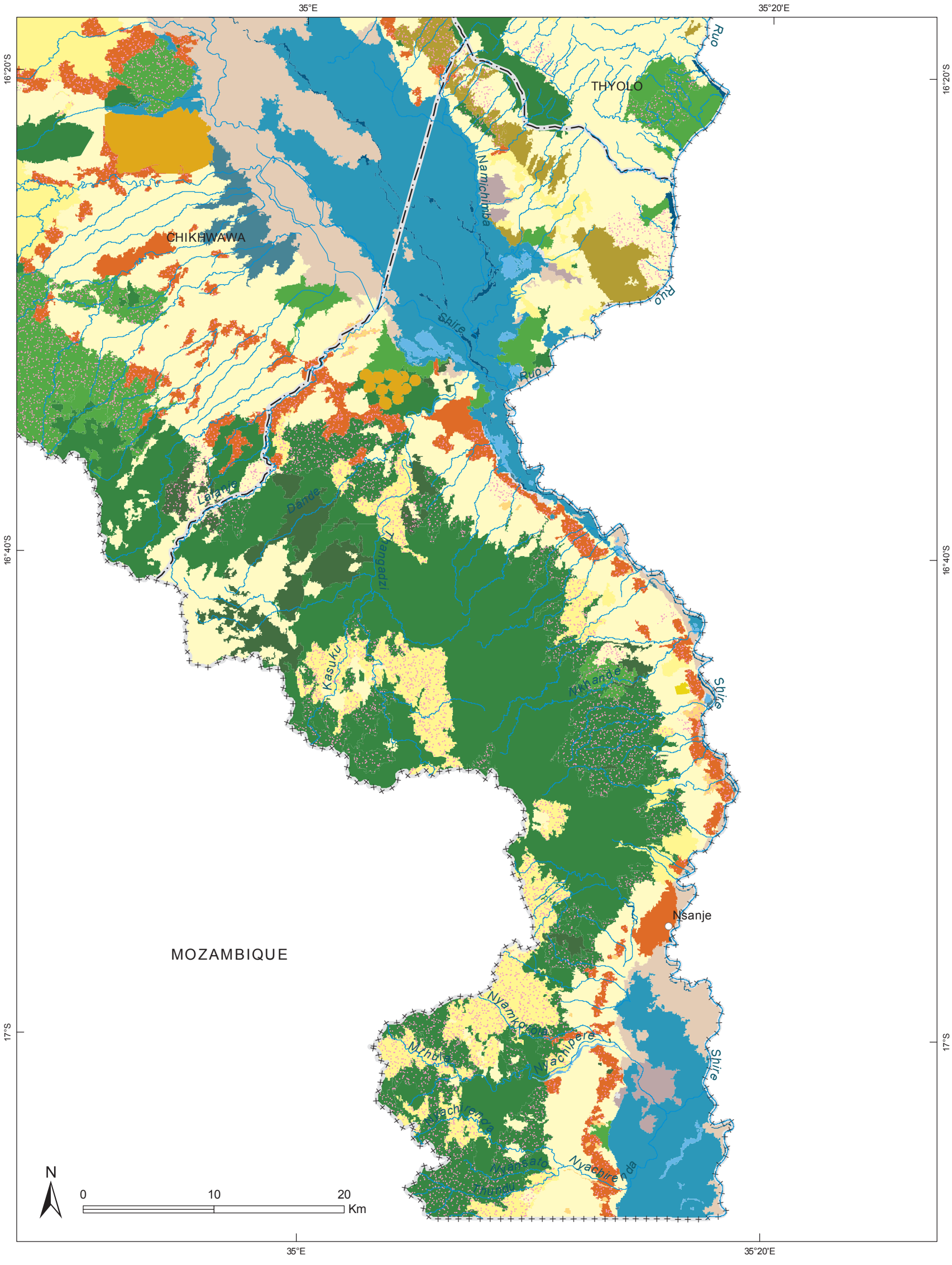
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chimombo	Makoko	Malemia	Mbenje	Molo	Ndamera	Nyachikadza	Tengani	TOTAL	%
	AGFL	297.3	1,066.5	2,344.4	575.4	492.1	0	1,245.8	1,125.7	7,147.3	3.2
	AGHL	0	0	26.0	0	0	0	0	76.7	102.6	0
	AGHS	1,975.1	6,992.9	10,096.6	10,411.4	12,072.0	5,797.0	0	19,737.8	67,082.9	29.9
	AGOR	0	17.5	23.0	261.9	22.9	128.9	0	358.4	812.6	0.4
	AGSR	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	1,130	0	0	0	0	0	1,130	0.5
	AGTR	0	0	6,580.2	0	1,659.7	0	0	589.2	8,829.0	3.9
	ARIC	169.5	0	0	0	681.9	106.9	775.5	0	1,733.8	0.8
	ASUG	0	0	0	788.3	0	0	0	0	788.3	0.4
	ATEA	0	0	0	0	0	0	0	0	0	0
	BARE	7.1	0	0	118.6	46.4	6.9	0	12.9	191.9	0.1
	HBCL	0	0	122.2	949.5	1,339.7	165.7	0	805.8	3,382.9	1.5
	HBCO	0	0	2,319.4	0	0	0	0	0	2,319.4	1.0
	HBFP	315.3	493.1	159.9	3,145.5	11,791.7	2,848.4	5,930.8	202.0	24,886.7	11.1
	HBFT	0	0	0	23.7	2.1	3.4	0	42.5	71.7	0
	SRCO	0	0	0	0	4,216.3	0	0	0	4,216.3	1.9
	TREC	23.1	0	6,129.4	643.4	0	0	0	5,720.6	12,516.4	5.6
	TREO	1,315.9	4,417.4	15,371.4	10,707.6	798.3	6,891.5	0	36,824.8	76,326.8	34.0
	URBA	564.7	398.4	2,854.7	3,781.3	112.5	894.7	0	1,876.9	10,483.1	4.7
	WANP	85.8	4.6	9.2	725.7	431.0	14.0	187.2	99.9	1,557.3	0.7
	WANT	0	0	26.8	0	0	0	0	0	26.8	0
	WATA	0	0	0	0	0	0	0	0	0	0
	WATP	0	14.9	61.7	148.6	641.6	0	35.2	215.6	1,117.5	0.5
	Mixed classes								**GRAND TOTAL**	**224,723.4**	

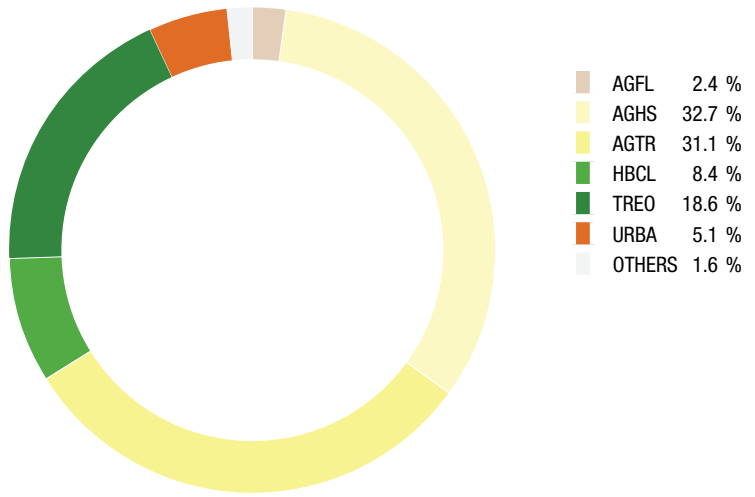

35°E
35°20'E
16°20'S
16°40'S
17°S
THYOLO
CHIKHWAWA
MOZAMBIQUE
Nsanje
Namichimba
Shire
Ruo
Lalanje
Dande
Thangadzi
Kasuku
Nyanade
Nyamkopole
Mthiwa
Nyachipere
Nyachilenda
Nyansafu
Thangadzi
N
0
10
20
Km

Ntcheu

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

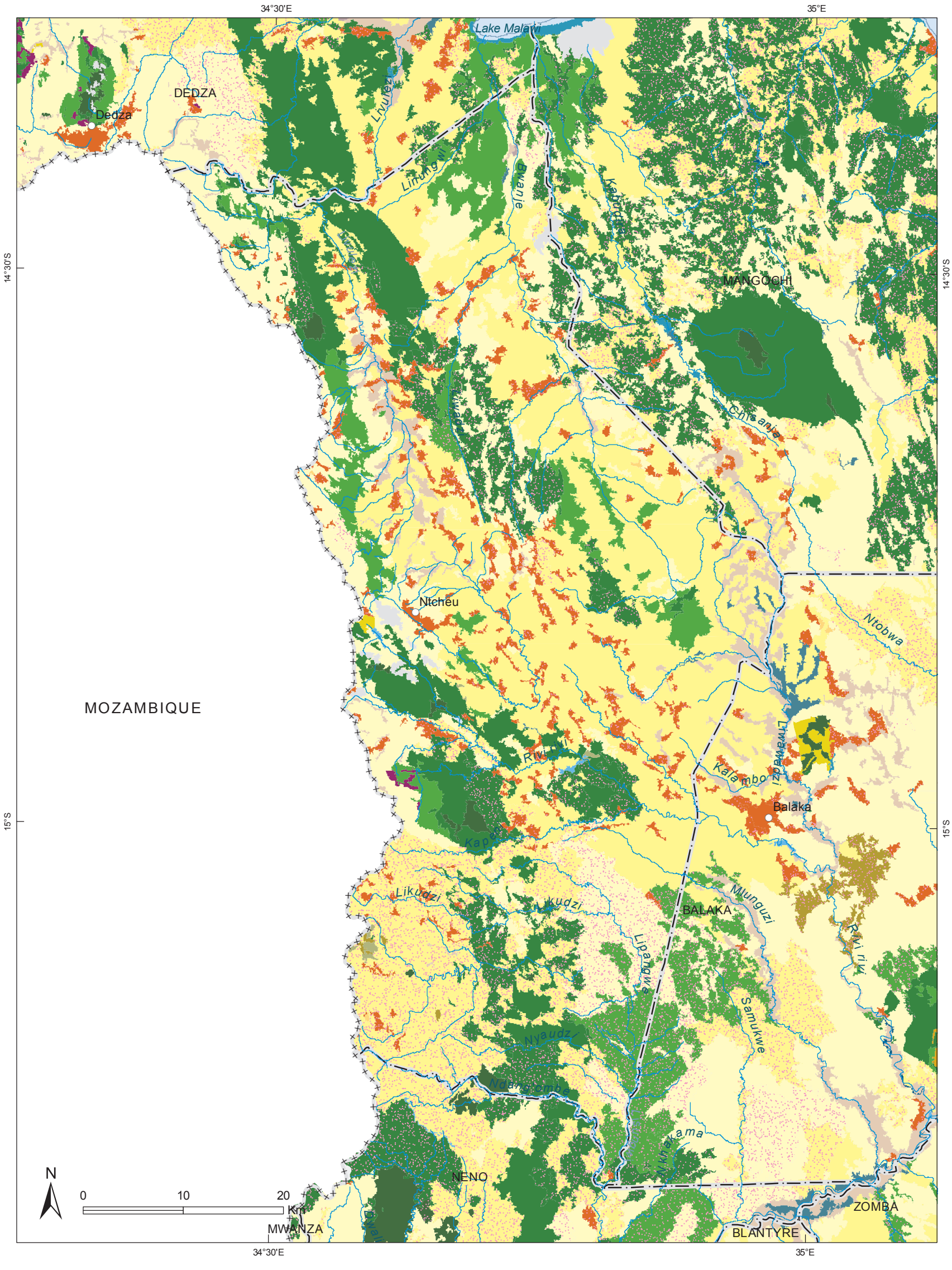
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chakhumbira	Goodson Ganya	Kwataine	Makwangwala	Masasa	Mpando	Njolomole	Phambala	Tsikulamowa	TOTAL	%
	AGFL	150	1,389.8	338.0	3,132.5	150.4	262.1	2,182.5	0	0	7,605.4	2.4
	AGHL	0	0	0.5	0	0	193.5	0	0	0	194.0	0.1
	AGHS	4,227.5	16,976.3	5,014.1	2,051.9	9,265.8	30,094.7	7,921.7	18,093.8	11,389.6	105,035.2	32.7
	AGOR	0	53.3	0	0	0	91.5	17.7	0	0	162.5	0.1
	AGSR	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	0	0	0	273.0	0	0	0	273.0	0.1
	AGTR	1,723.6	27,246.8	14,607.1	35,697.8	4,844.9	189.1	6,883.8	2,990.8	5,766.7	99,950.7	31.1
	ARIC	0	0	0	0	47.5	0	0	0	0	47.5	0
	ASUG	0	0	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0	0	0
	BARE	0	87.5	592.9	0	210.8	507.7	0	0	0	1,398.9	0.4
	HBCL	156.5	3,301.2	1,017.2	2,904.6	6,649.0	1,529.4	4,897.3	0	6,643.9	27,099.1	8.4
	HBCO	0	0	49.1	59.5	0	298.2	0	7.5	0	414.3	0.1
	HBFP	0	0	0	0	0	0	0	0	0	0	0
	HBFT	0	0	20	216.4	44.4	0	0	0	0	280.9	0.1
	SRCO	0	0	0	0	0	221.4	0	0	0	221.4	0.1
	TREC	120.9	0	57.4	0	0	801.2	278.6	684.2	0	1,942.4	0.6
	TREO	3,976.7	17,624.4	3,635.3	3,377.6	3,733.6	6,571.6	1,075.5	18,199.3	1,492.0	59,685.9	18.6
	URBA	542.4	4,508.7	3,333.6	3,133.5	218.7	1,953.7	1,515.4	1,030.9	294.2	16,531.2	5.1
	WANP	0	12.2	16.1	2.2	0	69.3	0	100.8	0	200.7	0.1
	WANT	0	0	10.6	0	0	24.2	0	0	0	34.8	0
	WATA	0	0	0	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	0	0	0	0	0	0
	Mixed classes									GRAND TOTAL	321,077.7	

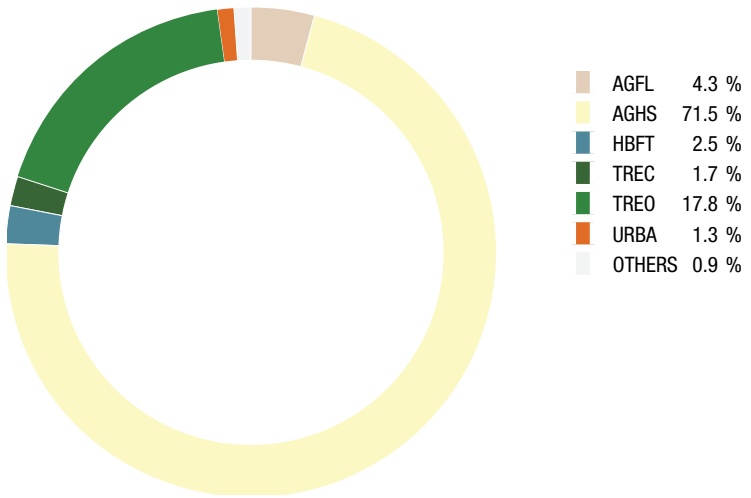

34°30'E
35°E
14°30'S
15°S
Lake Malawi
DEDZA
Dedza
Lhuhezi
Linthipe
Bwanje
Kaombe
MANGOCHI
Chisaniya
Ntcheu
Ntobwa
Linthipe
MOZAMBIQUE
Rivi rivi
Kalambo
Limawanzi
Balaka
Likudzi
Likudzi
BALAKA
Mlunguzi
Rivi rivi
Lipangwe
Samukwe
Nyaudzi
Ndanganzi
Likhakama
N
0
10
20
Km
NENO
ZOMBA
MWANZA
BLANTYRE
34°30'E
35°E

Ntchisi

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

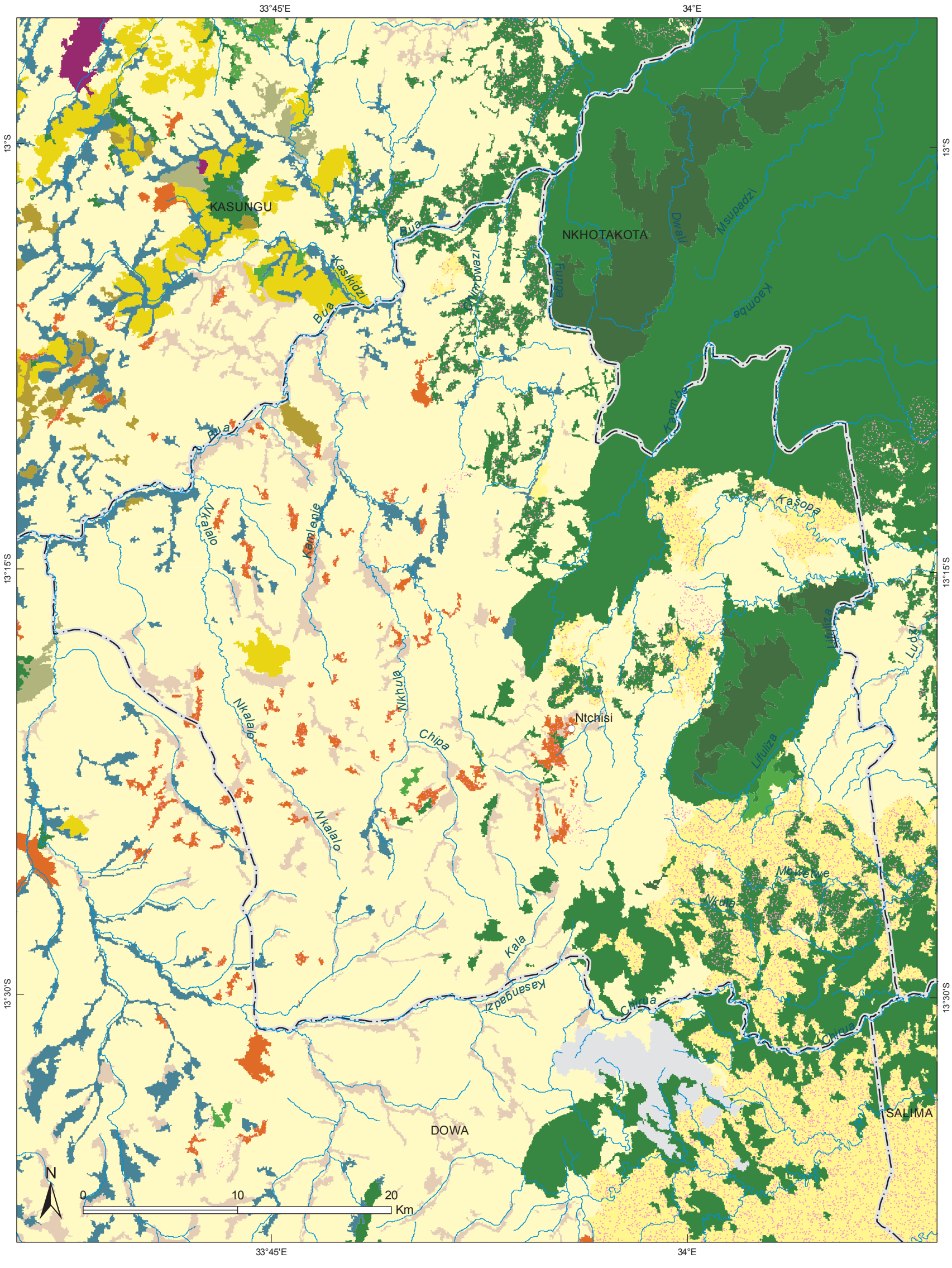
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chikho	Chilooko	Dzoole	Kalumo	Kasakula	N/A 6	Nthondo	TOTAL	%
	AGFL	25.2	2,146.6	2,528.0	3,803.9	43.4	979.0	0	9,526.1	4.3
	AGHL	0	31.7	0	575.8	0	0	0	607.4	0.3
	AGHS	13,464.1	35,739.7	30,260.6	43,936.3	7,125.5	13,538.5	14,666.5	158,731.2	71.5
	AGOR	0	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0	0	0	0
	AGTR	0	154.8	0	0	0	0	0	154.8	0.1
	ARIC	0	0	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	0	0	0	0
	HBCL	0	0	117.4	91.9	552.2	0	0	761.5	0.3
	HBCO	0	0	0	0	0	25.5	0	25.5	0
	HBFP	0	0	0	0	0	0	0	0	0
	HBFT	0	1,568.9	2,778.4	437.5	0	836.6	0	5,621.3	2.5
	SRCO	0	395.9	0	9.5	0	54.0	0	459.4	0.2
	TREC	47.8	98.1	0	0	3,501.3	0	18.9	3,666.1	1.7
	TREO	10,722.1	11,274.7	0	2,012.6	6,343.3	0	9,041.6	39,394.2	17.8
	URBA	0	676.1	242.1	1,718.7	0	300.8	0	2,937.6	1.3
	WANP	0	0	0	0	0	0	0	0	0
	WANT	0	0	0	0	0	0	0	0	0
	WATA	0	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	0	0	0	0
	Mixed classes							GRAND TOTAL	221,885	

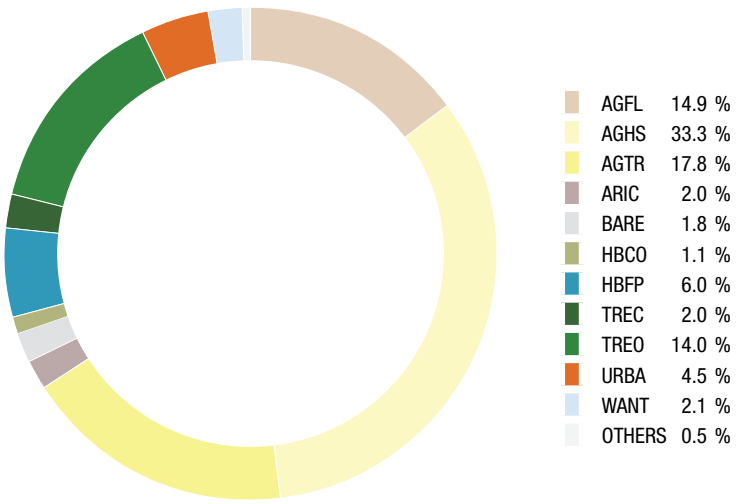

33°45'E
34°E
13°S
13°15'S
13°30'S
KASUNGU
NKHOTAKOTA
DOWA
SALIMA
Ntchisi
Bua
Kasikidzi
Nkhwazi
Dwale
Msupadzi
Fungo
Kaombe
Kasompe
Nkhalalo
Kamlenje
Nkhula
Chipa
Lifuliza
Ludzi
Mbwelwe
Nkuzi
Kala
Kasangadzi
Chiuta
N
0
10
20
Km

