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Report no. 2082

Global Assessment of Soil Degradation
Eastern and Southern Africa
Volume 1: Main report

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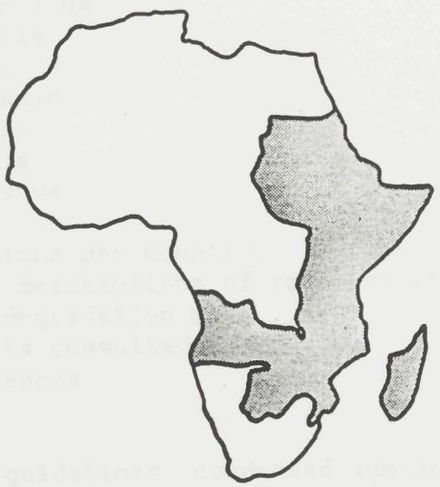
246HM/2/89

Report no. 2082

GLOBAL ASSESSMENT OF SOIL DEGRADATION - EASTERN AND SOUTHERN AFRICA.

Volume 1: MAIN REPORT

R.T.A. Hakkeling



Netherlands Soil Survey Institute (STIBOKA), Wageningen, 1989

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Subsections per country:
- Brief descriptions of relevant features
- Soil degradation map
- Experts consulted
- References

VOLUME 2

Matrix tables/Mapping Unit Descriptions

Soil Degradation Map - Eastern and Southern Africa (in folder)

BACKGROUND

The GLASOD project is carried out by the International Soil Reference and Information Centre (ISRIC), Wageningen, The Netherlands, at the request of The United Nations Environmental Programme (UNEP), Nairobi, Kenya.

Aim of the GLASOD project is:
- to strengthen the global awareness of dangers resulting from unappropriate land and soil management;
- to assess the status of human-induced soil degradation due to water erosion, wind erosion, chemical deterioration, physical deterioration and biological deterioration.

A world wall chart on human-induced soil degradation at an avarage scale of 1 : 10 million will be compiled by ISRIC, using regional maps prepared by several institutions from various parts of the world. The Soil Survey Institute (STIBOKA), Wageningen, The Netherlands, prepared the map of the region Eastern and Southern Africa, covering 34% of the total surface area of the continent. Scale of the map prepared by STIBOKA is approximately 1 : 7,5 million.

The countries concerned are:

Sudan	Burundi	Mozambique
Ethiopia	Tanzania	Swaziland
Djibouti	Zambia	Madagascar
Somalia	Angola	Comores
Uganda	Botswana	Mauritius
Kenya	Zimbabwe	Reunion
Rwanda	Malawi	

1 GENERAL METHODOLOGY

The procedures adhered to during the compilation of the GLASOD map for Eastern and Southern Africa are laid down in the "GLASOD guidelines" (ISRIC working paper 88/3). This methodology can be divided into three steps:

1. Polygon map preparation
2. Literature search
3. Experts check

Because available information is nearly always on a country basis, these steps must be followed for each separate country.

STEP 1. POLYGON MAP PREPARATION

On the polygon map, units are distinguished that are homogeneous regarding soil degradation, or show a homogeneous pattern of several degradation types. To arrive at such a map, information from a range of source maps, covering a variety of themes, is brought together. Next, an overall map is compiled, which must be as homogeneous as possible for all factors influencing soil degradation. If done properly, this map can be expected to reflect soil degradation boundaries.

The factors taken into account are:

- Physiography
- Soils
- Geology
- Climate
- Population density
- Land use
- Vegetation

If necessary, other factors can be added.

Mapping units distinguished are mainly physiographic units. Other factors are used to refine the descriptions of the units. Large differences in one or more factors other than physiography may cause a subdivision of a physiographic unit.

STEP 2. LITERATURE SEARCH

As soon as the preliminary polygon map is completed, all available literature is checked for clues on soil degradation. Quite some literature proved useful, like reports accompanying soil surveys, articles on degradation/erosion and agricultural studies.

Most of the literature encompassed qualitative information only. Transfer of this qualitative information to the quantitative classification system of the GLASOD guidelines is the task of the interpretor. His estimates are to be checked later (step 3).

When carrying out step 2, the polygon map prepared in step 1 may not turn out to represent soil degradation boundaries. In Zimbabwe for example, instead of physiography, land use and land ownership appeared to be the dominant factors influencing soil degradation. As a consequence, a new polygon map had to be compiled, with land use/land ownership as the main factor.