Phalombe

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

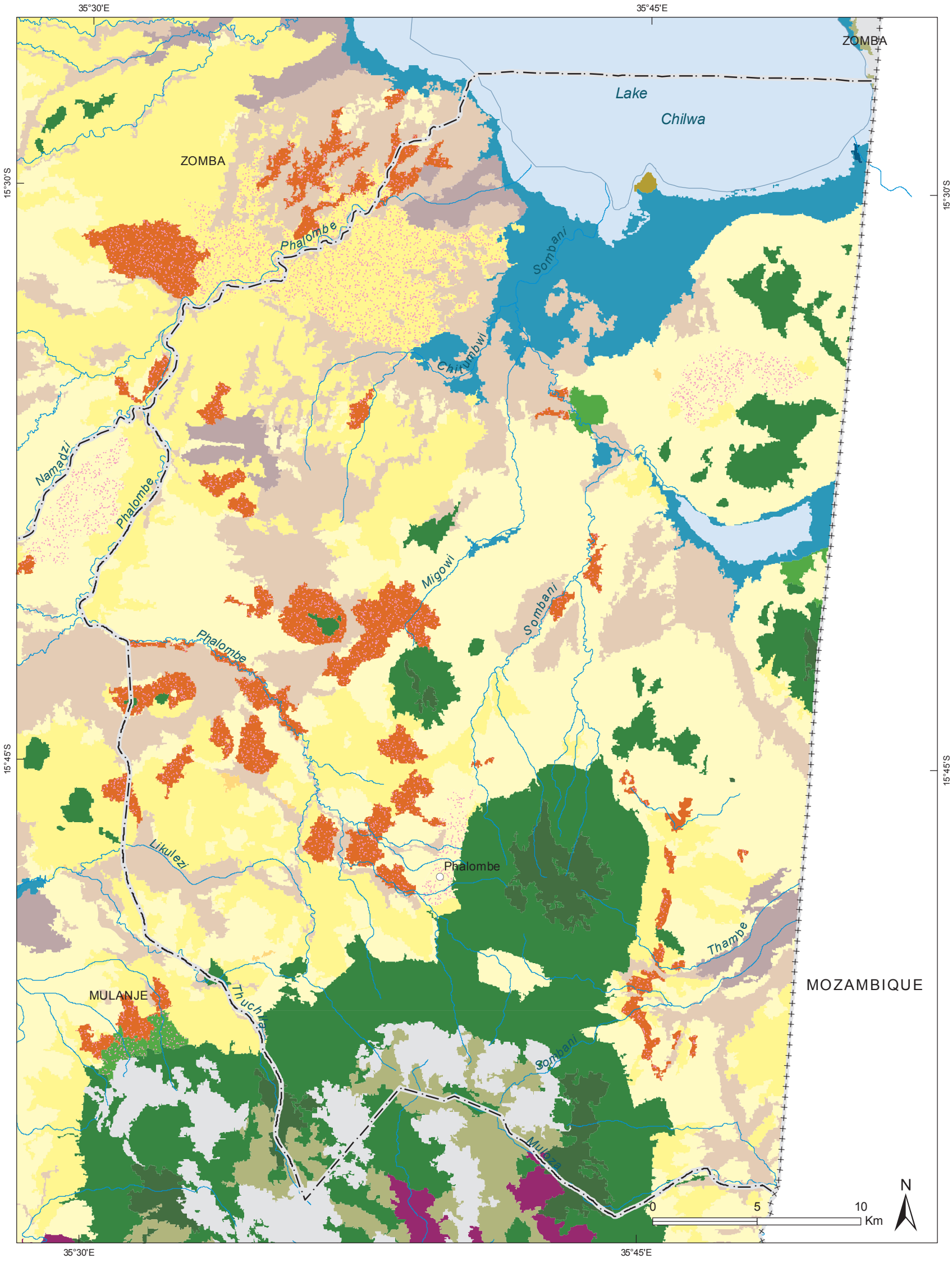
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Mkhumba	Nazombe	TOTAL	%
	AGFL	16,748.6	5,118.6	21,867.1	14.9
	AGHL	0	0	0	0
	AGHS	26,328.3	22,401.3	48,729.6	33.3
	AGOR	91.4	14.5	106.0	0.1
	AGSR	0	0	0	0
	AGTP	0	14.3	14.3	0
	AGTR	21,995.5	4,112.4	26,108.0	17.8
	ARIC	1,793.6	1,130.7	2,924.4	2.0
	ASUG	0	0	0	0
	ATEA	0	0	0	0
	BARE	1,579.4	1,021.3	2,600.7	1.8
	HBCL	51.5	410.8	462.4	0.3
	HBCO	971.8	626.7	1,598.5	1.1
	HBFP	2,436.5	6,364.1	8,800.6	6.0
	HBFT	0	0	0	0
	SRCO	0	71.7	71.7	0
	TREC	1,151.4	1,776.7	2,928.0	2.0
	TREO	10,169.8	10,288.9	20,458.7	14.0
	URBA	5,834.8	744.5	6,579.3	4.5
	WANP	0	0	0	0
	WANT	1,180.9	1,916.2	3,097.1	2.1
	WATA	0	0	0	0
	WATP	0	23.4	23.4	0
	Mixed classes		**GRAND TOTAL**	**146,369.88**	

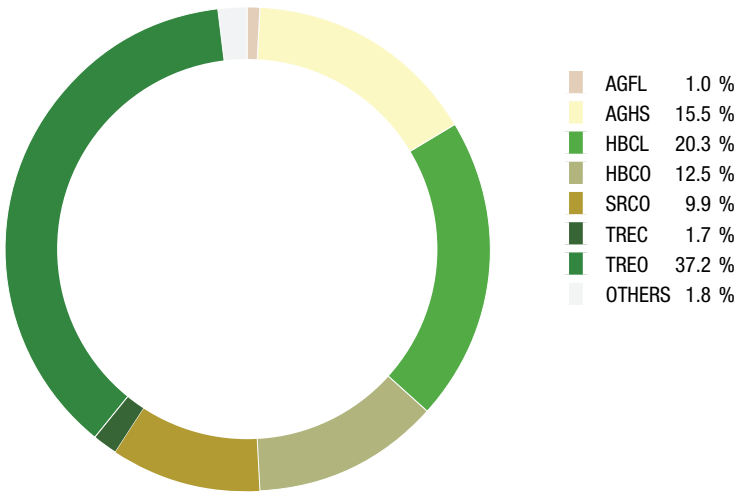

35°30'E
35°45'E
15°30'S
15°45'S
ZOMBA
Lake
Chilwa
Phalombe
Sombani
Chikumbwi
Namadzi
Migowi
Likulezi
Phalombe
Thuchira
Thambe
MULANJE
MOZAMBIQUE
Muloza
0
5
10
Km
N

Rumphi

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

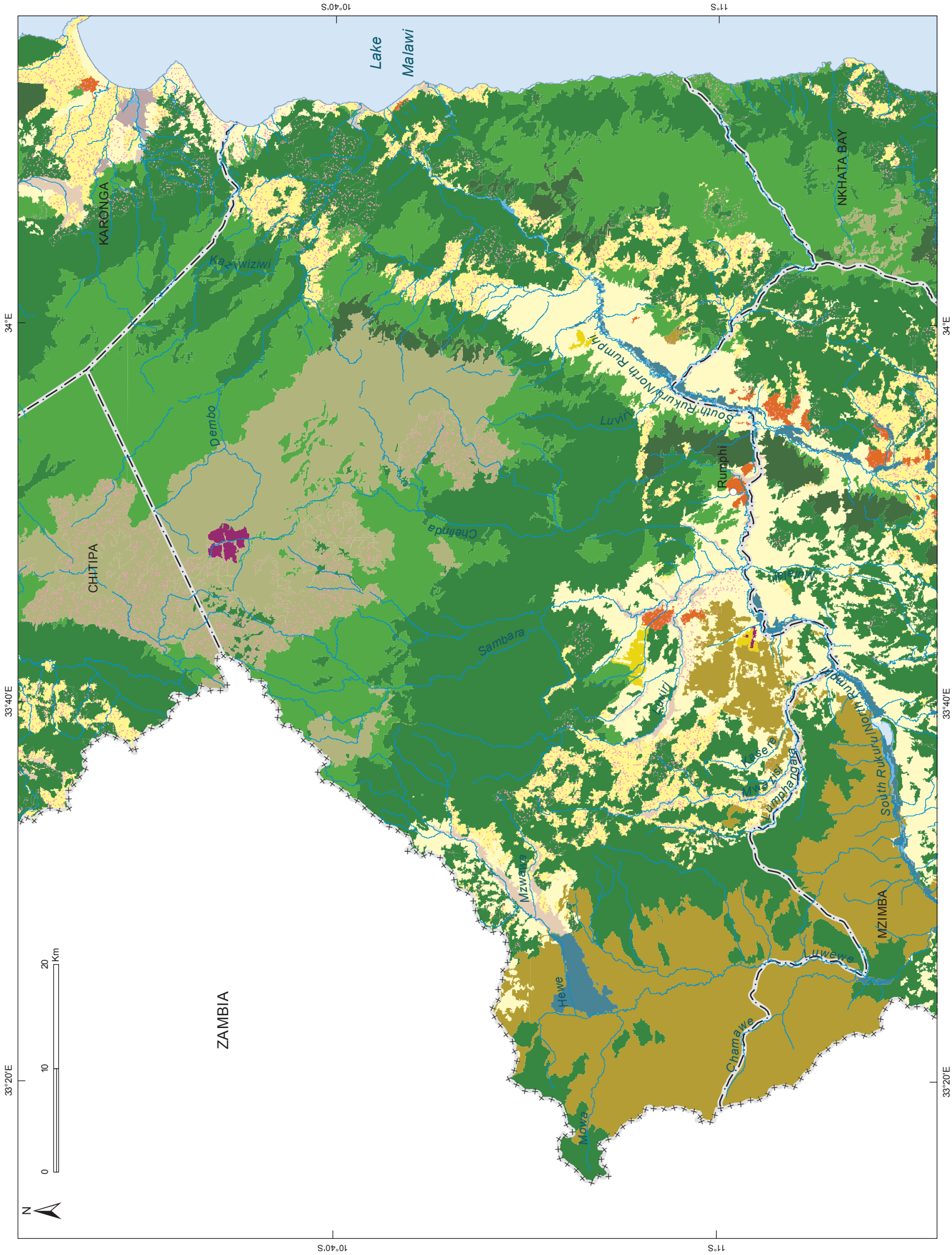
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chapinduka	Chikulama-yembe	Kachulu	Katumbi	Mwahenga	Mwalweni	Mwamu-lowe	Mwankhunikira	Nyika Plateau	Zolokere	TOTAL	%
	AGFL	0	2,639.1	0	0	0	163.7	100.4	7.0	0	1,492.0	4,402.2	1.0
	AGHL	0	982.8	0	0	194.2	0	0	0	0	0	1,177.0	0.3
	AGHS	0	35,110.7	2,838.8	40.4	7,900.5	5,837.8	1,062.1	11,070.3	121.4	7,249.9	71,232.0	15.5
	AGOR	0	0	0	0	0	14.3	0	0	0	0	14.3	0
	AGSR	0	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	73.9	0	0	0	0	0	0	884.2	0	958.1	0.2
	AGTR	0	59.1	0	0	0	309.8	540	0	0	4.4	913.3	0.2
	ARIC	0	0	0	0	0	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	0	0	0	0	0	0	0
	HBCL	4,538.0	4,507.2	4,772.5	1,334.5	893.6	3,114.3	5,384.1	14,916.2	53,685.7	13.5	93,159.7	20.3
	HBCO	0	0	0	114.1	6.6	0	0	0	57,076.4	0	57,197.1	12.5
	HBFP	0	0	0	0	0	0	0	0	0	0	0	0
	HBFT	0	450.2	0	0	62.5	0	0	521.0	0	2,406.6	3,440.3	0.8
	SRCO	0	7,065.8	0	1.7	0	0	0	169.6	7.5	38,275.8	45,520.6	9.9
	TREC	0	3,083.3	97.9	0	0	52.0	42.4	2,148.1	2,366.9	0	7,790.5	1.7
	TREO	4,232.7	28,014.4	5,617.9	7,489.0	4,494.9	15,921.7	8,659.8	10,252.2	60,071.8	25,937.1	170,691.4	37.2
	URBA	0	1,084.3	0	0	0	15.4	38.1	17.4	0	0	1,155.2	0.3
	WANP	0	22.7	0	0	16.1	25.0	75.0	295.0	0	0	433.9	0.1
	WANT	65.8	0	0	0	0	118.7	145.3	0	0	0	329.8	0.1
	WATA	0	0	0	0	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	0	0	0	0	0	0	0
	Mixed classes										GRAND TOTAL	458,415	

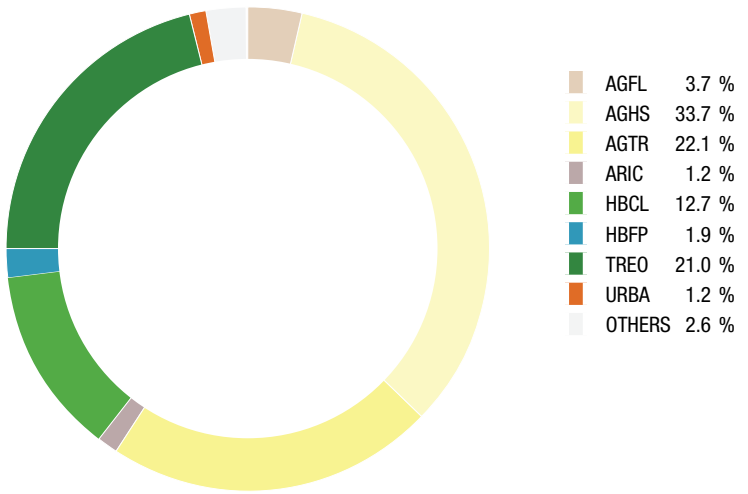

10°40'S
11°S
34°E
33°40'E
33°20'E
Lake Malawi
KARONGA
NKHATA BAY
CHITIPA
MZIMBA
ZAMBIA
Kaziwiziwi
Dembo
Chelinda
Sambara
Luvir
Rumphi
South Rukuru/North Rumphi
Kasere
Mwaisi
Lumphangazi
Mzwawa
Hewe
Mowa
Chamawe
Luwewe
0
10
20
Km
N

Salima

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

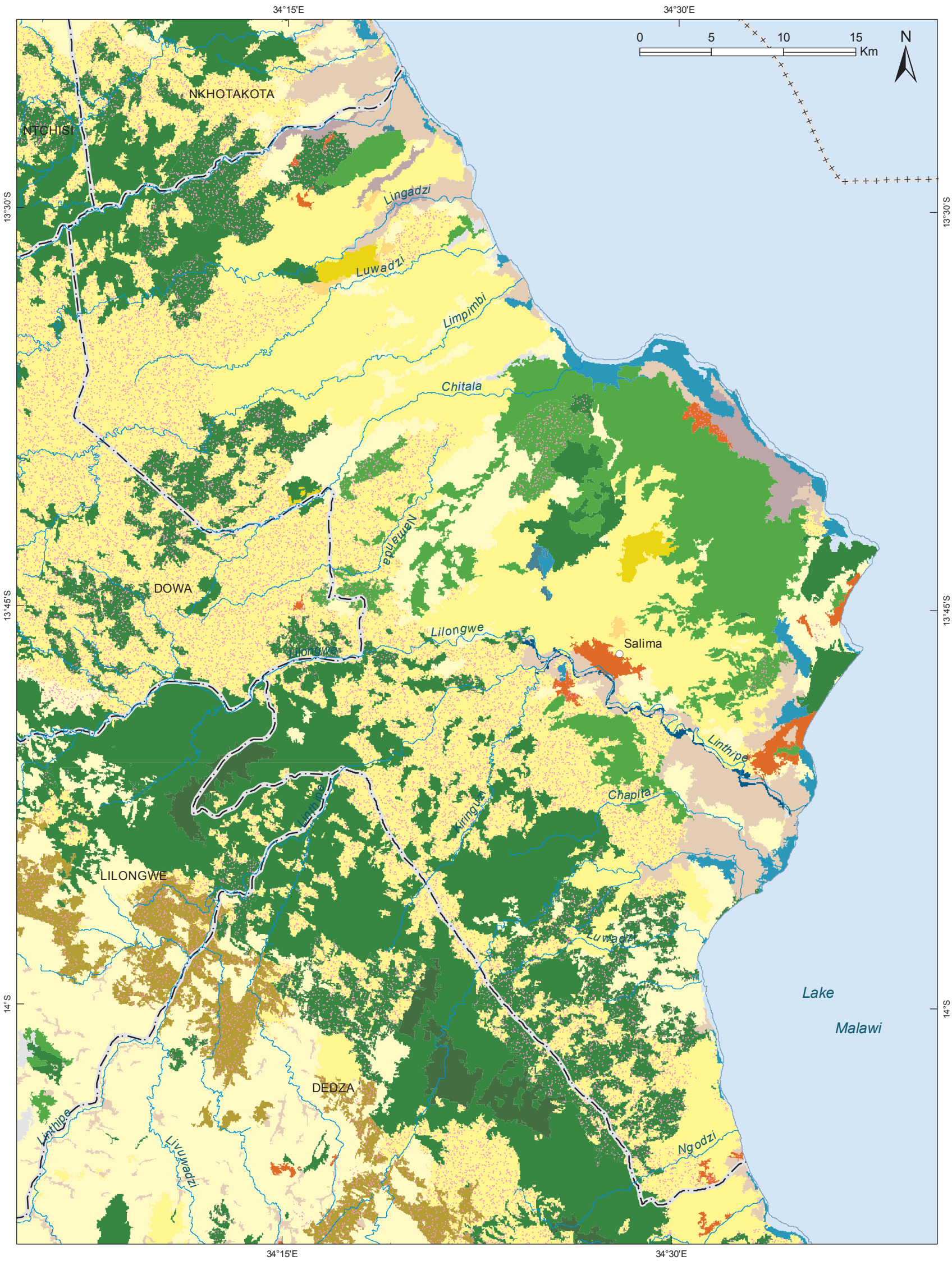
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Kambalame	Kambwiri	Karonga	Khombeza	Kuluunda	Maganga	Msosa	Mwanza	Ndindi	TOTAL	%
	AGFL	106.6	485.1	365.3	1,998.5	692.9	1,758.9	1,064.8	0	944.7	7,416.9	3.7
	AGHL	0	0	738.0	748.1	0	0	0	0	0	1,486.1	0.7
	AGHS	2,350.6	14,038.1	17,226.3	11,251.1	502.0	3,133.3	111.4	11,424.2	8,097.2	68,134.3	33.7
	AGOR	0	0	124.6	401.3	0	0	0	0	0	525.9	0.3
	AGSR	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0	0	0	0	0	0
	AGTR	2,179.9	302.1	12,086.5	20,929.9	740.4	3,028.3	488.4	2,639.8	2,383.7	44,778.9	22.1
	ARIC	0	0	0	911.5	1,615.2	0	0	0	0	2,526.7	1.2
	ASUG	0	0	0	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0	0	0	0
	BARE	0	0	0	332.6	0	7.6	45.5	0	1.0	386.8	0.2
	HBCL	0	1,373.1	6,110.2	2,484.3	13,594.7	2,108.8	8.6	0	0	25,679.7	12.7
	HBCO	0	0	0	0	0	0	0	0	0	0	0
	HBFP	18.3	48.4	133.2	128.2	1,963.7	920.6	283.8	0	369.8	3,866.0	1.9
	HBFT	0	0	175.5	29.5	0	0	0	0	0	205.0	0.1
	SRCO	0	0	0	0	0	0	0	0	0	0	0
	TREC	0	0	713.5	0	0	0	0	0	0	713.5	0.4
	TREO	1,378.8	8,192.2	8,458.6	10,340.1	271.5	2,013.2	0	2,789.1	9,004.8	42,448.5	21.0
	URBA	136.4	212.5	505.6	124.9	325.3	1,060.3	0	0	0	2,365.0	1.2
	WANP	0	0	0	0	0	0	0	0	0	0	0
	WANT	37.5	0	0	0	653.7	394.9	397.9	0	170.8	1,654.8	0.8
	WATA	0	0	0	0	0	0	0	0	0	0	0
	WATP	0	90.2	54.3	0	0	75.4	0	0	0	220	0.1
	Mixed classes									GRAND TOTAL	202,408.0	

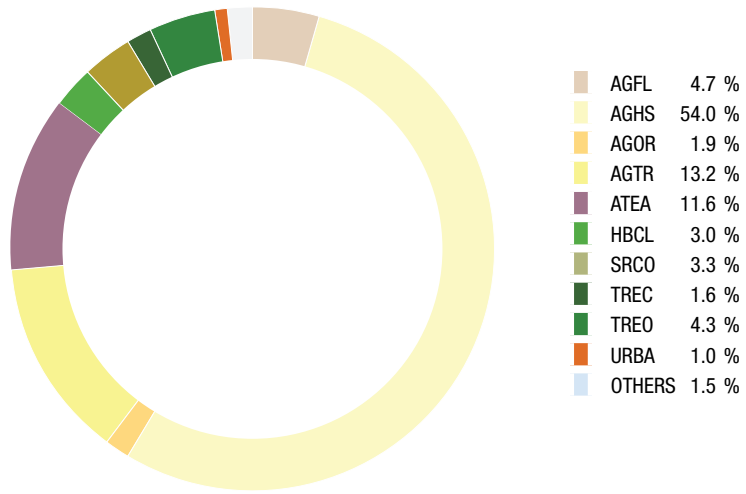

34°15'E
34°30'E
0
5
10
15
Km
N
13°30'S
13°45'S
14°S
NKHOTAKOTA
NTCHISI
DOWA
LILONGWE
DEDZA
Salima
Lingadzi
Luwadzi
Limpimbi
Chitala
Namanda
Lilongwe
Linthipe
Kiringwa
Chapita
Lake
Malawi
Ngodzi
Livulwadzi

Thyolo

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

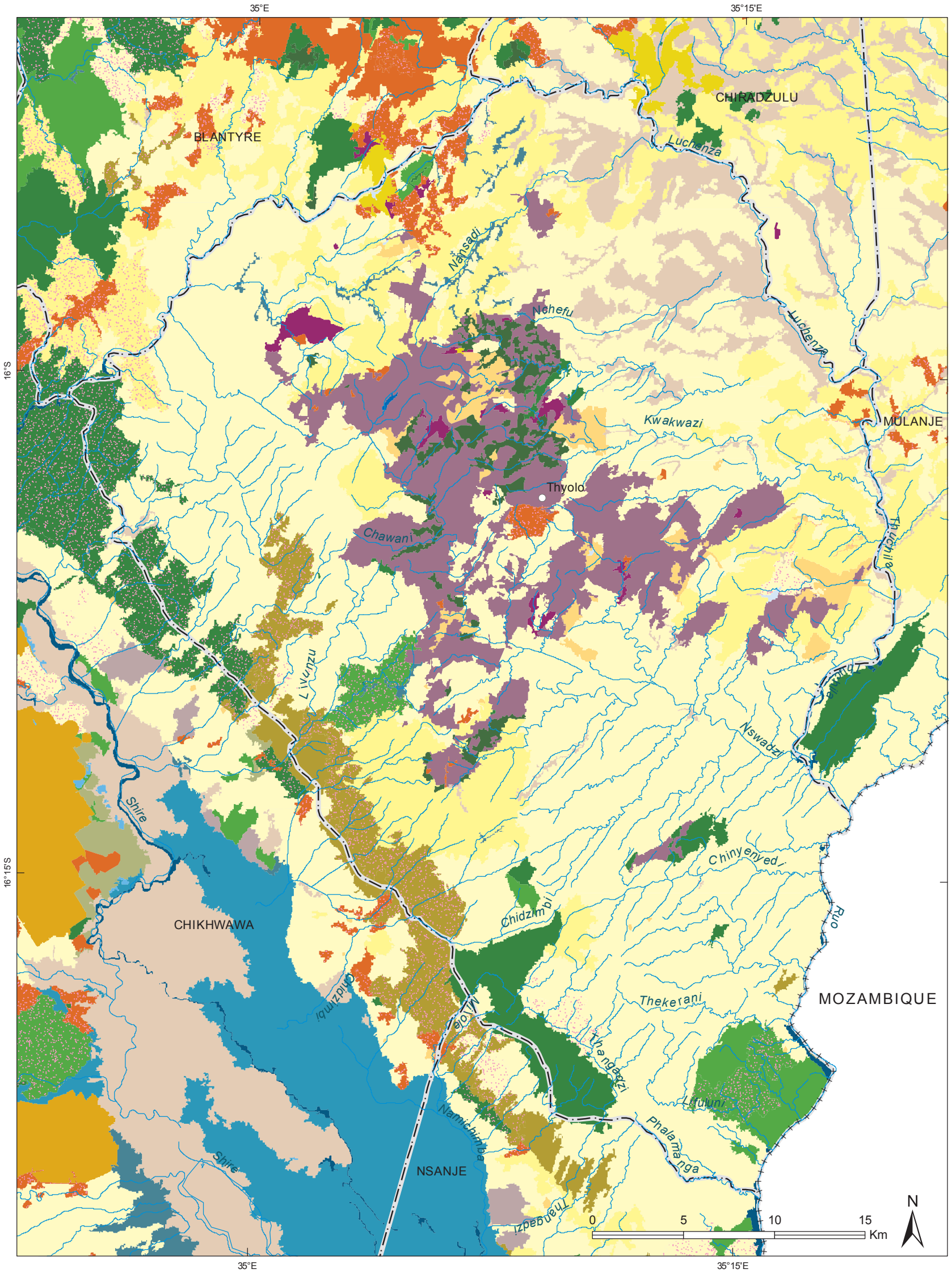
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Bvumbwe	Changata	Chimaliro	Kapichi	Mbawera	Nchilamwera	Thomas	TOTAL	%
	AGFL	1,263.0	238.5	5,949.5	164.3	10.6	116.9	21.1	7,763.9	4.7
	AGHL	274.1	0	10	0	0	0	0	284.0	0.2
	AGHS	6,917.3	22,576.7	13,376.3	5,993.6	23,948.9	8,357.0	8,996.4	90,166.3	54.0
	AGOR	242.2	169.0	1,004.2	881.4	18.9	905.4	0	3,221.1	1.9
	AGSR	0	0	0	0	0	0	0	0	0
	AGTP	457.9	0	140.6	16.1	0	348.0	92.9	1,055.6	0.6
	AGTR	5,972.8	6,291.2	4,637.3	4,337.1	619.2	198.9	42.5	22,099.0	13.2
	ARIC	0	0	0	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0	0	0	0
	ATEA	2,484.6	3,958.6	2,291.4	1,842.6	223.3	8,335.6	236.1	19,372.3	11.6
	BARE	0	0	0	0	0	0	0	0	0
	HBCL	204.1	1,448.8	0	0	3,272.0	0	0	4,925.0	3.0
	HBCO	0	0	0	0	0	0	0	0	0
	HBFP	0	0	0	0	0	0	0	0	0
	HBFT	369.7	94.9	200.3	0	0	0	60.6	725.5	0.4
	SRCO	0	5,395.2	0	0	93.4	0	0	5,488.5	3.3
	TREC	132.8	592.0	822.6	0	0	1,083.9	0	2,631.4	1.6
	TREO	32.8	2,724.8	195.1	4.1	2,700.3	22.4	1,448.1	7,127.6	4.3
	URBA	1,004.5	72.5	203.1	0	0	387.3	4.5	1,671.9	1.0
	WANP	0	2.3	0	0	0	0	0	2.3	0
	WANT	15.3	0	1.9	33.9	0	7.2	0	58.4	0
	WATA	23.0	0	0	0	0	0	0	23.0	0
	WATP	0	0	0	40	239.8	0	4.0	283.8	0.2
	Mixed classes							GRAND TOTAL	166,900	

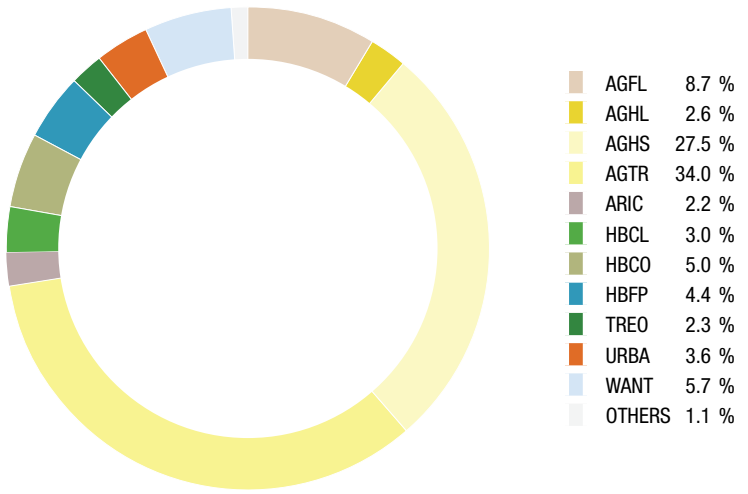

35°E
35°15'E
16°S
16°15'S
BLANTYRE
CHIRADZULU
MULANJE
CHIKHWAWA
NSANJE
MOZAMBIQUE
Luchenza
Nansadi
Nchefu
Kwakwazi
Thyolo
Chawani
Shire
Nswadzi
Chinyenyedzi
Chidzimbi
Ruo
Thekerani
Thangadzi
Phalamanga
Namichimba
Lifulumi
0
5
10
15
Km
N

Zomba

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

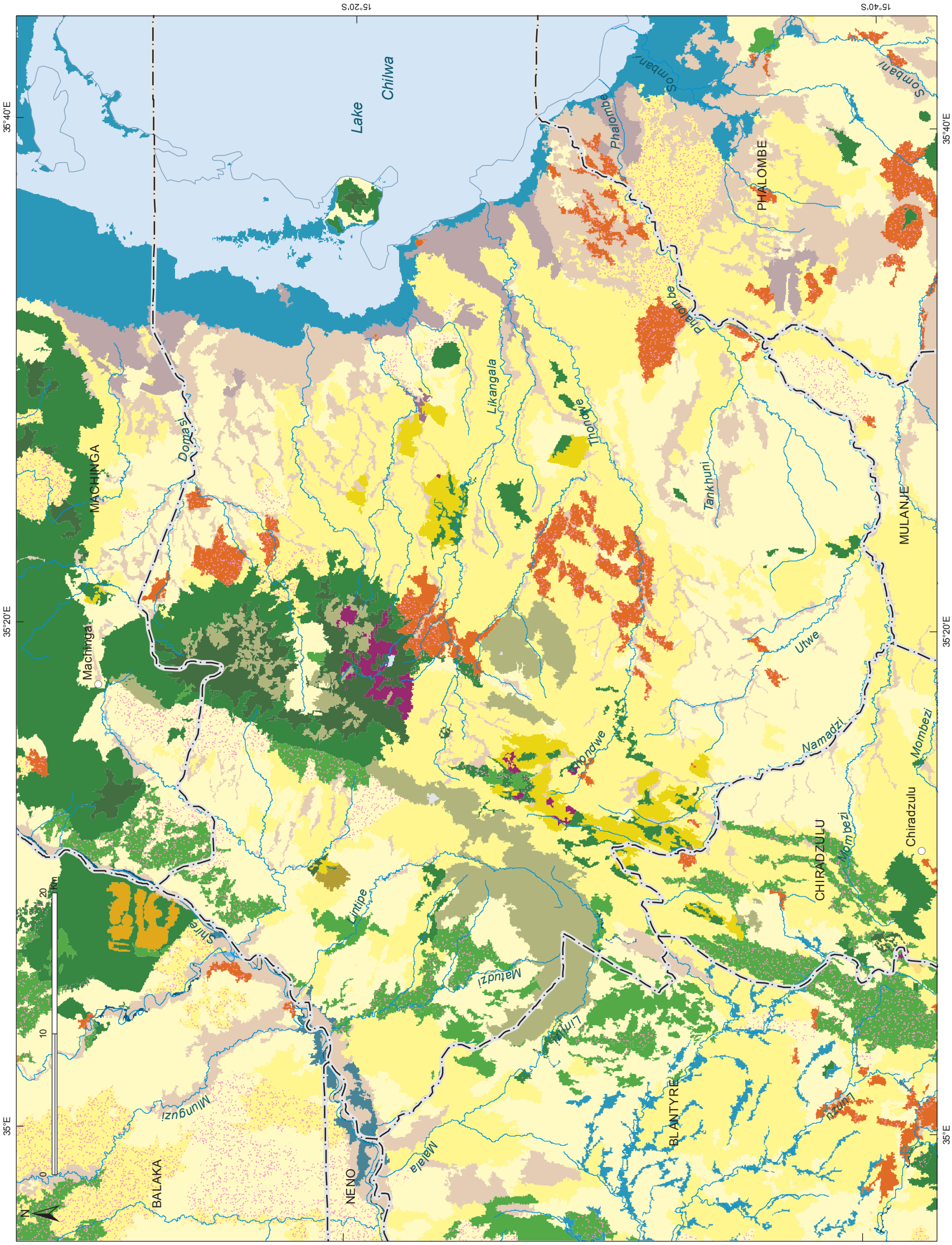
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY TA

LEGEND		Chicowi	Kumtumanji	Mbiza	Mlumbe	Mwambo	N/A 5	Zumba Municipality	TOTAL	%
	AGFL	917.4	6,173.9	3,476.1	3,203.0	5,525.7	0.0	150.4	19,446.3	8.7
	AGHL	61.5	1,160.8	1,228.5	2,353.1	933.0	0.0	0.0	5,736.9	2.6
	AGHS	2,038.7	6,149.9	27,239.4	20,968.4	4,171.0	364.7	250.0	61,182.0	27.5
	AGOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AGSR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AGTP	0.0	7.5	6.9	281.4	0.0	0.0	21.3	317.1	0.1
	AGTR	9,788.8	6,981.2	13,035.0	20,726.8	23,731.5	0.0	1,372.9	75,636.2	34.0
	ARIC	0.0	1,479.3	0.0	0.0	3,480.7	0.7	0.0	4,960.7	2.2
	ASUG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	ATEA	0.0	120.4	0.0	0.0	0.0	0.0	0.0	120.4	0.1
	BARE	3.6	0.0	0.0	37.3	378.6	0.0	0.0	419.5	0.2
	HBCL	0.0	0.0	0.0	6,739.3	0.0	0.0	0.0	6,739.3	3.0
	HBCO	2,534.7	0.0	0.0	8,268.6	218.8	0.0	0.0	11,022.1	5.0
	HBFP	0.0	4,617.0	0.0	0.0	3,216.7	1,942.5	0.0	9,776.2	4.4
	HBFT	0.0	0.0	0.0	541.6	0.0	0.0	0.0	541.6	0.2
	SRCO	0.0	0.0	0.0	268.5	0.0	0.0	0.0	268.5	0.1
	TREC	0.0	0.0	12.4	393.1	0.0	129.2	143.6	678.3	0.3
	TREO	134.5	339.5	740.5	1,950.6	974.6	524.9	370.3	5,034.9	2.3
	URBA	2,247.6	74.8	1,005.8	30.4	2,877.6	0.0	1,672.5	7,908.8	3.6
	WANP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	WANT	0.0	1,693.8	0.0	5.9	2,303.6	8,663.0	0.0	12,666.4	5.7
	WATA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	WATP	0.0	0.0	0.0	102.8	18.4	0.0	0.0	121.2	0.1
	Mixed classes							GRAND TOTAL	222,576.4	


15°20'S
15°40'S
35°40'E
35°20'E
35°E
Lake Chilwa
Somban
Phalombe
PHALOMBE
Phalombe
Likangala
Thondwe
Tankhuni
MULANJE
MACHINGA
Domasi
Machinga
Utwe
Namadzi
Mombezi
Mombezi
Chiradzulu
CHIRADZULU
Mondwe
Lintipe
Matuzi
Limbe
Luzuzu
BLANTYRE
Malala
NENO
Mlunguzi
BALAKA
Sanile
0
10
20
km
N

Land cover by basin

A hydrological basin can be defined as the extent of land from which surface water originating from precipitation, channelled in rivers and streams, drains down stream in a single point towards another waterbody such as river, lake, sea or ocean or wetland. A closed hydrological basin may drain also into a sink like a salt pan or a point where the surface water is lost underground.

The hydrological basin includes also the streams and the rivers that convey the water as well as the land surfaces from which water drains into those channels and it is separated from adjacent basins by a “drainage divide” or “watershed”.

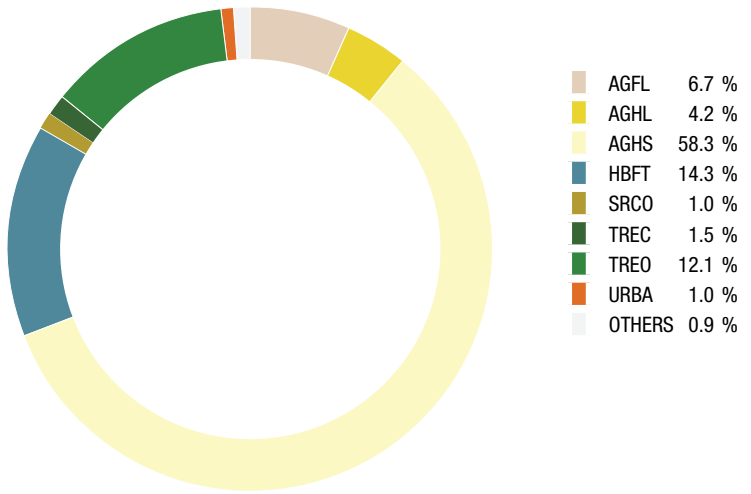
Hydrological basins drain into other hydrological basins and many small hydrological sub-basins form together larger river basins. Hydrological basins are the reference unit to study surface water movements within the hydrological cycle.

Bua

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

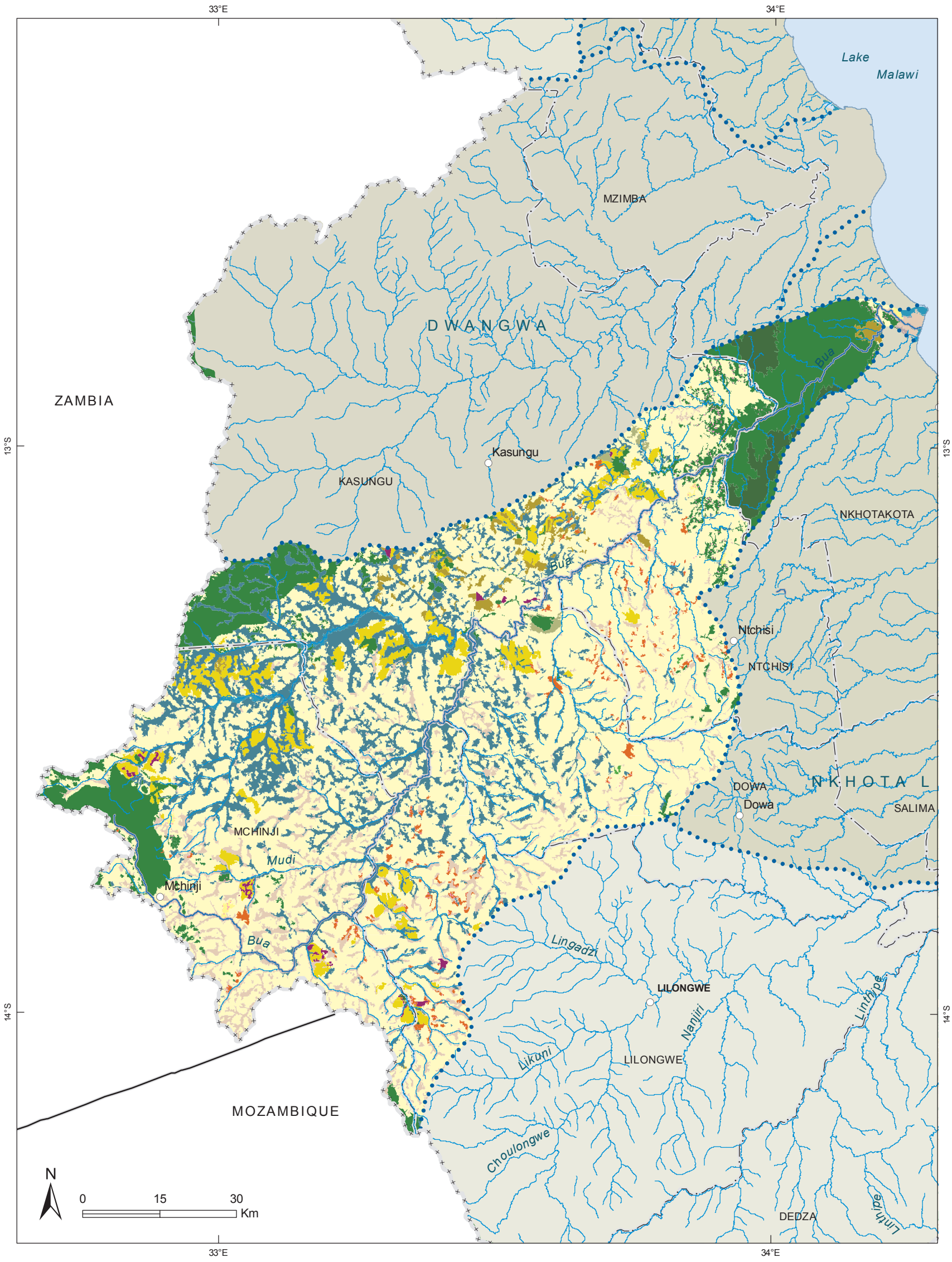
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Dowa	Kasungu	Lilongwe	Mchinji	Nkhotakota	Ntchisi	TOTAL	%
	AGFL	8,915.0	5,423.4	13,316.5	34,434.7	1,975.4	7,041.6	71106.7	6.7
	AGHL	2,856.1	17,976.9	4,976.8	18,008.8	0	607.4	44426.0	4.2
	AGHS	125,906.2	141,182.3	82,144.6	172,936.6	1,314.3	94,122.9	617606.9	58.3
	AGOR	0	0	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0	0	0
	AGTP	0	641.1	413.8	1,459.4	0	0	2514.2	0.2
	AGTR	0	0	0	0	277.4	154.8	432.2	0
	ARIC	0	0	0	0	207.5	0	207.5	0
	ASUG	0	0	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0	0	0
	BARE	0	0	0	0	0	0	0	0
	HBCL	118.6	169.5	0	0	0	91.9	379.9	0
	HBCO	956.0	959.0	0	0	0	25.5	1940.4	0.2
	HBFP	0	1,950.3	0	1,301.9	828.8	0	4081.0	0.4
	HBFT	21,154.4	57,152.1	15,911.5	54,358.8	106.7	2,838.9	151522.3	14.3
	SRCO	0	8,048.9	0	478.9	1,414.1	459.4	10401.3	1.0
	TREC	0	62.1	69.6	301.9	15,486.3	98.1	16018.0	1.5
	TREO	1,688.5	43,047.4	419.1	29,905.9	46,880	6,369.6	128310.5	12.1
	URBA	1,922.1	787.3	3,660.1	1,367.1	0	2,478.7	10215.3	1.0
	WANP	0	0	0	26.3	0	0	26.3	0
	WANT	0	18.3	0	0	44.2	0	62.5	0
	WATA	0	0	0	0	0	0	0	0
	WATP	0	0	0	0	0	0	0	0
	Mixed classes						GRAND TOTAL	1,059,251.2	

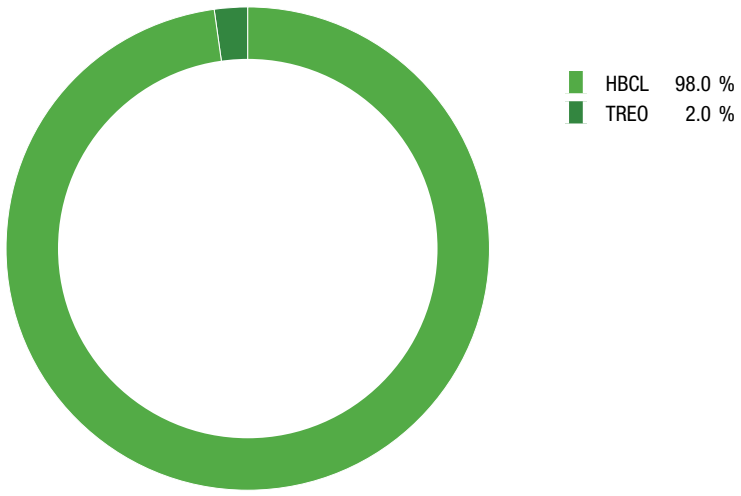

33°E
34°E
13°S
14°S
Lake
Malawi
MZIMBA
D W A N G W A
ZAMBIA
Kasungu
KASUNGU
Bua
NKHOTAKOTA
Ntchisi
NTCHISI
DOWA
Dowa
N K H O T A K O T A
SALIMA
MCHINJI
Mudi
Mchinji
Bua
Lingadzi
LILONGWE
Nanjiri
Linthipe
Likuni
LILONGWE
MOZAMBIQUE
Choulongwe
Linthipe
DEDZA
N
0
15
30
Km

Chidzumulu Islands

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

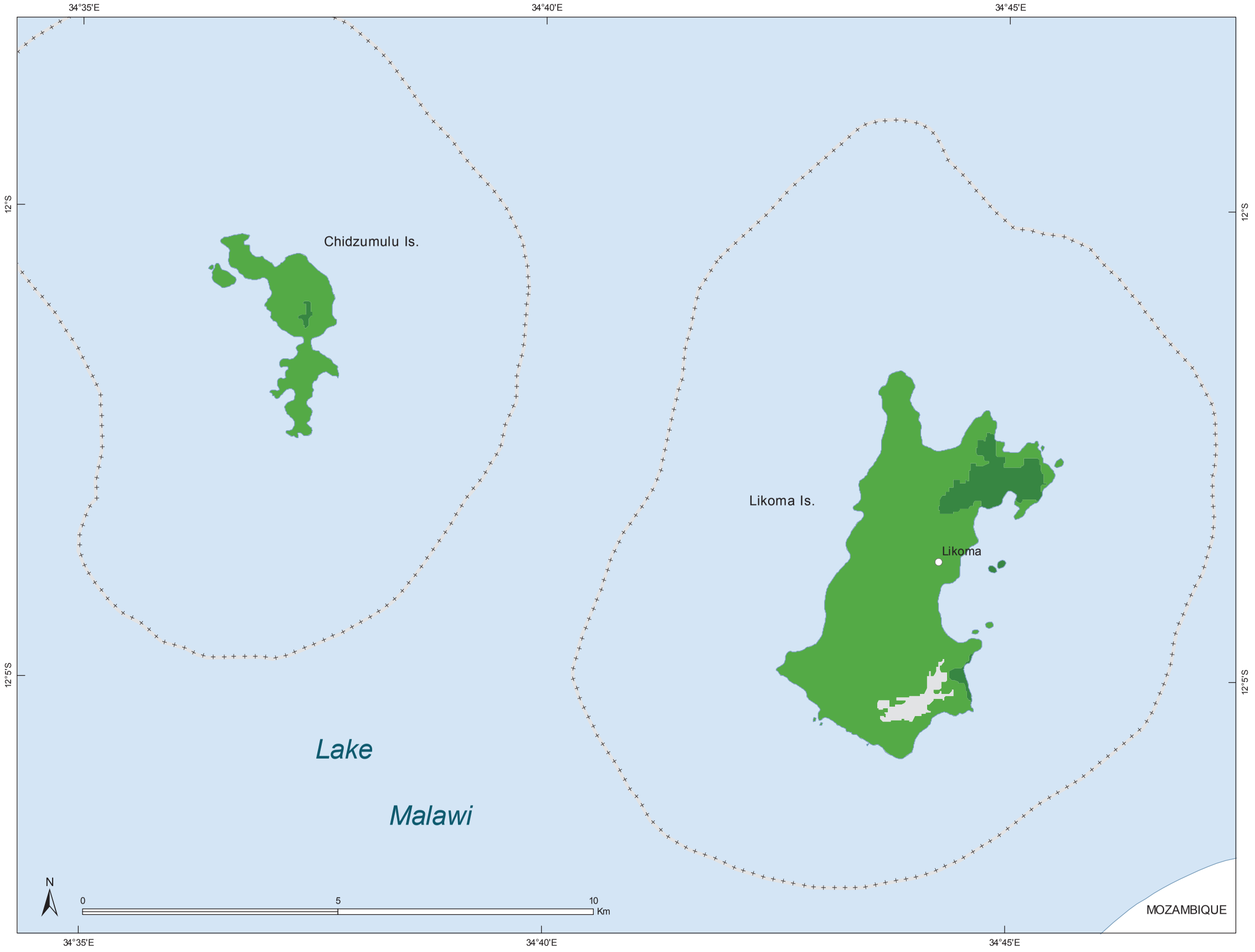
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Chidzumulu Island	Chidzumulu Island 2	Chidzumulu Island 3	Chidzumulu Islands (water)	TOTAL	%
	AGFL	0	0	0	0	0	0
	AGHL	0	0	0	0	0	0
	AGHS	0	0	0	0	0	0
	AGOR	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0
	AGTR	0	0	0	0	0	0
	ARIC	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	310.7	13.4	0.6	0.7	325.3	98.0
	HBCL	0	0	0	0	0	0
	HBCO	0	0	0	0	0	0
	HBFP	6.8	0	0	0	6.8	2.0
	HBFT	0	0	0	0	0	0
	SRCO	0	0	0	0	0	0
	TREC	0	0	0	0	0	0
	TREO	0	0	0	0	0	0
	URBA	0	0	0	0	0	0
	WANP	0	0	0	0	0	0
	WANT	0	0	0	0	0	0
	WATA	0	0	0	0	0	0
	WATP	0	0	0	0	0	0
	Mixed classes				GRAND TOTAL	332.1	

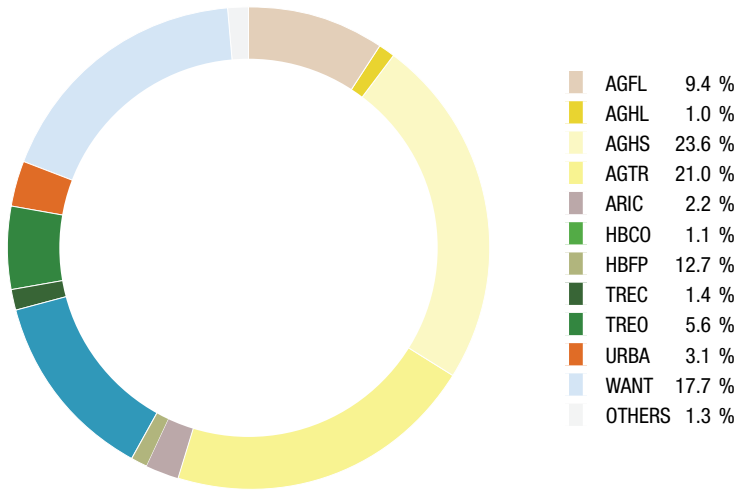

34°35'E
34°40'E
34°45'E
12°S
12°5'S
Chidzumulu Is.
Likoma Is.
Likoma
Lake
Malawi
MOZAMBIQUE
N
0
5
10
Km