STEP 3. EXPERTS CHECK

The results of steps 1 and 2 are checked by an expert who must be familiar with the actual circumstances in one of the countries or regions involved.

This exercise is indispensable for various reasons:

- the transfer by the interpretor of qualitative information into a system composed of quantitative guidelines (step 2) is commented on by someone with "ground truth" knowledge.
- degradation phenomena with the designation "slight" which are part of the GLASOD classification system, are often omitted in literature.
- many maps and reports mentioned in steps 1 and 2 are not very recent, while factors such as population density, land use and vegetation show rapid changes. This might influence the accuracy of the degradation assessment.
- the influence of factors other than physiography mentioned in step 1 may be underestimated.

It proved highly beneficial to actually meet the regional expert. Where this was not possible, maps and polygon descriptions were mailed.

2 MAP COMPILATION

2.1 Mapping unit descriptions

The units of the polygon map are described in Volume 2, according the matrix tables provided by ISRIC. An example is given in Table 1.

Table 1. Example of a general unit description of a matrix table.

GLASOD MATRIX TABLE	Map unit : I65
	Country 1 : Sudan
	Country 2 : Ethiopia
	Country 3 :
	Area (km^2): 37100

Physiography:	Plain, level (dom) Hills, steep (inc)
Soil :	VRe, clay, deep (dom) LPq, shallow (inc)
Geology	: Alluvial deposits and metamorphic rock
Precipitation (an.mean):	500-800 mm
Temperature (mean)	: 26-28 degr. C
Population density	: Low to medium
Land use	: Pastoralism
Vegetation	: Grassland and woodland
General remarks:	Heavy degradation around recent refugee camps. Heavy production decrease by compaction occurred between 1945 and 1955

In the original matrix tables, average potential evapotranspiration is listed as well. For most East African countries, figures on potential evapotranspiration were hard to obtain. It was thought better not to spend too much effort on this relatively unimportant entry.

Classes distinguished for the various entries are listed below.

PHYSIOGRAPHY (adapted from Shields and Coote, 1988)

MAJOR LANDFORM

Mountains/Escarpments

Hills

Tableland/Plateau

Plain

Valley/Floodplain

Upland/Foothill

Swamp

Dunes

Complex landform

SURFACE FORM

Level

Undulating

Rolling

Steep

Inclined

Ridged

Complex surface form

DISTRIBUTION (applicable to both physiography and soils)

Dom (dominant; covering >50% of the unit area)

Ass (association; covering 15-50% of the unit area)

Inc (inclusion; covering <15% of the unit area)

SOIL

SOIL TYPE

Classification units according to FAO-Unesco (FAO, 1988. See Table 2)

TEXTURE

Sand

Sandy loam

Loam

Clay loam

Clay

Table 2. Soil units according to the legend of the FAO-Unesco Soil map of the world (FAO, 1988)

FL FLUVISOLS

FLe Eutric Fluvisols
FLc Calcaric Fluvisols
FLd Dystric Fluvisols
FLm Mollic Fluvisols
FLu Umbric Fluvisols
FLt Thionic Fluvisols
FLs Salic Fluvisols

GL GLEYSOLS

GLe Eutric Gleysols
GLk Calcic Gleysols
GLd Dystric Gleysols
GLa Andic Gleysols
GLm Mollic Gleysols
GLu Umbric Gleysols
GLt Thionic Gleysols
GLi Gelic Gleysols

RG REGOSOLS

RGe Eutric Regosols
RGc Calcaric Regosols
RGy Gypsic Regosols
RGd Dystric Regosols
RGu Umbric Regosols
RGi Gelic Regosols

LP LEPTOSOLS

LPe Eutric Leptosols
LPd Dystric Leptosols
LPk Rendzic Leptosols
LPm Mollic Leptosols
LPu Umbric Leptosols
LPq Lithic Leptosols
LPi Gelic Leptosols

HS HISTOSOLS

HSl Folic Histosols
HSs Terric Histosols
HSf Fibric Histosols
HSt Thionic Histosols
HSi Gelic Histosols

AT ANTHROSOLS

ATa Aric Anthrosols
ATc Cumulic Anthrosols
ATf Fimic Anthrosols
ATu Urbic Anthrosols