Lake Chilwa

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

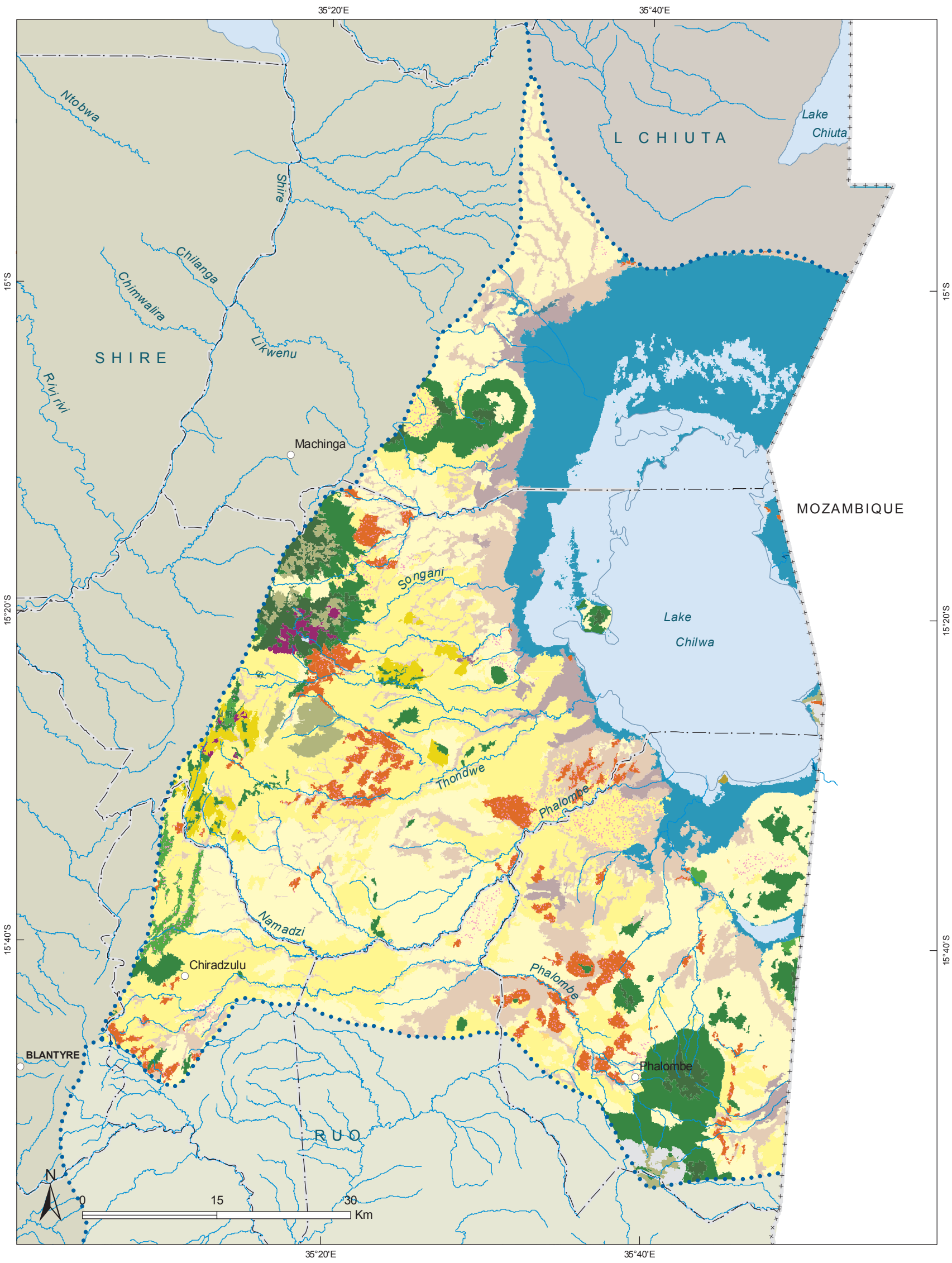
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Chiradzulu	Machinga	Mulanje	Phalombe	Zomba	Lake Chilwa (water)	TOTAL	%
	AGFL	157.2	0	0	0	5,633.2	0	5,790.4	1.0
	AGHL	2,708.1	8,151.5	4,838.6	19,898.3	18,004.8	0	53,601.4	9.4
	AGHS	7,696.4	25,569.9	9,217.5	45,795.2	45,937.3	15.8	134,232.2	23.6
	AGOR	18,395.2	3,412.7	8,154.8	23,197.2	66,103.6	0	119,263.5	21.0
	AGSR	0	0	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0	0	0
	AGTR	0	0	0	0	1,447.1	0	1,447.1	0.3
	ARIC	70.3	0	0	87.1	0	0	157.4	0
	ASUG	0	0	0	0	120.4	0	120.4	0
	ATEA	0	0	250	598.6	5,313.6	5.3	6,167.5	1.1
	BARE	2,399.2	0	0	462.4	314.7	0	3,176.3	0.6
	HBCL	0	0	0	71.7	0	0	71.7	0
	HBCO	0	822.0	0	2,013.2	5,244.9	0	8,080.2	1.4
	HBFP	1,540.8	5,888.8	201.0	15,794.6	8,485.2	17.3	31,927.7	5.6
	HBFT	0	4,591.3	0	2,924.4	4,960.7	0	12,476.4	2.2
	SRCO	0	53,127.2	0	8,800.6	9,776.2	577.9	72,281.9	12.7
	TREC	0	125.7	0	0	0	0	125.7	0
	TREO	1,369.4	66.9	133.7	6,503.9	9,367.0	0	17,440.9	3.1
	URBA	0	0	29.5	1,588.3	382.2	30	2,030	0.4
	WANP	0	0	0	0	0	0	0	0
	WANT	0	0	0	23.4	18.4	0	41.8	0
	WATA	0	0	0	0	0	0	0	0
	WATP	7.7	12,861.8	0	3,097.1	12,693.2	71,845.7	100,505.5	17.7
	Mixed classes						GRAND TOTAL	568,937.9	

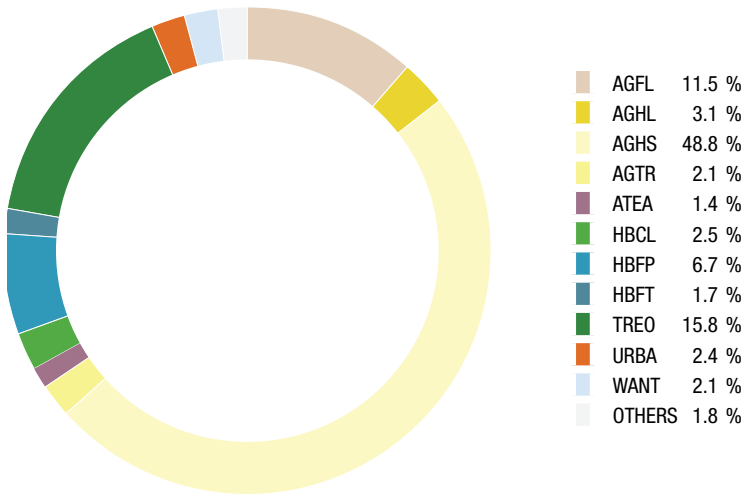

35°20'E
35°40'E
15°S
15°20'S
15°40'S
Ntobwa
Shire
Chilanga
Chimwalira
Likwenu
Rivi rivi
SHIRE
Machinga
L CHIUTA
Lake Chiuta
MOZAMBIQUE
Songani
Lake Chilwa
Thondwe
Phalombe
Namadzi
Chiradzulu
BLANTYRE
R U O
N
0
15
30
Km

Lake Chiuta

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

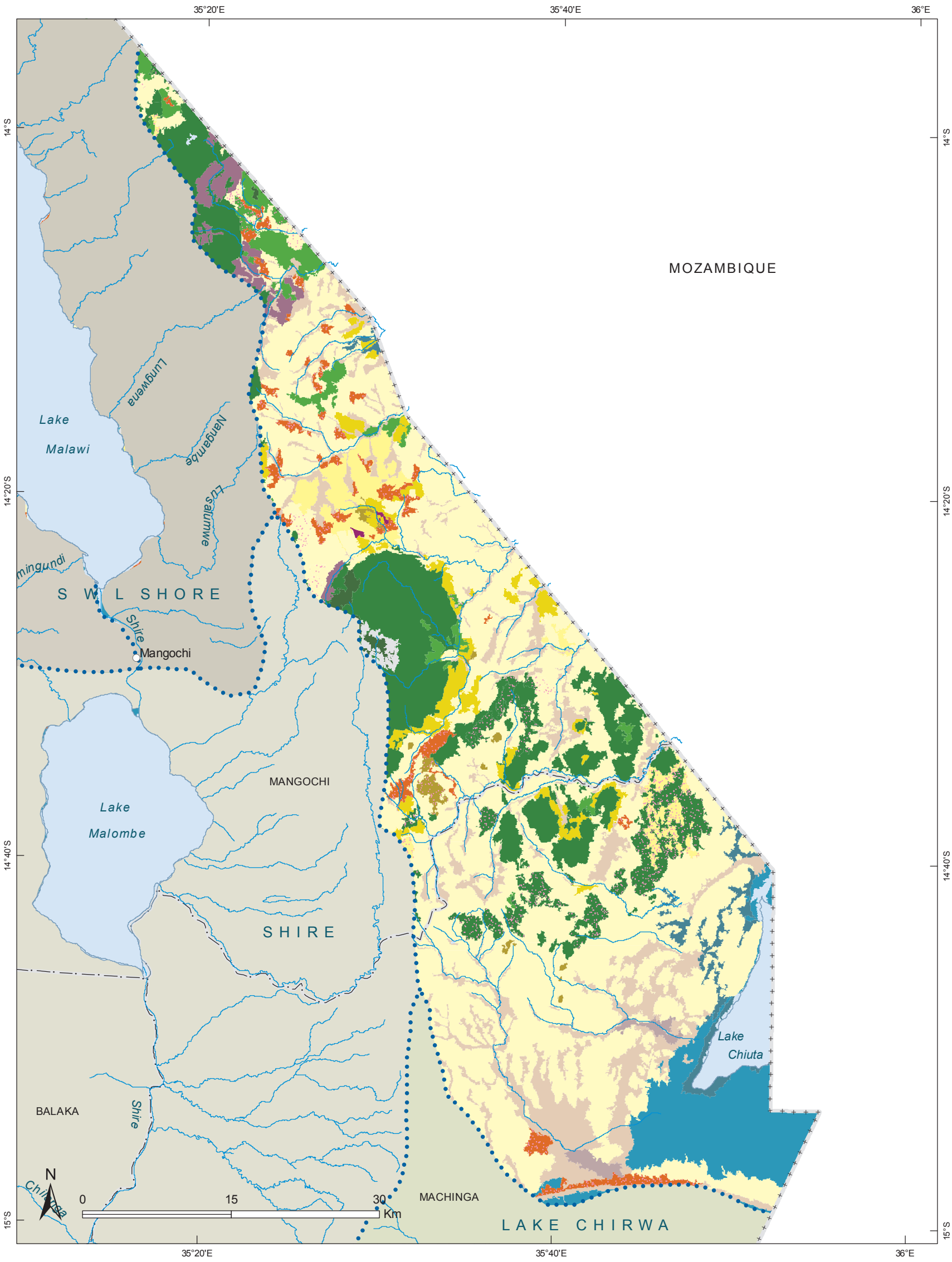
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Machinga	Mangochi	Lake Chiuta (water)	TOTAL	%
	AGFL	1,187.2	6,937.0	0	8,124.2	3.1
	AGHL	20,156.5	10,161.9	0	30,318.4	11.5
	AGHS	72,560.7	55,472.2	0	128,032.8	48.8
	AGOR	0	5,539.6	0	5,539.6	2.1
	AGSR	0	0	0	0	0
	AGTP	0	0	0	0	0
	AGTR	0	155.0	0	155.0	0.1
	ARIC	0	0	0	0	0
	ASUG	0	3,687.1	0	3,687.1	1.4
	ATEA	0	0	0	0	0
	BARE	270.9	6,243.2	0	6,514.1	2.5
	HBCL	164.2	1,121.6	0	1,285.9	0.5
	HBCO	0	1,029.4	0	1,029.4	0.4
	HBFP	13,281.2	28,240.6	0	41,521.9	15.8
	HBFT	1,514.2	0	0	1,514.2	0.6
	SRCO	17,337.5	61.0	80.9	17,479.5	6.7
	TREC	3,332.1	319.9	942.0	4,594.0	1.7
	TREO	1,669.8	4,694.1	0	6,363.8	2.4
	URBA	0	777.5	0	777.5	0.3
	WANP	0	0	0	0	0
	WANT	0	0	0	0	0
	WATA	0	0	0	0	0
	WATP	574.5	46.6	5,010.8	5,631.9	2.1
	Mixed classes			**GRAND TOTAL**	**262,569**	

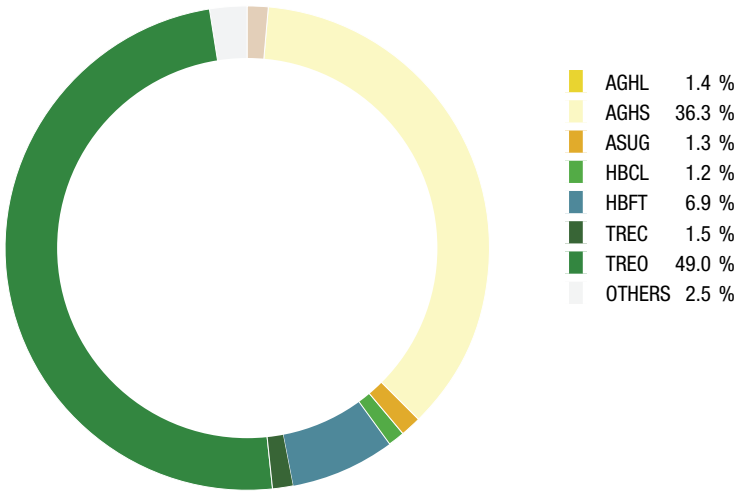

35°20'E
35°40'E
36°E
14°S
14°20'S
14°40'S
15°S
MOZAMBIQUE
Lake
Malawi
Lunguena
Nangambe
Lusalumwe
mingundi
S W L SHORE
Shire
Mangochi
MANGOCHI
Lake
Malombe
SHIRE
BALAKA
Shire
Chimwaga
N
0
15
30
Km
MACHINGA
Lake
Chiuta
LAKE CHIRWA

Dwangwa

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

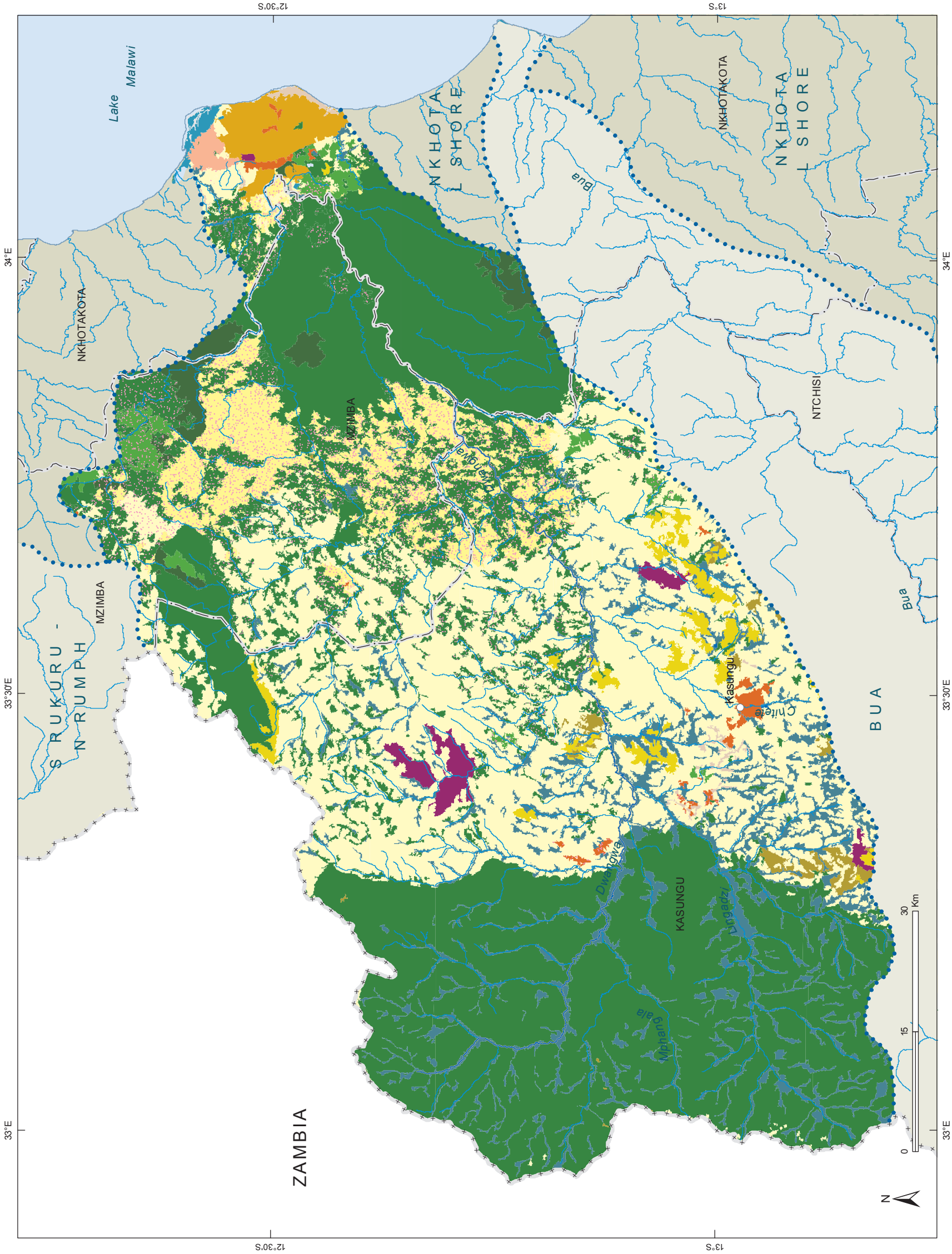
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Kasungu	Mzimba	Nkhotakota	TOTAL	%
	AGFL	10,958.6	0	103.3	11,061.9	1.4
	AGHL	1,005.5	19.6	855.7	1,880.8	0.2
	AGHS	207,009.9	69,659.0	7,569.8	284,238.6	36.3
	AGOR	0	0	0	0	0
	AGSR	0	23.9	10,389.0	10,412.9	1.3
	AGTP	0	0	1,914.8	1,914.8	0.2
	AGTR	6,251.0	0	134.2	6,385.2	0.8
	ARIC	0	0	0	0	0
	ASUG	0	0	0	0	0
	ATEA	29.2	0	0	29.2	0
	BARE	1,735.6	4,814.1	2,601.4	9,151.0	1.2
	HBCL	4,333.3	14.1	0	4,347.3	0.6
	HBCO	0	6,479.8	4,983.0	11,462.9	1.5
	HBFP	242,675.3	86,719.7	54,272.8	383,667.8	49.0
	HBFT	0	0	0	0	0
	SRCO	0	0	1,161.9	1,161.9	0.1
	TREC	52,297.4	937.8	729.7	53,964.9	6.9
	TREO	2,600.7	37.9	810.8	3,449.4	0.4
	URBA	0	0	232.5	232.5	0
	WANP	60.9	0	0	60.9	0
	WANT	0	0	0	0	0
	WATA	0	0	0	0	0
	WATP	14.0	0	296.9	310.9	0
	Mixed classes			**GRAND TOTAL**	**783,732.9**	

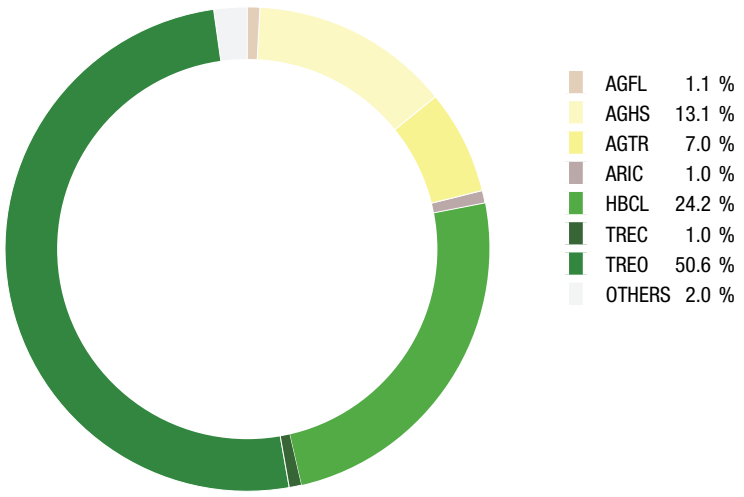

12°30'S
13°S
34°E
33°30'E
33°E
Lake Malawi
NKHOTAKOTA
NKHOTAKOTA
NKHOTAKOTA
NKHOTAKOTA
NTCHISI
MZIMBA
MZIMBA
SRUKURU - NRUMPH
Bua
Bua
Lumbwe
Kasungu
Chitete
KASUNGU
Dwangwa
Lugadzi
Mphanga
ZAMBIA
BUA
0
15
30
Km
N

Karonga L Shore

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

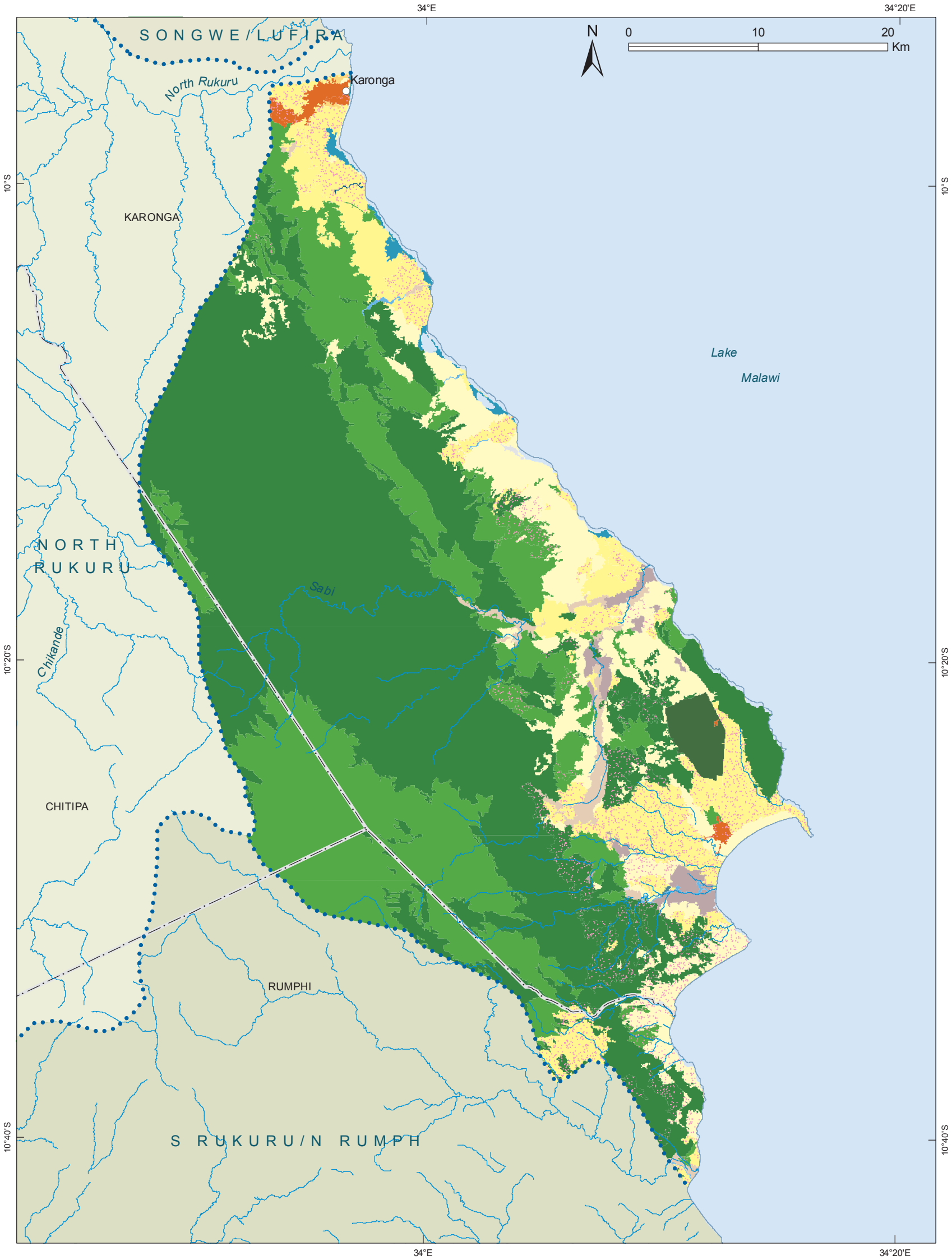
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Chitipa	Karonga	Rumphi	TOTAL	%
	AGFL	0	2,112.3	140.2	2,252.5	1.1
	AGHL	0	0	0	0	0
	AGHS	0	23,077.7	3,360.1	26,437.8	13.1
	AGOR	0	88.5	14.3	102.8	0.1
	AGSR	0	0	0	0	0
	AGTP	0	0	0	0	0
	AGTR	0	13,937.3	167.7	14,105.0	7.0
	ARIC	0	2,080.8	0	2,080.8	1.0
	ASUG	0	0	0	0	0
	ATEA	0	0	0	0	0
	BARE	0	105.5	0	105.5	0.1
	HBCL	8,005.5	33,717.5	7,195.7	48,918.6	24.2
	HBCO	0	0	0	0	0
	HBFP	0	817.5	0	817.5	0.4
	HBFT	0	21.4	0	21.4	0
	SRCO	0	0	0	0	0
	TREC	0	2,074.8	0	2,074.8	1.0
	TREO	4,461.4	92,035.3	5,826.4	102,323.0	50.6
	URBA	0	1,154.0	0	1,154.0	0.6
	WANP	0	195.2	16.6	211.7	0.1
	WANT	0	1,417.6	91.5	1,509.1	0.7
	WATA	0	0	0	0	0
	WATP	0	20.7	0	20.7	0
	Mixed classes			GRAND TOTAL	202,135.3	

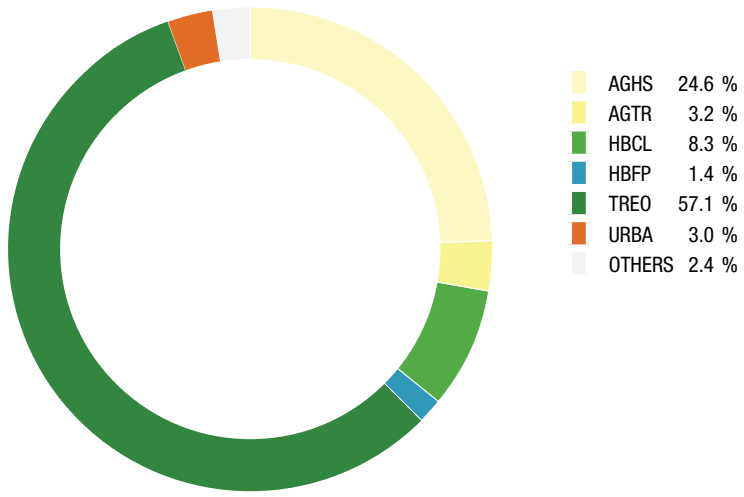

34°E
34°20'E
N
0
10
20
Km
SONGWE/LUFIRA
North Rukuru
Karonga
10°S
KARONGA
Lake
Malawi
NORTH
RUKURU
Sabi
Chilkande
10°20'S
CHITIPA
RUMPHI
S RUKURU/N RUMPH
10°40'S

SE Lakeshore

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

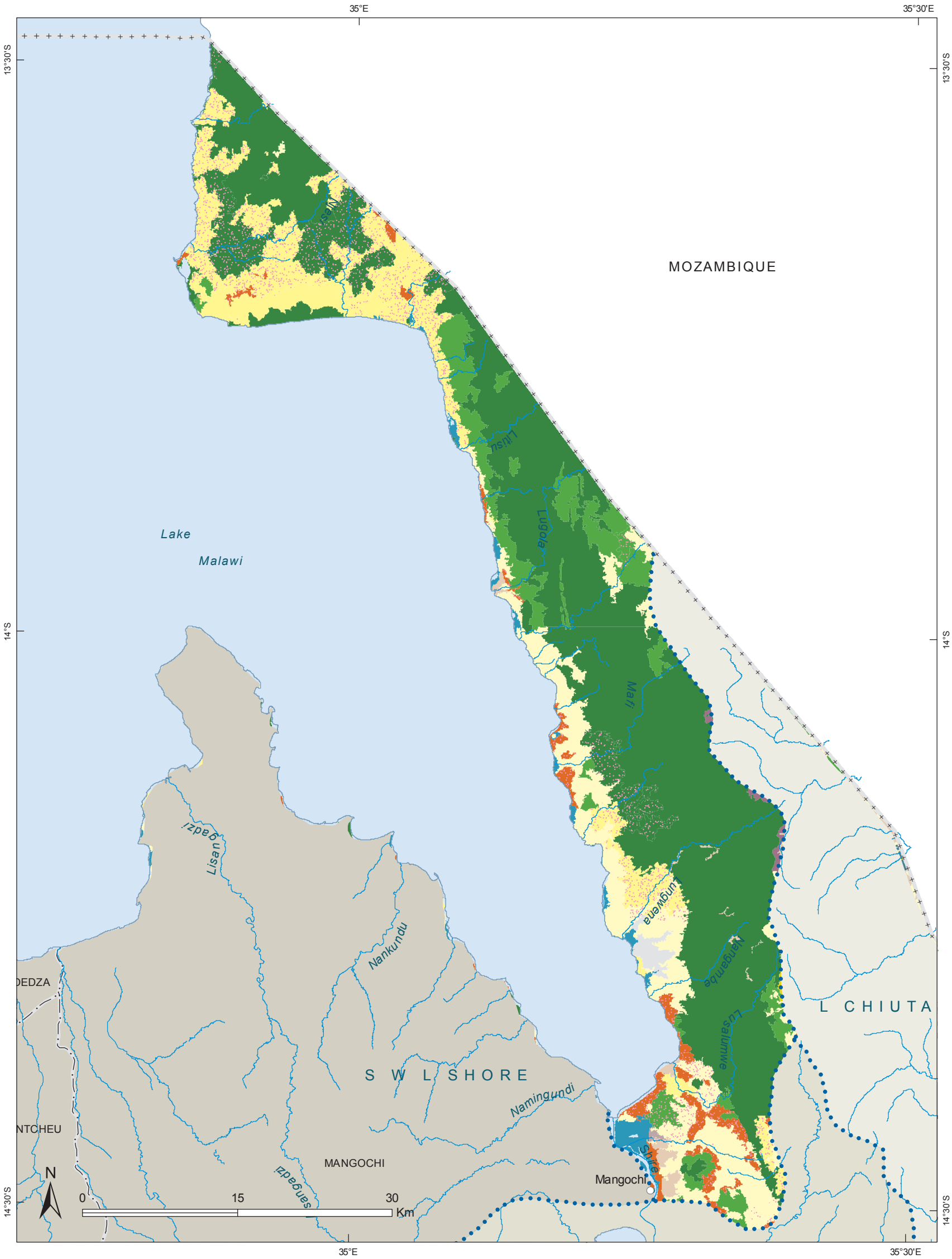
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND	Mangochi	%
AGFL	1,263.5	0.8
AGHL	55.1	0
AGHS	38,669.4	24.6
AGOR	0	0
AGSR	0	0
AGTP	0	0
AGTR	5,092.0	3.2
ARIC	107.4	0.1
ASUG	0	0
ATEA	416.9	0.3
BARE	1,013.0	0.6
HBCL	13,113.3	8.3
HBCO	0	0
HBFP	2,132.5	1.4
HBFT	0	0
SRCO	0	0
TREC	0	0
TREO	89,954.3	57.1
URBA	4,676.9	3.0
WANP	21.5	0
WANT	959.3	0.6
WATA	0	0
WATP	0	0
Mixed classes	**157,475.3**	

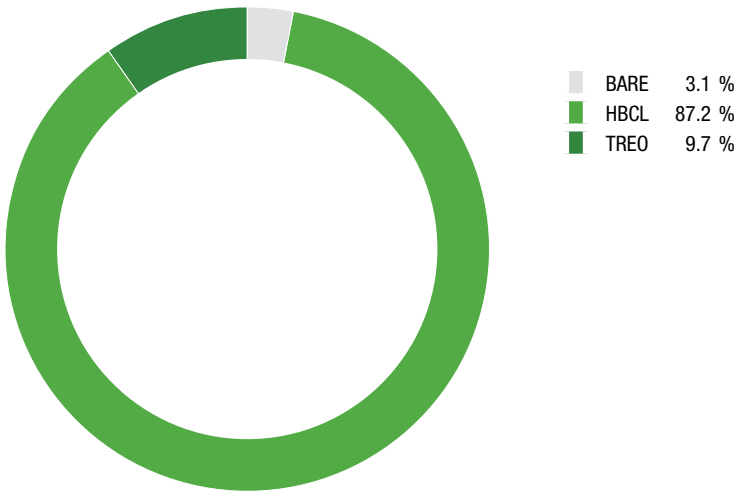

35°E
35°30'E
13°30'S
14°S
14°30'S
MOZAMBIQUE
Lake
Malawi
Lisanyadzi
Nankundu
Naminguni
Sangadzi
Mangochi
Shire
Mai
Lungwena
Nangambe
Lusaumwe
Luyoba
Liusu
Nasi
SW LSHORE
MANGOCHI
L CHIUTA
DEDZA
NTCHEU
N
0
15
30
Km

Likoma Islands

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated "others".

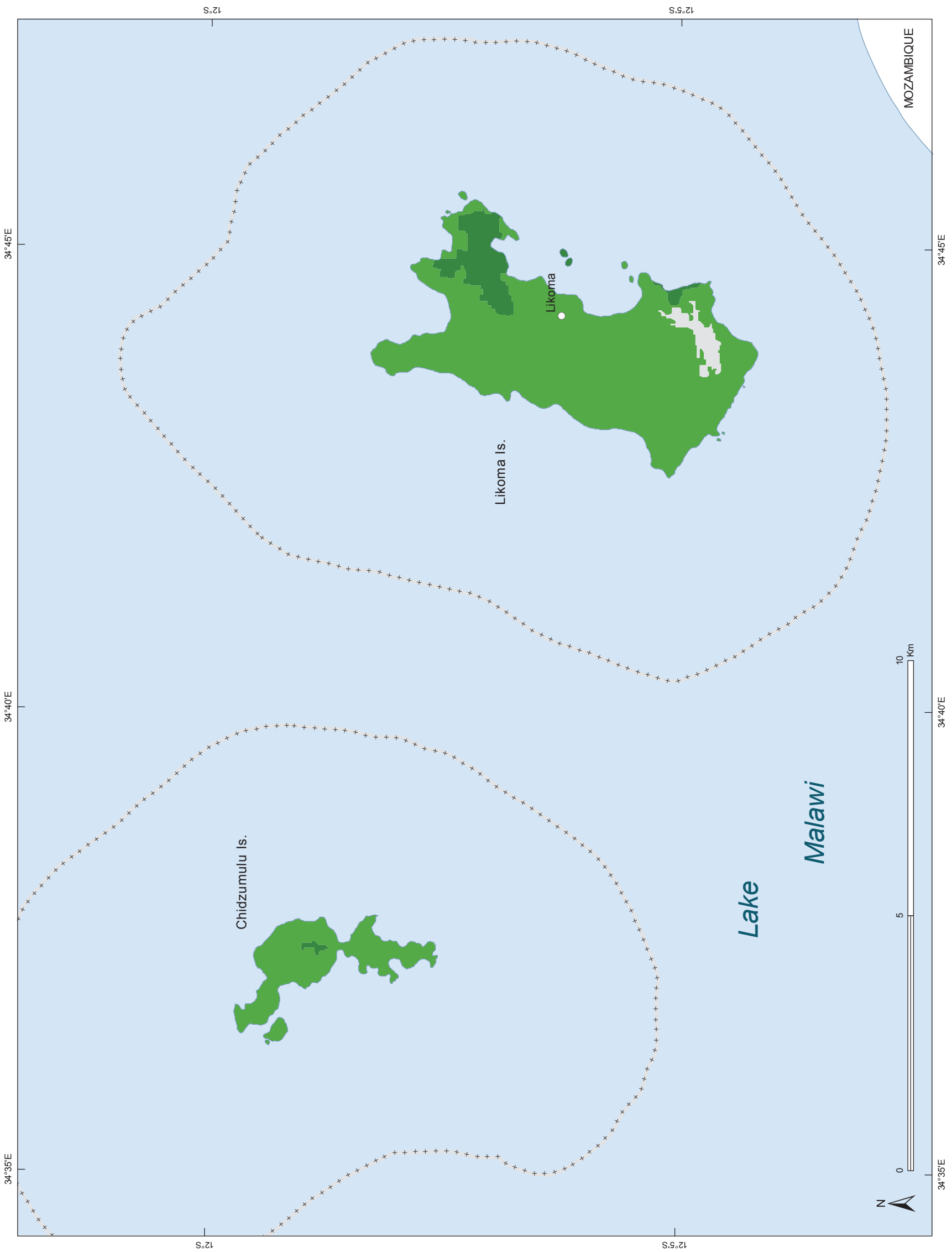
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND	Likoma Island	Likoma Island 10	Likoma Island 2	Likoma Island 3	Likoma Island 4	Likoma Island 5	Likoma Island 6	Likoma Island 7	Likoma Island 8	Likoma Island 9	Likoma Islands (water)	TOTAL	%
AGFL	0	0	0	0	0	0	0	0	0	0	0	0	0
AGHL	0	0	0	0	0	0	0	0	0	0	0	0	0
AGHS	0	0	0	0	0	0	0	0	0	0	0	0	0
AGOR	0	0	0	0	0	0	0	0	0	0	0	0	0
AGSR	0	0	0	0	0	0	0	0	0	0	0	0	0
AGTP	0	0	0	0	0	0	0	0	0	0	0	0	0
AGTR	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIC	0	0	0	0	0	0	0	0	0	0	0	0	0
ASUG	0	0	0	0	0	0	0	0	0	0	0	0	0
ATEA	0	0	0	0	0	0	0	0	0	0	0	0	0
BARE	54.0	0	0	0	0	0	0	0	0	0	54.0	3.1	
HBCL	1,510.8	0.4	0.4	0.2	0.1	0.9	1.5	0	0	2.1	0.8	1,517.2	87.2
HBCO	0	0	0	0	0	0	0	0	0	0	0	0	0
HBFP	0	0	0	0	0	0	0	0	0	0	0	0	0
HBFT	0	0	0	0	0	0	0	0	0	0	0	0	0
SRCO	0	0	0	0	0	0	0	0	0	0	0	0	0
TREC	0	0	0	0	0	0	0	0	0	0	0	0	0
TREO	165.0	0	0	0	0	0	0	1.6	2.0	0	0.1	168.7	9.7
URBA	0	0	0	0	0	0	0	0	0	0	0	0	0
WANP	0	0	0	0	0	0	0	0	0	0	0	0	0
WANT	0	0	0	0	0	0	0	0	0	0	0	0	0
WATA	0	0	0	0	0	0	0	0	0	0	0	0	0
WATP	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed classes											GRAND TOTAL	1,739.9	

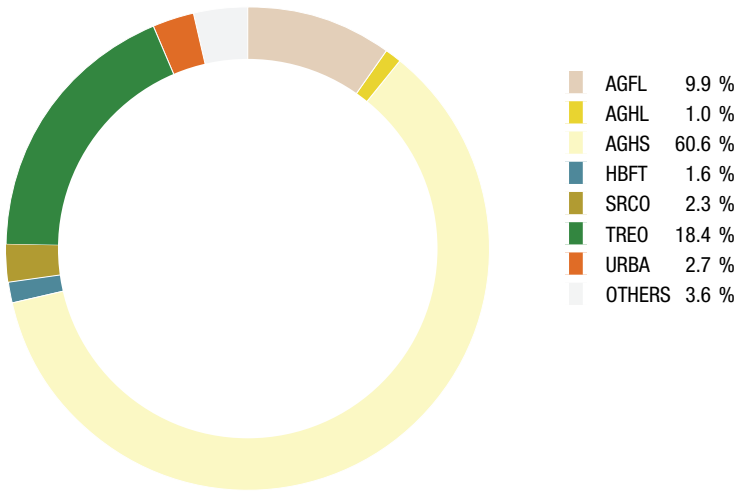

12°S
12°5'S
34°45'E
34°40'E
34°35'E
MOZAMBIQUE
Likoma
Likoma Is.
Chidzumulu Is.
Lake
Malawi
N
0
5
10
Km

Linthipe

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

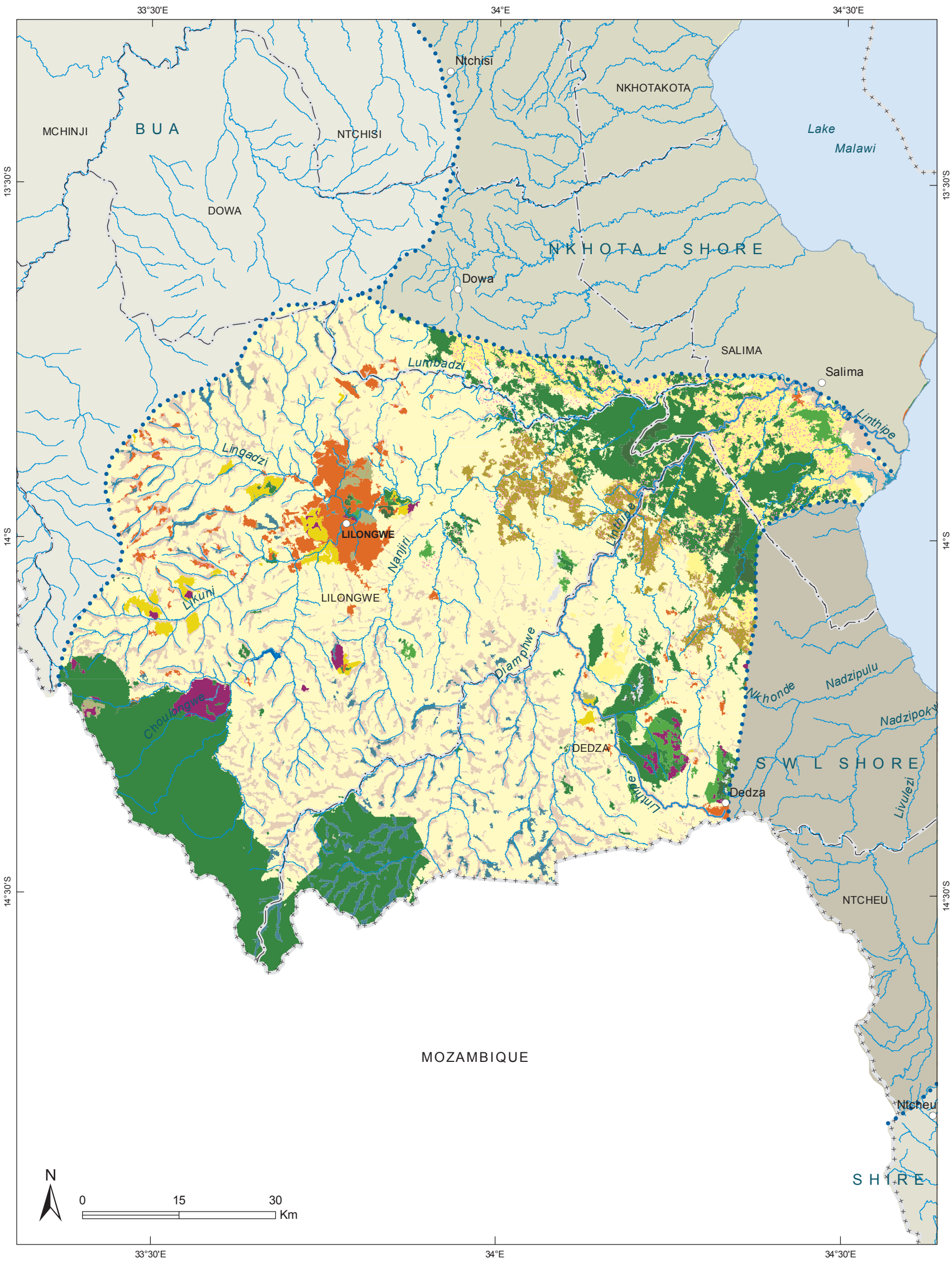
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Dedza	Dowa	Lilongwe	Salima	TOTAL	%
	AGFL	24,979.7	1,733.2	52,699.8	4,514.5	83,927.2	9.9
	AGHL	627.1	0	7,737.3	0	8,364.4	1.0
	AGHS	149,944.0	32,383.6	307,838.6	25,516.1	515,682.3	60.6
	AGOR	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0
	AGTP	1,813.6	0	5,622.7	0	7,436.3	0.9
	AGTR	3,430.6	0	212.8	1,942.7	5,586.1	0.7
	ARIC	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	452.7	0	442.0	0.9	895.6	0.1
	HBCL	4,425.9	0	1,371.0	2,229.1	8,026.0	0.9
	HBCO	187.6	0	2,099.9	0	2,287.5	0.3
	HBFP	0	0	355.7	513.0	868.7	0.1
	HBFT	8,514.8	177.3	4,981.4	0	13,673.5	1.6
	SRCO	7,151.1	0	12,252.7	0	19,403.8	2.3
	TREC	2,820.8	0	1,412.8	713.5	4,947.0	0.6
	TREO	53,431.7	8,996.6	78,121.3	16,469.8	157,019.5	18.4
	URBA	1,709.9	516.7	20,329.4	216.1	22,772.1	2.7
	WANP	0	0	0	0	0	0
	WANT	0	0	78.0	0	78.0	0
	WATA	0	0	266.7	0	266.7	0
	WATP	0	0	0	255.9	255.9	0
	Mixed classes				GRAND TOTAL	851,490.7	

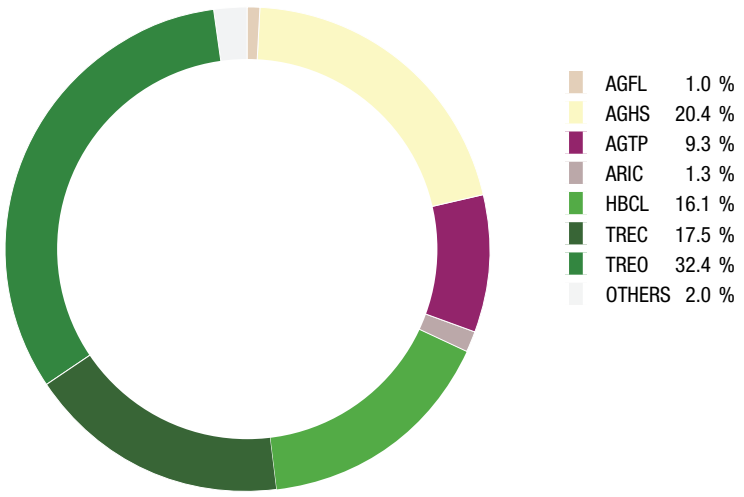

33°30'E
34°E
34°30'E
13°30'S
14°S
14°30'S
Ntchisi
NKHOTAKOTA
MCHINJI
BUA
NTCHISI
Lake
Malawi
DOWA
NKHOTAKOTA SHORE
Dowa
SALIMA
Salima
Lumbadzi
Linthipe
Lingadzi
LILONGWE
Nanjiri
Likuni
LILONGWE
Diamphwe
Chowongwe
Nkhonde
Nadzipulu
Nadzipoky
DEDZA
SWL SHORE
Dedza
Livulezi
NTCHEU
MOZAMBIQUE
Ntcheu
SHIRE
N
0
15
30
Km

Nkhata L Shore

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

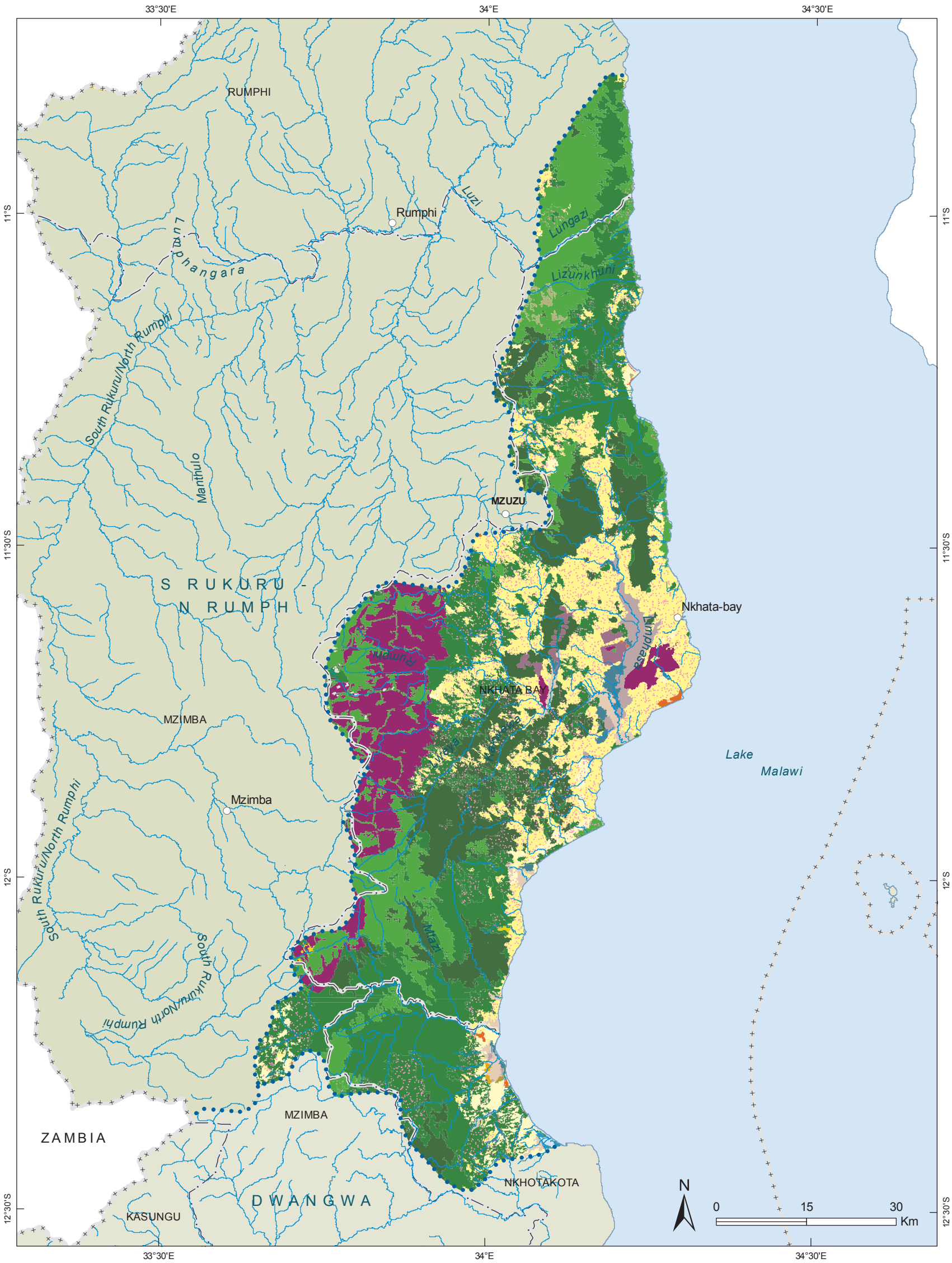
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Mzimba	Nkhata Bay	Nkhotakota	Rumphi	TOTAL	%
	AGFL	0	3,915.2	1,475.2	0	5,390.4	1.0
	AGHL	9.7	355.4	0	0	365.1	0.1
	AGHS	2,928.9	99,755.1	8,503.1	1,065.9	112,252.9	20.4
	AGOR	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0
	AGTP	2,019.4	49,291.4	0	0	51,310.8	9.3
	AGTR	0	0	0	23.6	23.6	0
	ARIC	0	6,663.8	208.1	0	6,872.0	1.3
	ASUG	0	0	236.7	0	236.7	0
	ATEA	0	3,284.7	0	0	3,284.7	0.6
	BARE	9.6	330.2	55.0	0	394.8	0.1
	HBCL	4,242.3	60,211.5	4,343.4	19,495.8	88,292.9	16.1
	HBCO	0	1,125.4	0	0	1,125.4	0.2
	HBFP	0	37.1	411.8	0	448.9	0.1
	HBFT	0	2,537.7	514.9	0	3,052.7	0.6
	SRCO	0	2.3	91.7	0	94.0	0
	TREC	2,140.5	89,950.4	3,744.8	244.5	96,080.2	17.5
	TREO	14,723.6	108,431.6	46,250.1	8,914.0	178,319.3	32.4
	URBA	43.1	566.3	212.4	0	821.9	0.1
	WANP	0	0	0	0	0	0
	WANT	0	755.5	415.0	132.4	1,302.9	0.2
	WATA	0	0	0	0	0	0
	WATP	0	0	0	0	0	0
	Mixed classes				GRAND TOTAL	549,669.2	

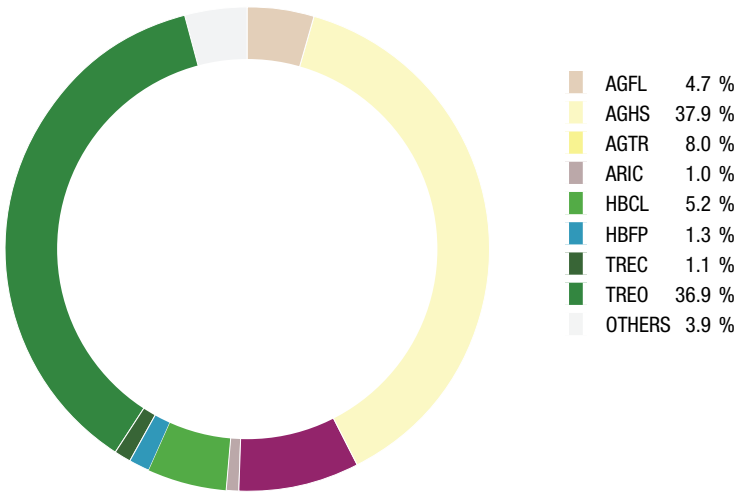

33°30'E
34°E
34°30'E
11°S
11°30'S
12°S
12°30'S
RUMPHI
Rumphi
Luzi
Lungazi
Lizunkhuni
Lunyangwa
South Rukuru/North Rumphi
Manthulo
MZUZU
S R U K U R U -
N R U M P H
Nkhata-bay
Lunthasa
NKHATA BAY
MZIMBA
Mzimba
Lake
Malawi
ZAMBIA
MZIMBA
NKHOTAKOTA
D W A N G W A
KASUNGU
N
0
15
30
Km

Nkhota L Shore

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

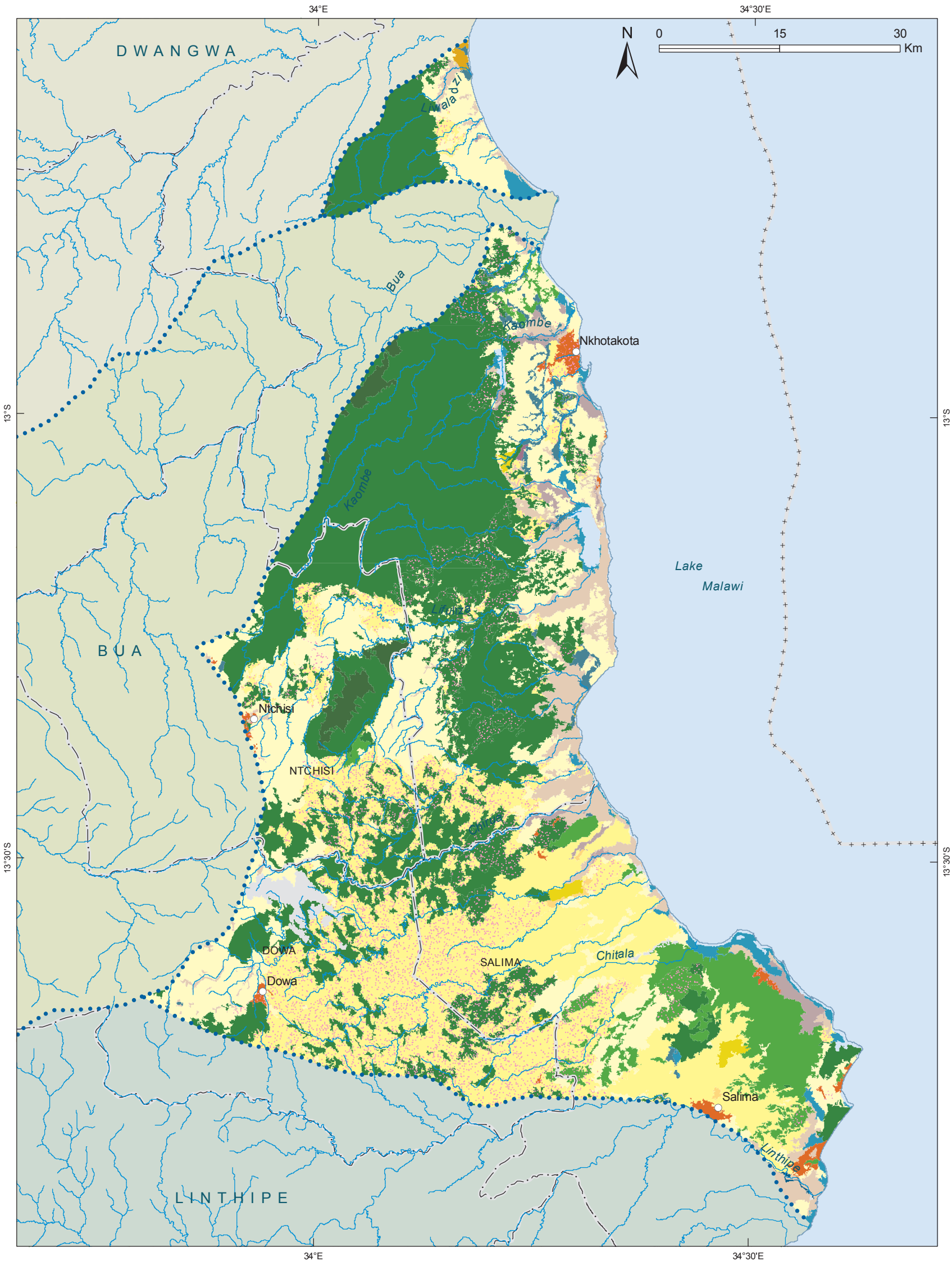
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Dowa	Nkhotakota	Ntchisi	Salima	TOTAL	%
	AGFL	737.2	16,672.5	261.0	6,539.0	24,209.8	4.7
	AGHL	10.2	249.7	0	1,486.1	1,746.0	0.3
	AGHS	56,906.4	57,006.2	41,729.5	38,142.2	193,784.3	37.9
	AGOR	0	0	0	525.9	525.9	0.1
	AGSR	0	0	0	0	0	0
	AGTP	0	0	0	0	0	0
	AGTR	0	351.3	0	40,293.6	40,645.0	8.0
	ARIC	0	2,612.4	0	2,526.7	5,139.0	1.0
	ASUG	0	448.1	0	0	448.1	0.1
	ATEA	0	116.1	0	0	116.1	0
	BARE	3,817.4	54.3	0	400	4,271.8	0.8
	HBCL	222.6	1,291.7	552.2	24,276.7	26,343.3	5.2
	HBCO	0	0	0	0	0	0
	HBFP	0	2,902.8	0	3,555.9	6,458.6	1.3
	HBFT	63.6	4,094.6	72.0	205.0	4,435.3	0.9
	SRCO	0	75.2	0	0	75.2	0
	TREC	0	2,046.7	3,568.0	0	5,614.7	1.1
	TREO	17,381.7	120,179.6	33,024.6	17,856.8	188,442.7	36.9
	URBA	340.5	1,339.3	273.6	2,012.5	3,965.9	0.8
	WANP	0	0	0	0	0	0
	WANT	0	2,874.9	0	1,448.9	4,323.8	0.8
	WATA	0	0	0	0	0	0
	WATP	0	0	0	184.0	184.0	0
	Mixed classes				**GRAND TOTAL**	**510,729.6**	

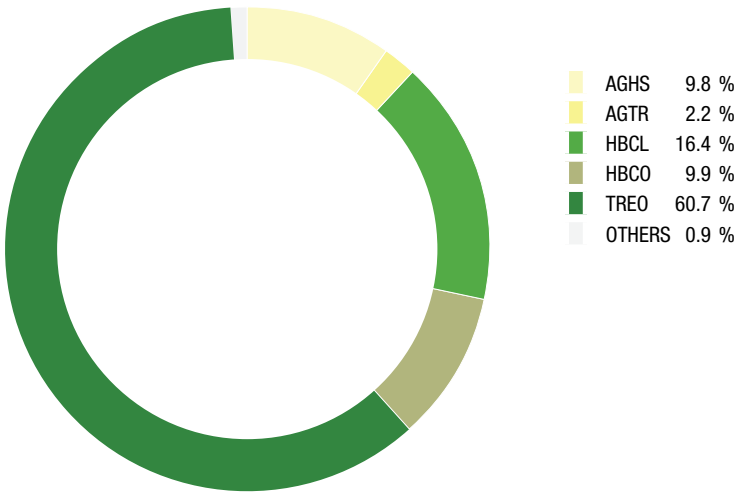

34°E
34°30'E
13°S
13°30'S
N
0
15
30
Km
DWANGWA
BUA
LINTHIPE
Lwala
Bua
Kaombe
Kaombe
Nkhotakota
Lake
Malawi
Ntchisi
NTCHISI
DOWA
Dowa
SALIMA
Chitala
Salima
Linthipe

North Rukuru

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

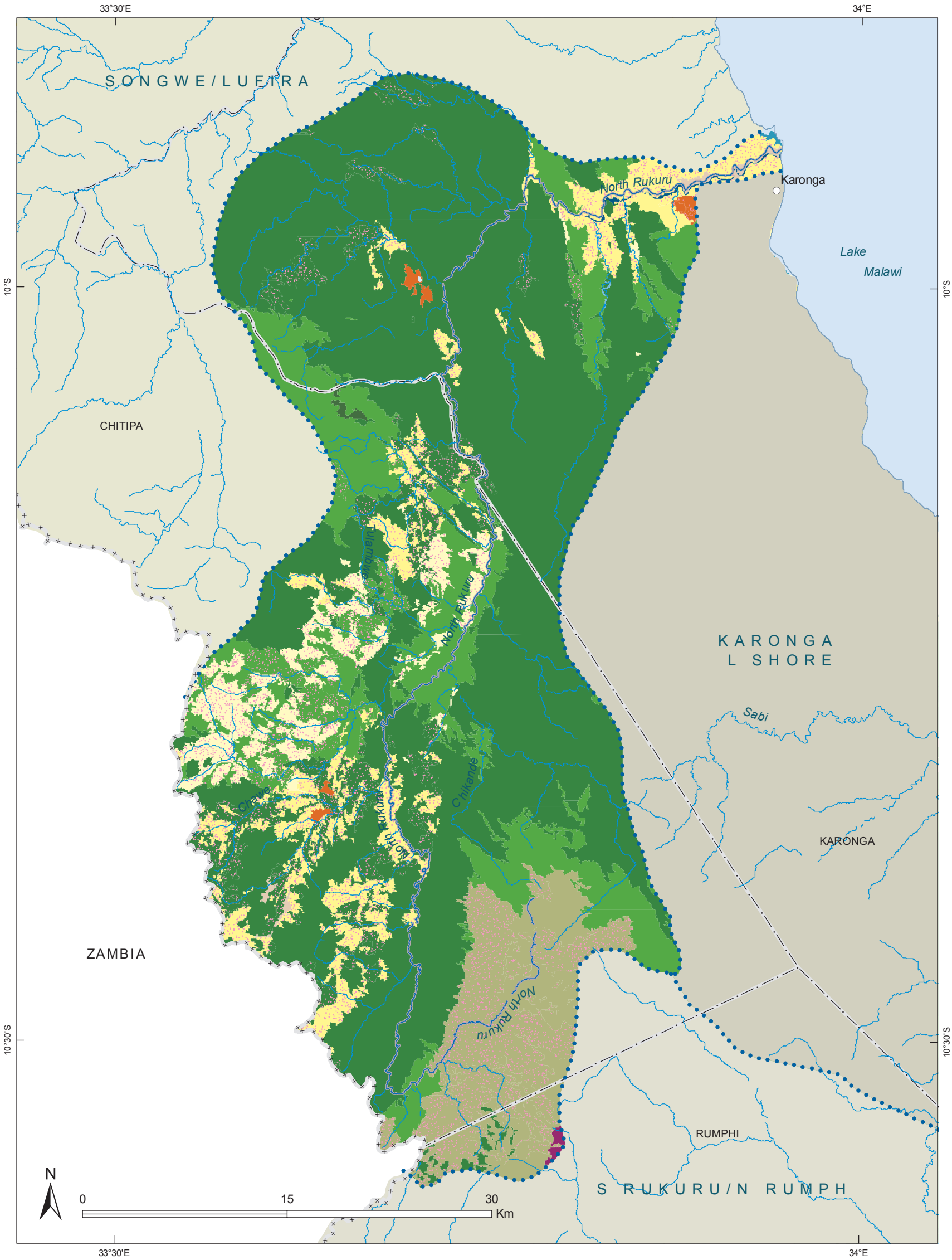
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		North Rukuru Chitipa	North Rukuru Karonga	North Rukuru Rumphi	TOTAL	%
	AGFL	176.1	308.6	0	484.6	0.2
	AGHL	0	0	0	0	0
	AGHS	18,686.0	1,394.4	0	20,080.4	9.8
	AGOR	0	10.2	0	10.2	0
	AGSR	0	0	0	0	0
	AGTP	0	0	173.1	173.1	0.1
	AGTR	0	4,428.0	0	4,428.0	2.2
	ARIC	0	0	0	0	0
	ASUG	0	0	0	0	0
	ATEA	0	0	0	0	0
	BARE	0	0	0	0	0
	HBCL	26,386.0	7,109.6	8.7	33,504.4	16.4
	HBCO	16,275.1	0	3,938.7	20,213.8	9.9
	HBFP	0	75.9	0	75.9	0
	HBFT	0	0	0	0	0
	SRCO	0	0	0	0	0
	TREC	180.3	8.7	0	189.0	0.1
	TREO	61,521.9	61,771.2	551.4	123,844.5	60.7
	URBA	163.5	486.2	0	649.7	0.3
	WANP	0	46.0	0	46.0	0
	WANT	0	44.3	0	44.3	0
	WATA	0	0	0	0	0
	WATP	0	214.6	0	214.6	0.1
	Mixed classes			GRAND TOTAL	203,958.6	

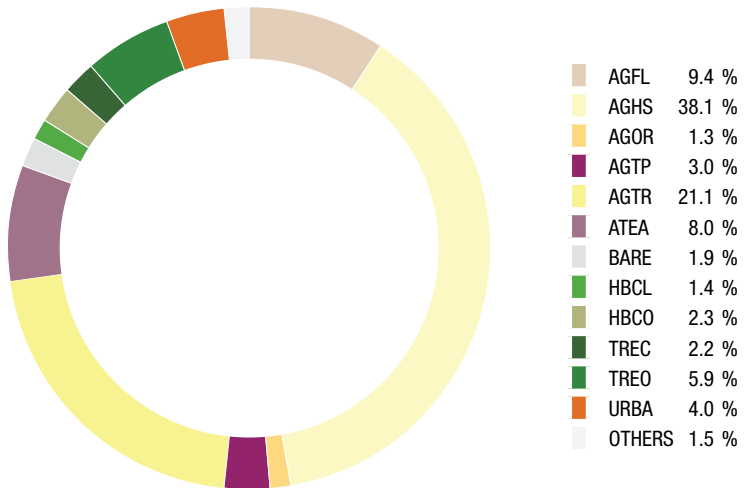

33°30'E
34°E
10°S
10°30'S
SONGWE/LUFIRA
CHITIPA
ZAMBIA
KARONGA
L SHORE
KARONGA
RUMPHI
S RUKURU/N RUMPH
North Rukuru
Karonga
Lake
Malawi
Sabi
Chilande
Mumbwe
N
0
15
30
Km

Ruo

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

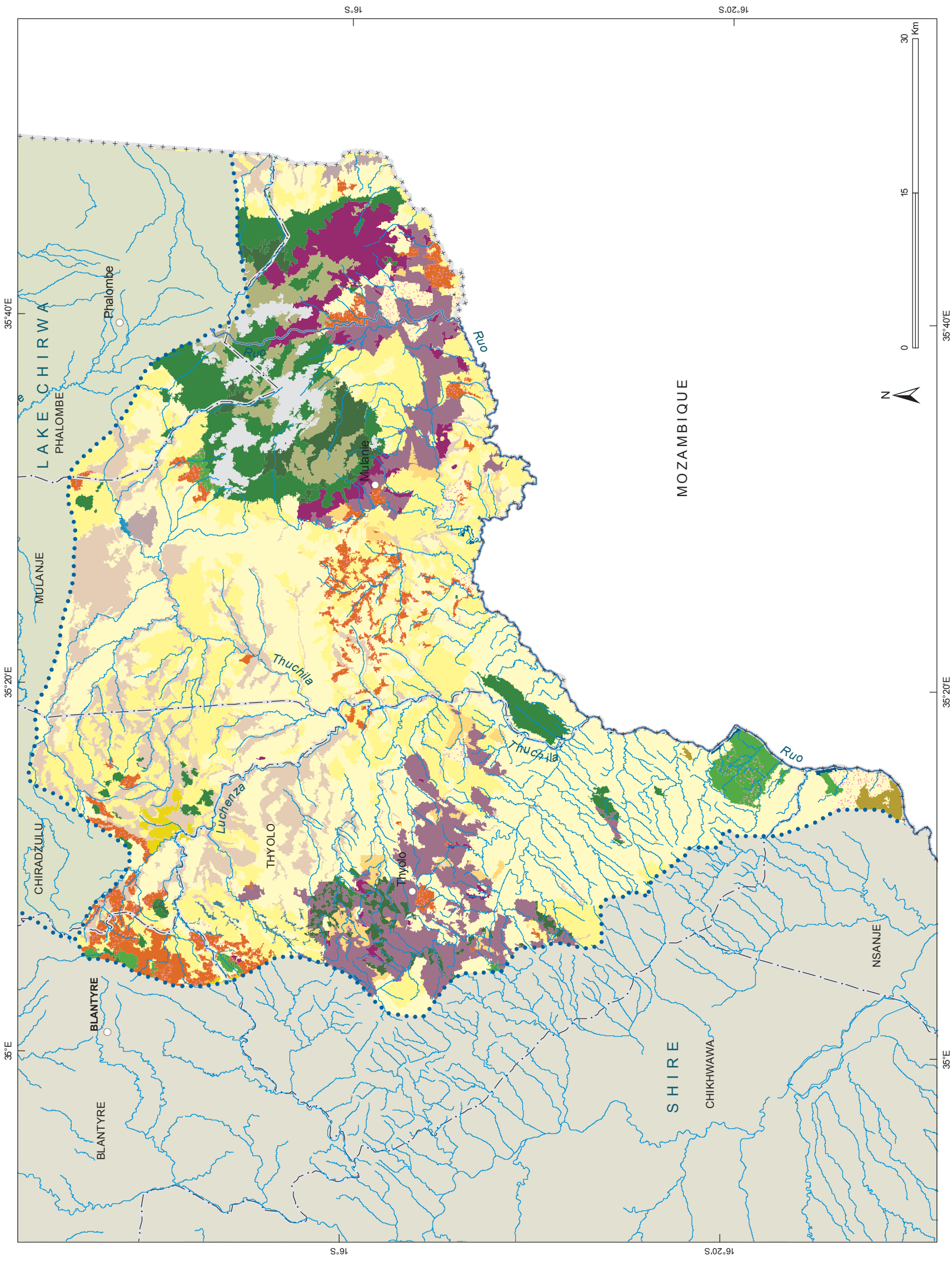
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Blantyre	Chiradzulu	Mulanje	Nsanje	Phalombe	Thyolo	TOTAL	%
	AGFL	71.0	8,299.9	13,792.1	0	1,968.8	7,656.4	31,788.2	9.4
	AGHL	71.5	1,095.5	0	0	0	110.2	1,277.2	0.4
	AGHS	466.8	7,718.2	53,446.5	3,203.2	2,934.4	60,496.8	128,265.9	38.1
	AGOR	2.0	0	1,112.0	0	18.9	3,085.8	4,218.7	1.3
	AGSR	0	0	0	0	0	0	0	0
	AGTP	0.7	20.9	9,367.0	0	14.3	559.6	9,962.5	3.0
	AGTR	1,603.6	11,274.6	39,865.1	0	2,910.8	15,447.8	71,101.8	21.1
	ARIC	0	0	1,191.6	0	0	0	1,191.6	0.4
	ASUG	0	0	0	0	0	0	0	0
	ATEA	0	0	9,931.7	0	0	17,107.3	27,039.0	8.0
	BARE	0	0	5,311.4	0	1,012.4	0	6,323.8	1.9
	HBCL	408.4	0	486.2	216.7	0	3,554.7	4,666.0	1.4
	HBCO	0	0	6,671.5	0	999.8	0	7,671.4	2.3
	HBFP	0	0	90.2	0	0	0	90.2	0
	HBFT	0	0	0	0	0	447.7	447.7	0.1
	SRCO	0	0	0	960.8	0	81.8	1,042.6	0.3
	TREC	0	87.2	3,736.0	0	914.8	2,542.6	7,280.6	2.2
	TREO	158.8	923.0	13,329.3	0	4,664.2	797.3	19,872.7	5.9
	URBA	3,336.1	2,043.5	6,429.0	0	75.5	1,440.8	13,324.8	4.0
	WANP	0	0	36.1	0	0	2.3	38.4	0
	WANT	0	0	11.1	0	0	43.0	54.1	0
	WATA	0	0	0	0	0	23.0	23.0	0
	WATP	0	0	284.6	220.2	0	279.8	784.7	0.2
	Mixed classes						GRAND TOTAL	336,464.7	


16°S
16°20'S
35°40'E
35°20'E
35°E
30
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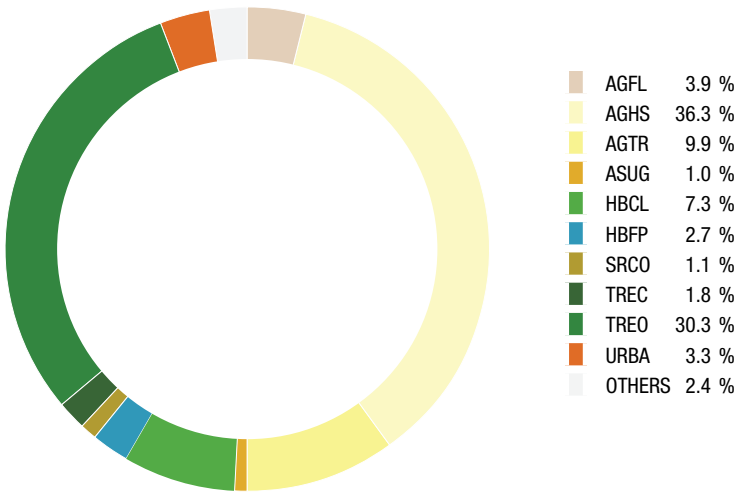
Km
N
MOZAMBIQUE
LAKE CHIRWA
PHALOMBE
MULANJE
CHIRADZULU
THYOLO
BLANTYRE
SHIRE
CHIKHWAWA
NSANJE
Phalombe
Mulanje
Thyolo
BLANTYRE
Ruo
Thuchila
Luchenza

Shire

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

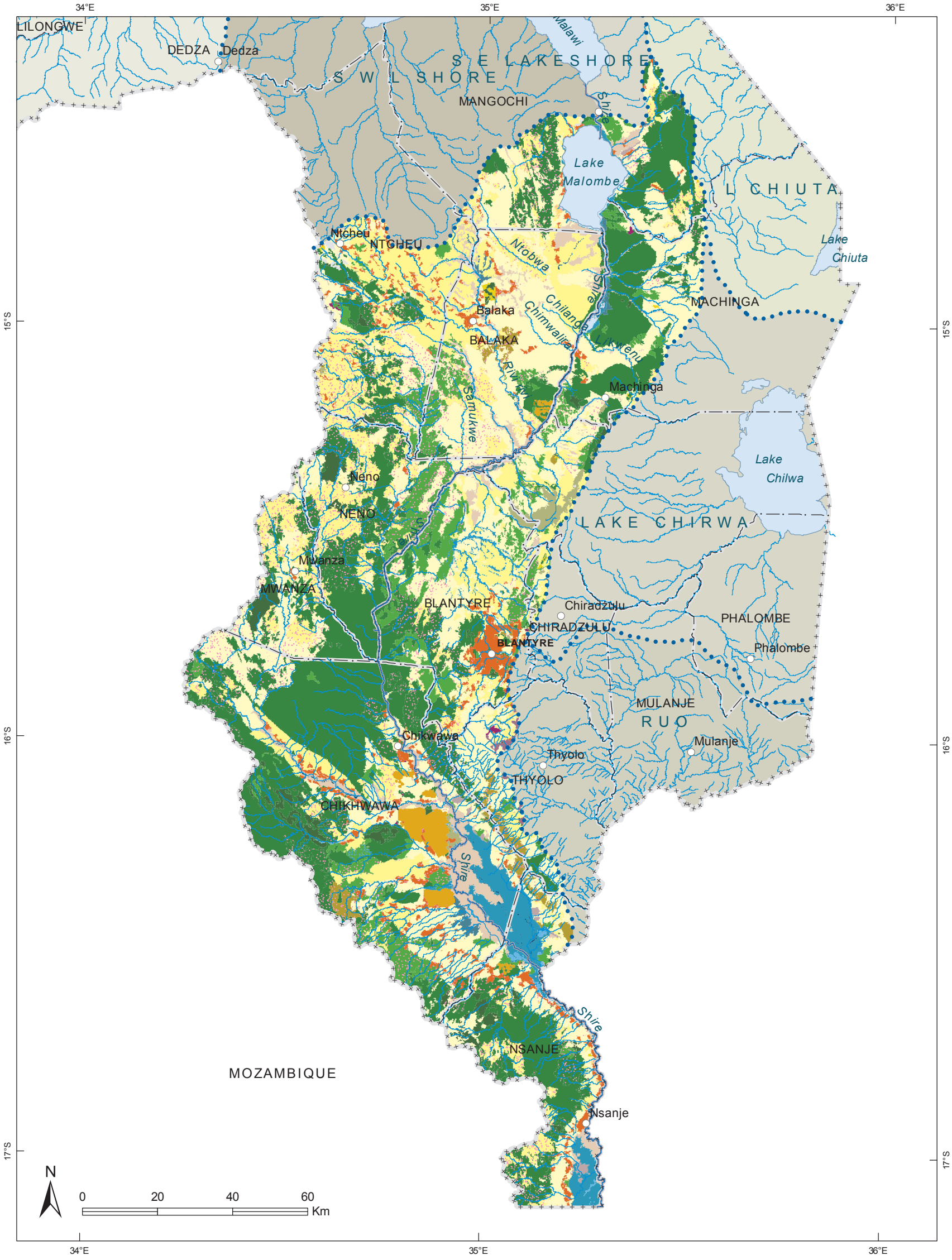
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Balaka	Blantyre	Chikhwawa	Chiradzulu	Machinga	Mangochi	Mwanza	Neno	Nsanje	Ntcheu	Thyolo	Zomba	TOTAL	%
	AGFL	17,161.8	2,936.5	32,129.9	0	3,341.0	5,054.6	43.2	970.5	5,849.7	3,729.2	107.5	2,739.1	74,063.0	3.9
	AGHL	943.0	200.8	0	248.0	217.8	51.8	41.9	0	76.7	194.0	173.8	129.6	2,277.3	0.1
	AGHS	116,672.3	63,670.8	107,589.7	1,938.3	53,236.1	58,556.6	49,706.5	60,311.2	58,133.1	64,734.1	29,669.4	20,991.3	685,209.5	36.3
	AGOR	140.7	470.8	203.0	0.2	0	403.0	0	5.7	812.6	91.5	135.3	0	2,262.9	0.1
	AGSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AGTP	0	159.6	153.4	12.2	211.1	0	0	0	0	273.0	496.0	0	1,305.2	0.1
	AGTR	38,915.6	32,725.5	30,034.5	3,548.6	431.8	6,868.4	60.9	388.3	3,172.3	48,817.7	6,651.2	15,189.3	186,804.2	9.9
	ARIC	0	0	935.2	0	0	698.6	0	0	1,733.8	0	0	0	3,367.6	0.2
	ASUG	1,374.2	0	16,914.9	0	0	0	0	0	788.3	0	0	0	19,077.4	1.0
	ATEA	0	0	0	0	0	14.9	0	0	0	0	2,265.0	0	2,279.9	0.1
	BARE	0	4.3	0	0	0	291.3	0	0	191.9	1,053.2	0	37.3	1,578.1	0.1
	HBCL	15,557.2	35,787.6	37,331.9	2,456.6	7,632.7	3,895.6	0	14,636.1	3,044.1	10,226.3	1,370.3	6,546.7	138,485.1	7.3
	HBCO	0	1,955.7	1,532.1	141.0	331.9	0	0	0	0	414.3	0	8,027.9	12,402.8	0.7
	HBFP	778.5	4,126.2	17,079.7	117.7	1,965.5	1,864.5	0	0	24,886.7	0	0	0	50,818.9	2.7
	HBFT	1,556.7	247.2	2,972.0	0	1,132.3	54.3	0	484.8	71.7	236.5	277.8	541.6	7,575.0	0.4
	SRCO	3,683.0	604.5	7,179.6	0	0	0	0	0	3,255.5	221.4	5,406.7	268.5	20,619.3	1.1
	TREC	1,022.0	364.7	11,124.9	148.9	1,364.8	832.3	5,009.2	5,241.9	6,685.9	1,542.8	88.7	1,263.9	34,689.9	1.8
	TREO	10,820.6	36,316.6	200,949.1	328.7	59,536.6	60,345.9	27,586.1	66,053.3	69,903.8	30,794.3	6,330.3	2,972.6	571,938.0	30.3
	URBA	5,925.2	15,224.0	18,158.8	20.8	644.6	2,663.6	248.8	408.9	8,992.3	8,947.8	231.2	32.5	61,498.5	3.3
	WANP	143.4	0	588.6	0	29.7	0	0	191.5	1,557.3	188.5	0	0	2,699.0	0.1
	WANT	209.4	17.1	36.9	2.7	1,304.1	1,115.9	0	0	0	34.8	15.3	0	2,736.3	0.1
	WATA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WATP	624.2	436.9	2,496.8	0	1,210	77.4	179.0	506.3	897.2	0	4.0	102.8	6,534.6	0.3
	Mixed classes												GRAND TOTAL	1,888,222.3	


34°E
35°E
36°E
15°S
16°S
17°S
LILONGWE
DEDZA
Dedza
S W L SHORE
S E LAKESHORE
MANGOCHI
Malawi
Shire
Lake Malombe
L CHIUTA
Lake Chiuta
Ntcheu
NTCHEU
Ntobwa
Balaka
BALAKA
Chilanga
Chimwalira
Linwenu
MACHINGA
Machinga
Ruwi
Samukwe
Lake Chilwa
Neno
NENO
LAKE CHIRWA
Mwanza
MWANZA
BLANTYRE
Chiradzulu
CHIRADZULU
PHALOMBE
Phalombe
MULANJE
R U O
Mulanje
Chikwawe
Thyolo
THYOLO
CHIKHWAWA
Shire
NSANJE
Nsanje
MOZAMBIQUE
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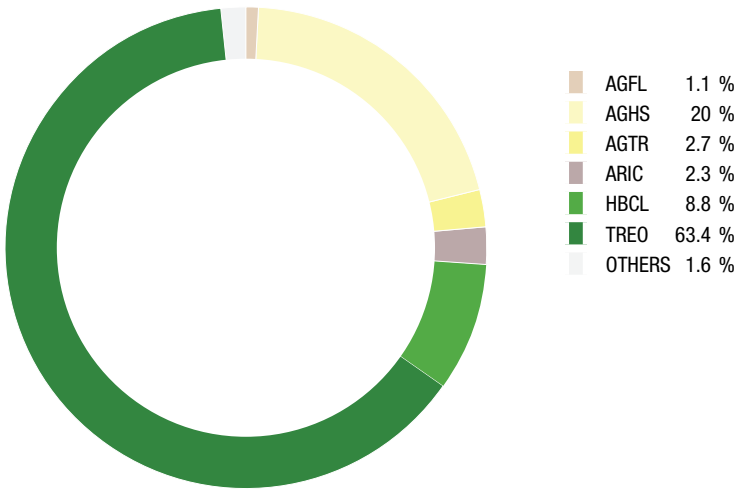
Km

Songwe

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Chitipa	Karonga	TOTAL	%
	AGFL	1,846.0	2,449.7	4,295.7	1.1
	AGHL	0	277.7	277.7	0.1
	AGHS	70,882.2	4,766.1	75,648.4	20
	AGOR	0	375.6	375.6	0.1
	AGSR	0	0	0	0
	AGTP	119.4	0	119.4	0
	AGTR	27.7	10,156.4	10,184.2	2.7
	ARIC	0	8,556.1	8,556.1	2.3
	ASUG	0	0	0	0
	ATEA	0	0	0	0
	BARE	95.5	68.6	164.1	0
	HBCL	32,522.3	851.6	33,373.9	8.8
	HBCO	0	0	0	0
	HBFP	0	671.4	671.4	0.2
	HBFT	0	65.2	65.2	0
	SRCO	0	0	0	0
	TREC	2,876.1	0	2,876.1	0.8
	TREO	172,948.9	66,613.2	239,562.1	63.4
	URBA	801.9	26.6	828.5	0.2
	WANP	51.3	109.7	161.0	0
	WANT	0	235.4	235.4	0.1
	WATA	0	0	0	0
	WATP	33.4	247.0	280.3	0.1
	Mixed classes		**GRAND TOTAL**	**377,675.1**	


33°E
33°30'E
9°30'S
10°S
10°30'S
UNITED REPUBLIC OF TANZANIA
ZAMBIA
Songwe
Chitipa
Lunyi
Lake
Malawi
Karonga
North Rukuru
NORTH
RUKURU
CHITIPA
KARONGA
KARONGA
L SHORE
Sabi
Chawe
North Rukuru
Chikande
S RUKURU -
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RUMPHI
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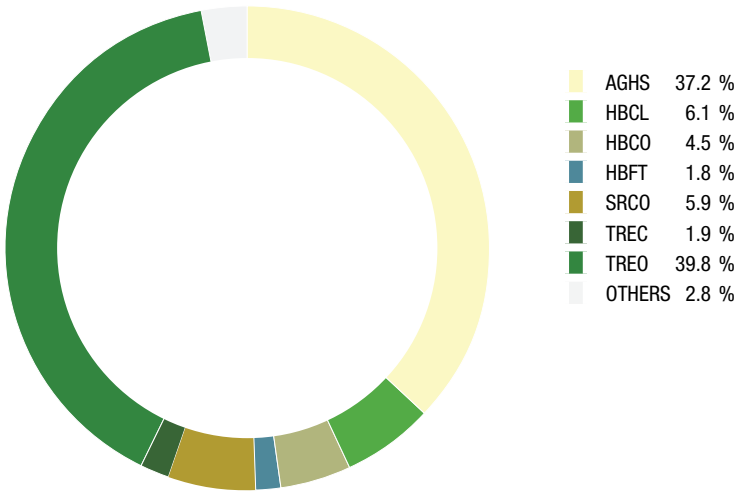
30
Km

South Rukuru

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

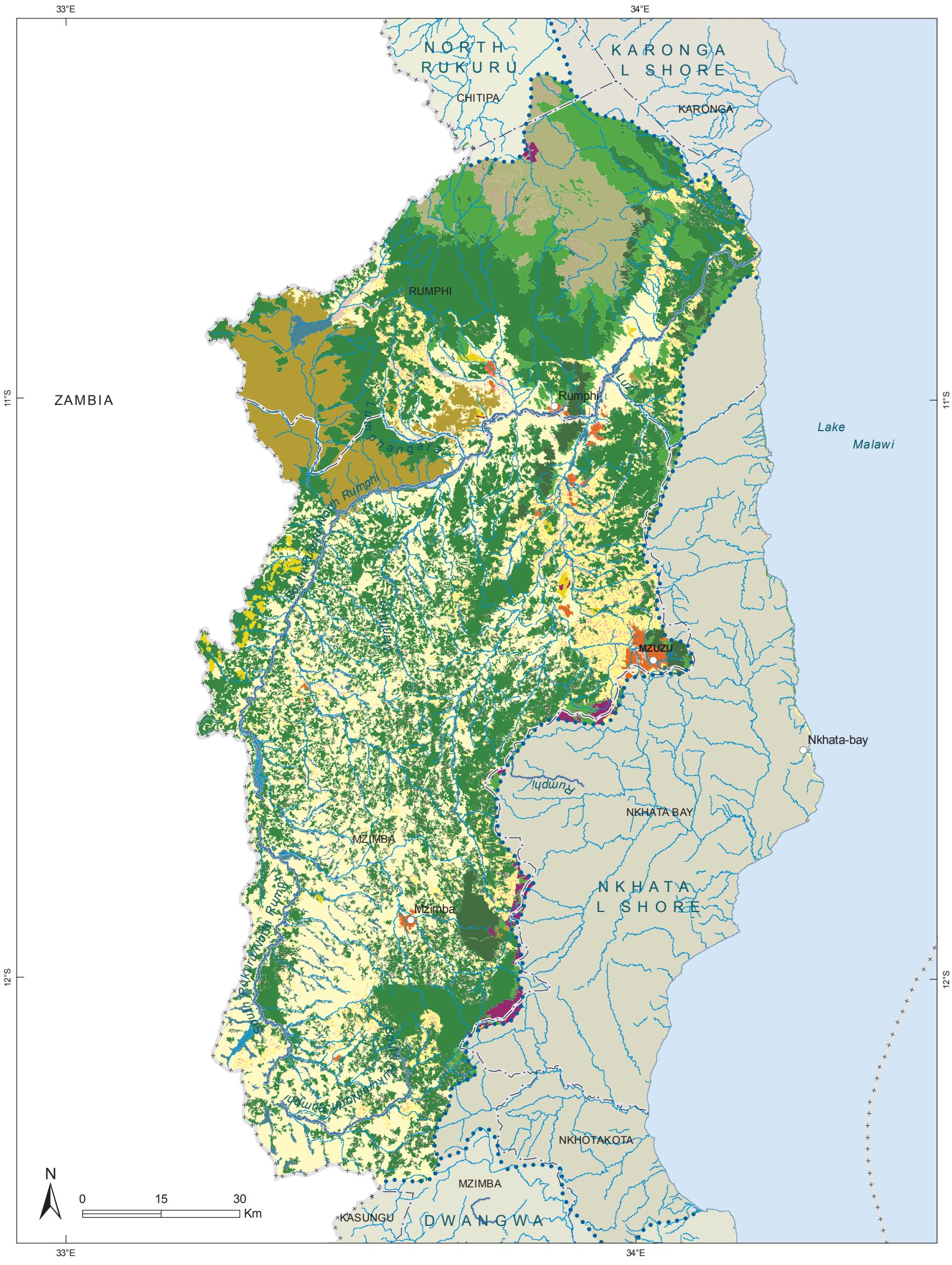
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Chitipa	Mzimba	Nkhata Bay	Rumphi	TOTAL	%
	AGFL	0	2,137.9	75.9	4,262.0	6,475.8	0.5
	AGHL	0	5,903.9	44.4	1,177.0	7,125.3	0.6
	AGHS	0	405,066.7	1,675.1	66,806.0	473,547.8	37.2
	AGOR	0	0	0	0	0	0
	AGSR	0	0	0	0	0	0
	AGTP	0	4,783.5	3,042.7	785.0	8,611.2	0.7
	AGTR	0	0	0	722.0	722.0	0.1
	ARIC	0	0	0	0	0	0
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	0	0	37.9	0	37.9	0
	HBCL	1,762.9	6,491.1	2,871.8	66,459.6	77,585.3	6.1
	HBCO	3,326.4	42.9	186.0	53,258.4	56,813.7	4.5
	HBFP	0	2,326.4	0	0	2,326.4	0.2
	HBFT	0	19,758.7	46.8	3,440.3	23,245.8	1.8
	SRCO	0	29,304.5	0	45,520.6	74,825.1	5.9
	TREC	0	15,992.6	768.5	7,546.0	24,307.1	1.9
	TREO	0	349,732.7	1,435.6	155,399.6	506,567.9	39.8
	URBA	0	6,726.2	297.3	1,155.2	8,178.8	0.6
	WANP	0	973.3	0	417.3	1,390.6	0.1
	WANT	0	247.8	0	105.8	353.6	0
	WATA	0	92.1	0	0	92.1	0
	WATP	0	503.6	0	0	503.6	0
	Mixed classes				GRAND TOTAL	1,272,709.9	

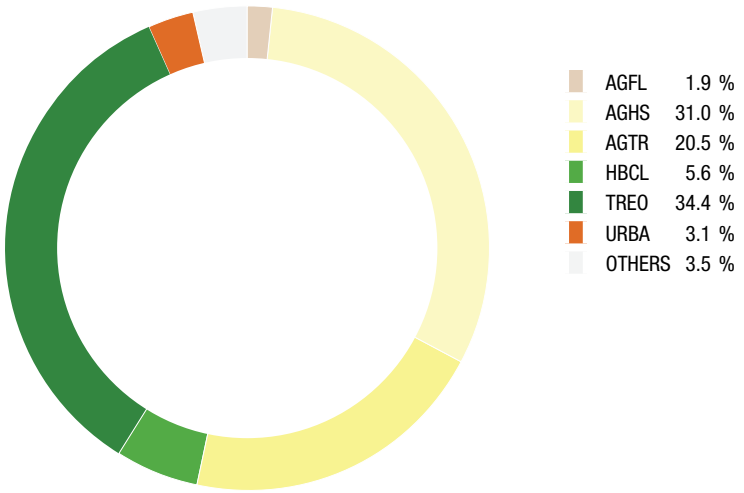

33°E
34°E
11°S
12°S
NORTH RUKURU
KARONGA L SHORE
CHITIPA
KARONGA
RUMPHI
ZAMBIA
Rumphi
Lake Malawi
MZUZU
Nkhata-bay
NKHATA BAY
MZIMBA
Mzimba
NKHATA L SHORE
NKHOTAKOTA
MZIMBA
KASUNGU
DWANGWA
N
0
15
30
Km

SWL Shore

The pie chart below shows the percentage of the predominant land cover classes. Classes rapresented by less than 1.0% of land cover were gathered onto a new class nominated “others”.

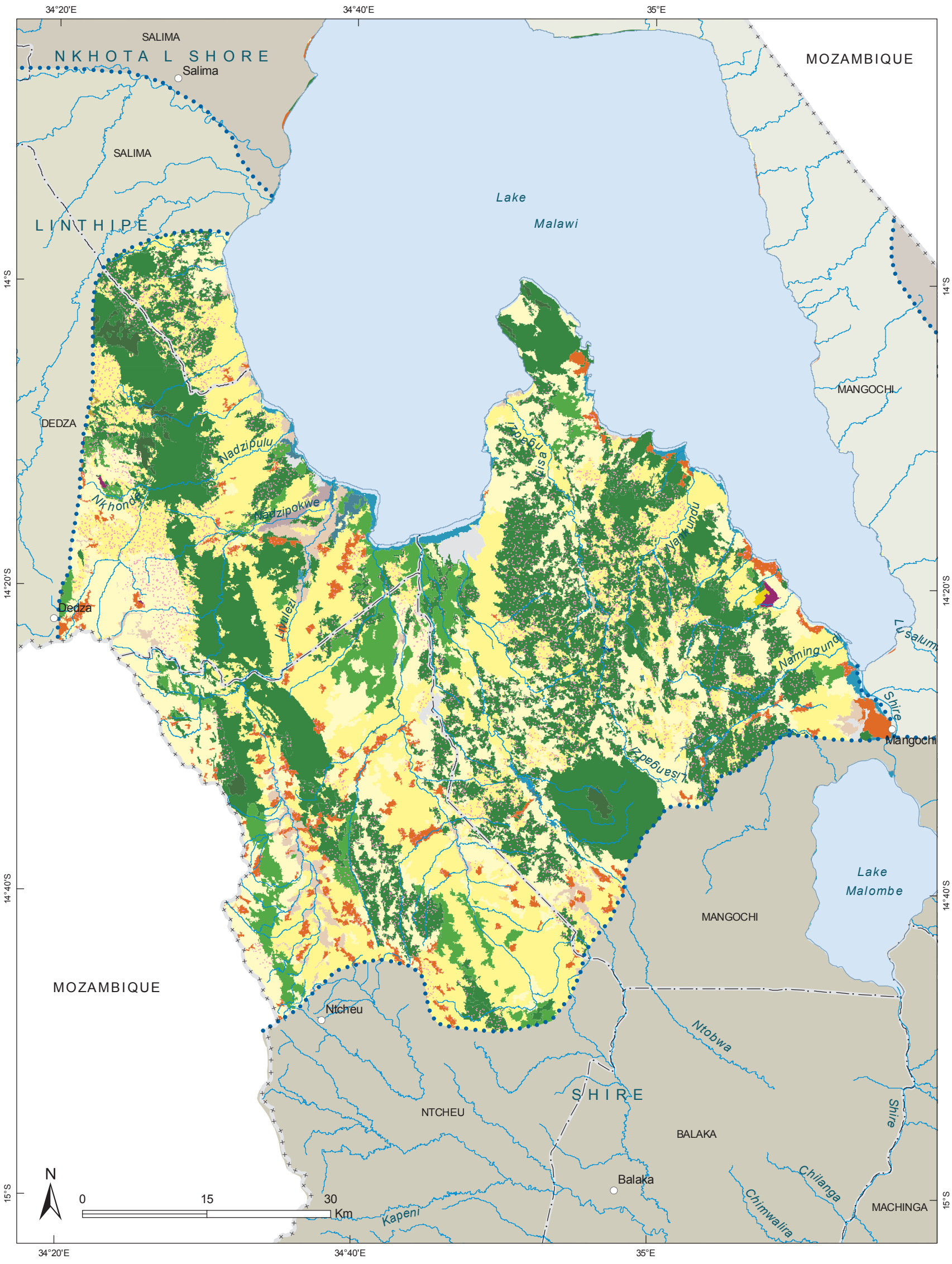
INDEX MAP

LAND COVER IN PERCENTAGE



DISTRIBUITION OF LAND COVER IN HECTARES BY DISTRICT

LEGEND		Dedza	Mangochi	Ntcheu	Salima	TOTAL	%
	AGFL	3,692.0	1,957.7	3,876.1	195.9	9,721.7	1.9
	AGHL	0	198.5	0	0	198.5	0
	AGHS	36,772.3	72,700.1	40,301.1	8,330.4	158,103.9	31.0
	AGOR	0	0	71.0	0	71.0	0
	AGSR	0	0	0	0	0	0
	AGTP	107.6	362.7	0	0	470.3	0.1
	AGTR	23,353.4	27,231.1	51,133.1	3,023.2	104,740.7	20.5
	ARIC	1,201.2	0	47.5	0	1,248.8	0.2
	ASUG	0	0	0	0	0	0
	ATEA	0	0	0	0	0	0
	BARE	307.8	2,179.0	345.6	0.1	2,832.5	0.6
	HBCL	6,007.2	5,744.2	16,872.8	0	28,624.1	5.6
	HBCO	0	0	0	0	0	0
	HBFP	1,230.2	2,486.2	0	71.7	3,788.2	0.7
	HBFT	1,035.3	301.1	44.4	0	1,380.9	0.3
	SRCO	115.2	0	0	0	115.2	0
	TREC	2,427.7	876.9	399.6	0	3,704.2	0.7
	TREO	39,057.8	99,078.3	28,891.5	8,130.2	175,157.8	34.4
	URBA	3,009.9	4,862.3	7,583.3	136.4	15,592.0	3.1
	WANP	0	0	12.2	0	12.2	0
	WANT	946.1	2,561.1	0	208.4	3,715.6	0.7
	WATA	0	0	0	0	0	0
	WATP	0	233.8	0	0	233.8	0
	Mixed classes				**GRAND TOTAL**	**509,711.2**	


34°20'E
34°40'E
35°E
14°S
14°20'S
14°40'S
15°S
SALIMA
NKHOTA L SHORE
Salima
SALIMA
LINTHIPE
DEDZA
Dedza
MOZAMBIQUE
Lake
Malawi
MANGOCHI
Nadzipulu
Nkhonde
Nadzipokwe
Livulezi
Ngodzi
Lisa
Namundu
Namingundu
Lu salum
Shire
Mangochi
Kapeni
Lake
Malombe
MANGOCHI
MOZAMBIQUE
Ntcheu
Ntobwa
SHIRE
NTCHEU
BALAKA
Balaka
Chilanga
Chimwalira
MACHINGA
Kapeni
N
0
15
30
Km

Land cover change

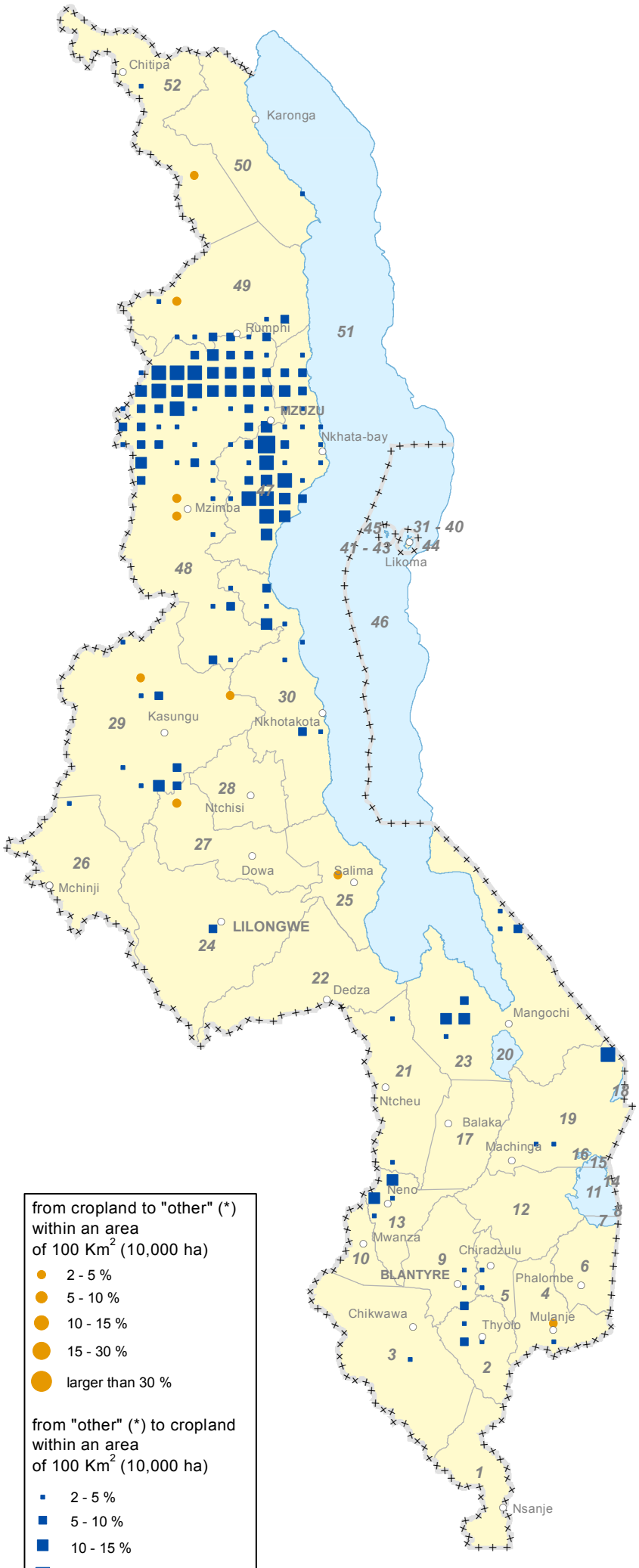
Detection of hot spots of rapidly changing land cover is an effective input for national reporting and planning remedial measures.

With FAO's standard methodologies and tools and the global availability of free Landsat imagery since 1970, the land cover change detection has become more accurate and cost effective.

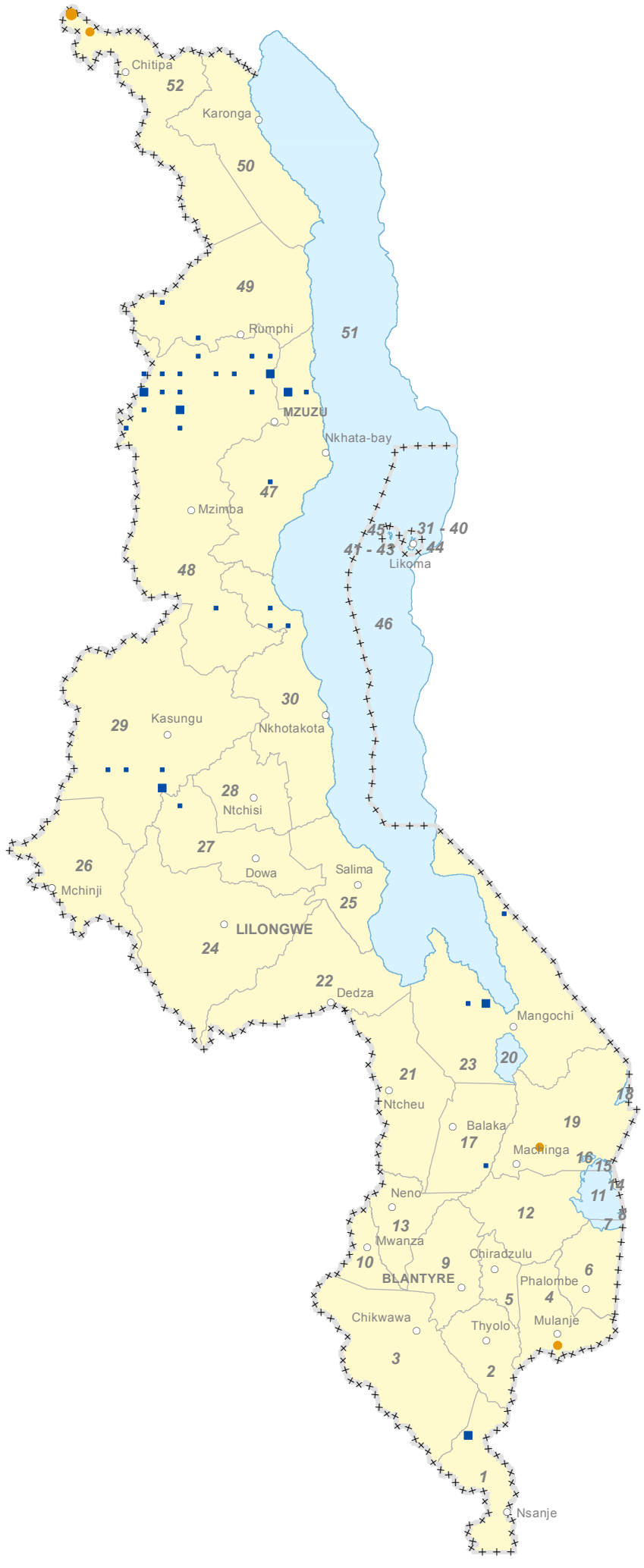
For Malawi, a land cover change detection has been performed for the last 20 years

Hot Spots of Change: Cropland

1990's - 2000's



2000's - 2010's



from cropland to "other" (*) within an area of 100 Km^2 (10,000 ha)

- 2 - 5 %
- 5 - 10 %
- 10 - 15 %
- 15 - 30 %
- larger than 30 %

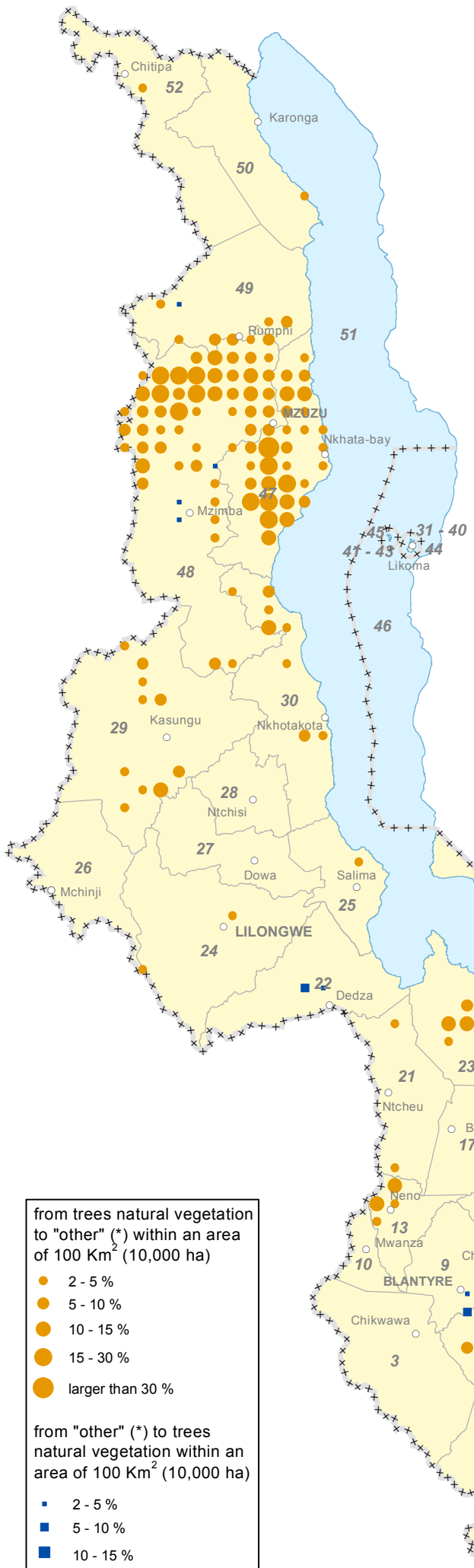
from "other" (*) to cropland within an area of 100 Km^2 (10,000 ha)

- 2 - 5 %
- 5 - 10 %
- 10 - 15 %
- 15 - 30 %
- larger than 30 %

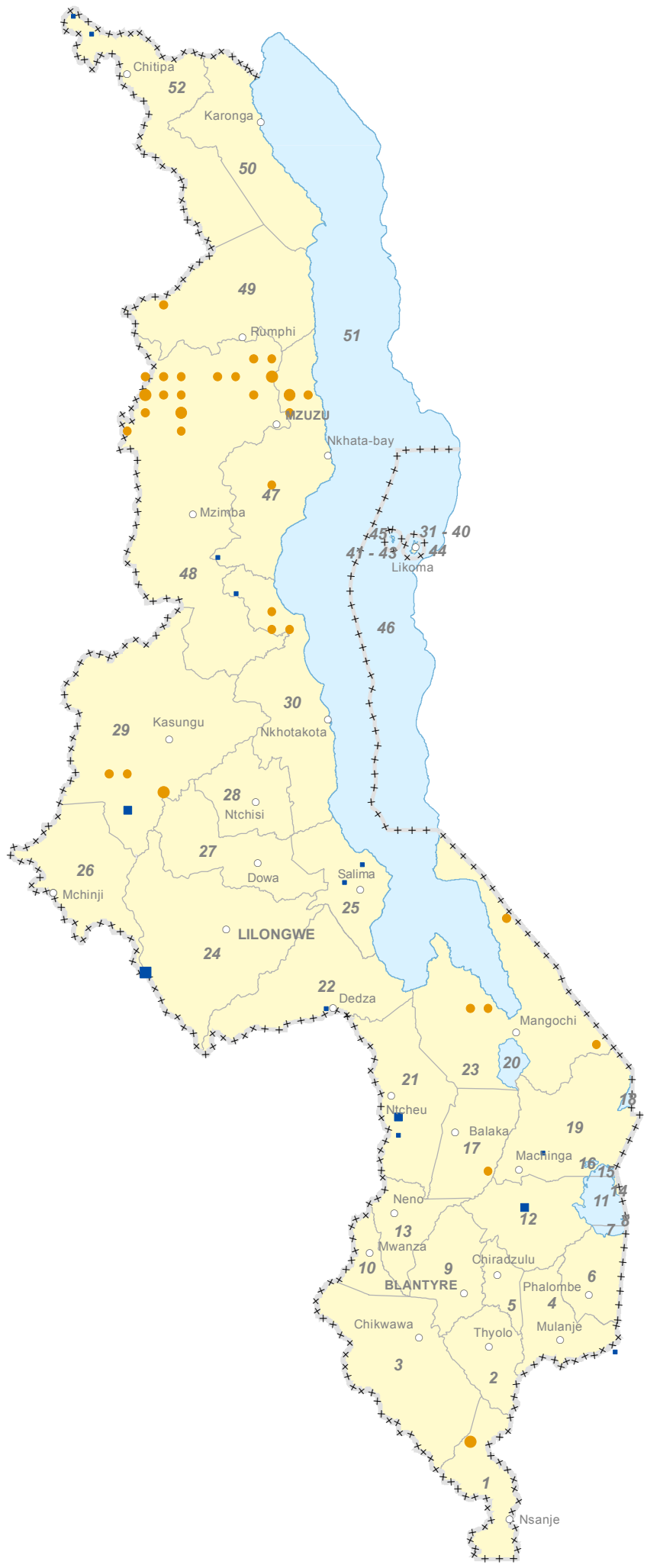
(*) "other" include natural vegetation areas, Bare rocks areas, Built-up areas
(**) Values of less than 2 % are not shown in the map.

Hot Spots of Change: Natural Vegetation

1990's - 2000's



2000's - 2010's



from trees natural vegetation to "other" (*) within an area of 100 Km^2 (10,000 ha)

- 2 - 5 %
- 5 - 10 %
- 10 - 15 %
- 15 - 30 %
- larger than 30 %

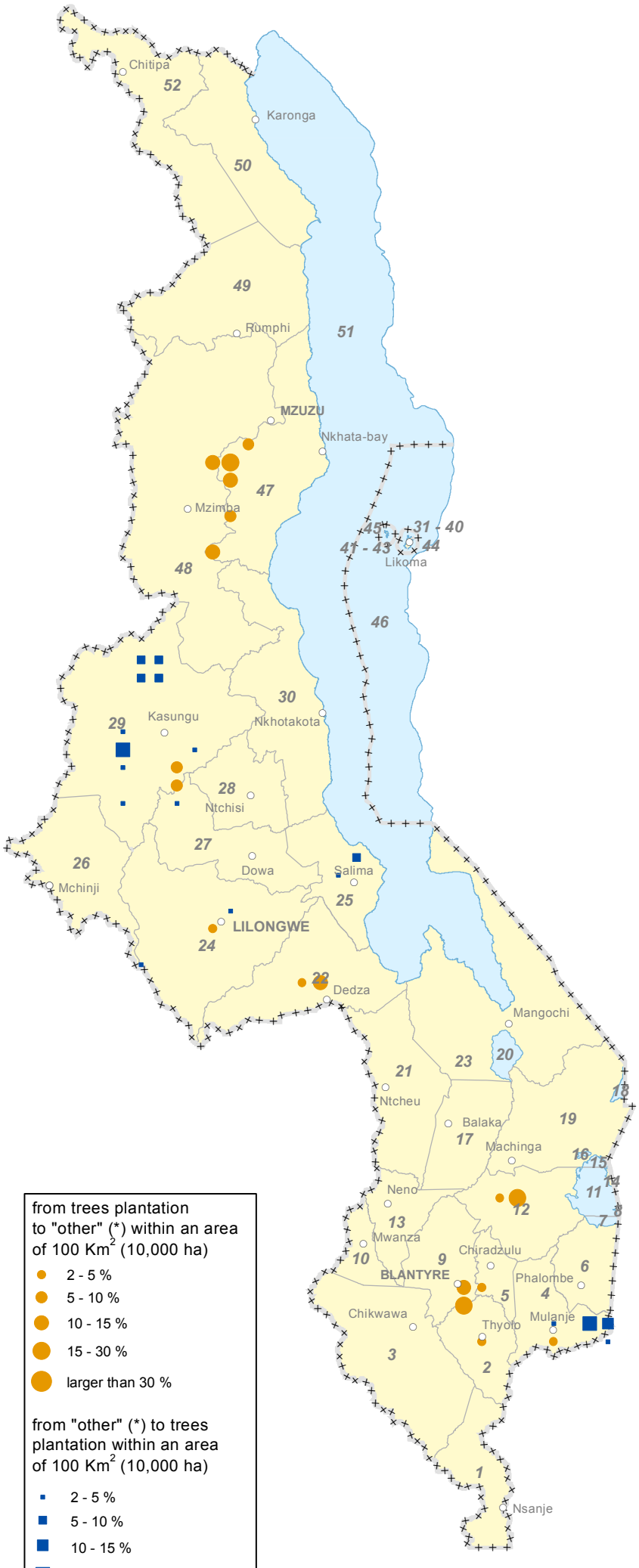
from "other" (*) to trees natural vegetation within an area of 100 Km^2 (10,000 ha)

- 2 - 5 %
- 5 - 10 %
- 10 - 15 %
- 15 - 30 %
- larger than 30 %

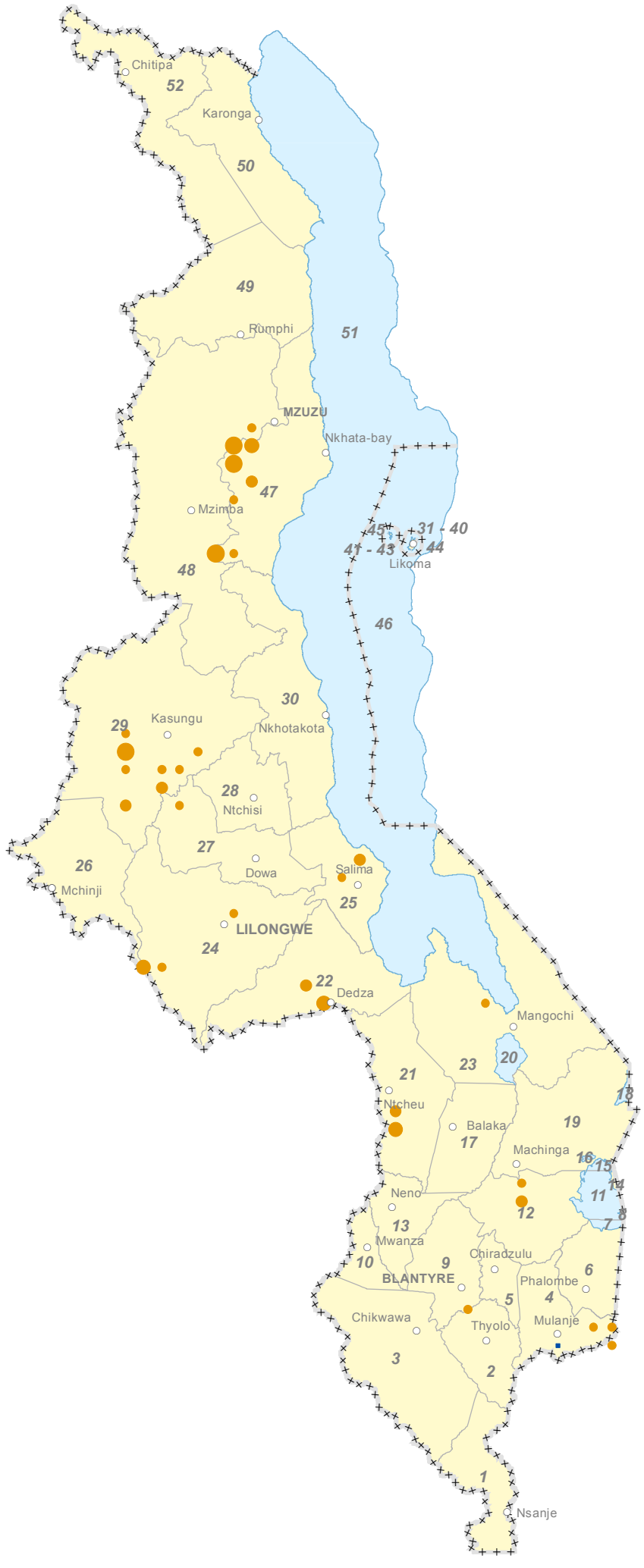
(*) "other" include natural vegetation areas, Bare rocks areas, Built-up areas
(**) Values of less than 2 % are not shown in the map.

Hot Spots of Change: Tree Plantation

1990's - 2000's



2000's - 2010's



(*) "other" include natural vegetation areas, Bare rocks areas, Built-up areas
(**) Values of less than 2 % are not shown in the map.

Atlas of Malawi

LAND COVER and LAND COVER change

1990 - 2010

NORWEGIAN EMBASSY