AR ARENOSOLS

ARh Haplic Arenosols
ARb Cambic Arenosols
ARl Luvic Arenosols
ARo Ferralic Arenosols
ARa Albic Arenosols
ARc Calcaric Arenosols
ARg Gleyic Arenosols

AN ANDOSOLS

ANh Haplic Andosols
ANm Mollic Andosols
ANu Umbric Andosols
ANz Vitric Andosols
ANg Gleyic Andosols
ANi Gelic Andosols

VR VERTISOLS

VRe Eutric Vertisols
VRd Dystric Vertisols
VRk Calcic Vertisols
VRy Gypsic Vertisols

LV LUVISOLS

LVh Haplic Luvisols
LVf Ferric Luvisols
LVx Chromic Luvisols
LVk Calcic Luvisols
LVv Vertic Luvisols
LVa Albic Luvisols
LVj Stagnic Luvisols
LVg Gleyic Luvisols

PL PLANOSOLS

PLe Eutric Planosols
PLd Dystric Planosols
PLm Mollic Planosols
PLu Umbric Planosols
PLi Gelic Planosols

PD PODZOLUVISOLS

PDe Eutric Podzoluvisols
PDd Dystric Podzoluvisols
PDj Stagnic Podzoluvisols
PDg Gleyic Podzoluvisols
PDi Gelic Podzoluvisols

PZ PODZOLS

PZh Haplic Podzols
PZb Cambic Podzols
PZf Ferric Podzols
PZc Carbic Podzols
PZg Gleyic Podzols
PZi Gelic Podzols

CM CAMBISOLS

CMe Eutric Cambisols
CMd Dystric Cambisols
CMu Humic Cambisols
CMc Calcaric Cambisols
CMx Chromic Cambisols
CMv Vertic Cambisols
CMo Ferralic Cambisols
CMg Gleyic Cambisols
CMi Gelic Cambisols

LX LIXISOLS

LXh Haplic Lixisols
LXf Ferric Lixisols
LXp Plinthic Lixisols
LXa Albic Lixisols
LXj Stagnic Lixisols
LXg Gleyic Lixisols

AC ACRISOLS

ACh Haplic Acrisols
ACf Ferric Acrisols
ACu Humic Acrisols
ACp Plinthic Acrisols
ACg Gleyic Acrisols

AL ALISOLS

ALh Haplic Alisols
ALf Ferric Alisols
ALu Humic Alisols
ALp Plinthic Alisols
ALj Stagnic Alisols
ALg Gleyic Alisols

NT NITISOLS

NTh Haplic Nitisols
NTr Rhodic Nitisols
NTu Humic Nitisols

FR FERRALSOLS

FRh Haplic Ferralsols
FRx Xanthic Ferralsols
FRr Rhodic Ferralsols
FRu Humic Ferralsols
FRg Geric Ferralsols
FRp Plinthic Ferralsols

PT PLINTHOSOLS

PTe Eutric Plinthosols
PTd Dystric Plinthosols
PTu Humic Plinthosols
PTa Albic Plinthosols

CL CALCISOLS

CLh Haplic Calcisols
CLl Luvic Calcisols
CLp Petric Calcisols

GY GYPSISOLS

GYh Haplic Gypsisols
GYk Calcic Gypsisols
GYl Luvic Gypsisols
GYp Petric Gypsisols

SN SOLONETZ

SNh Haplic Solonetz
SNm Mollic Solonetz
SNk Calcic Solonetz
SNy Gypsic Solonetz
SNj Stagnic Solonetz
SNg Gleyic Solonetz

SC SOLONCHAKS

SCh Haplic Solonchaks
SCm Mollic Solonchaks
SCk Calcic Solonchaks
SCy Gypsic Solonchaks
SCn Sodic Solonchaks
SCg Gleyic Solonchaks
SCi Gelic Solonchaks

KS KASTANOZEMS

KSh Haplic Kastanozems
KSl Luvic Kastanozems
KSk Calcic Kastanozems
KSy Gypsic Kastanozems

CH CHERNOZEMS

CHh Haplic Chernozems
CHk Calcic Chernozems
CHl Luvic Chernozems
CHw Glossic Chernozems
CHg Gleyic Chernozems

PH PHAEOZEMS

PHh Haplic Phaeozems
PHc Calcaric Phaeozems
PHl Luvic Phaeozems
PHj Stagnic Phaeozems
PHg Gleyic Phaeozems

GR GREYZEMS

GRh Haplic Greyzems
GRg Gleyic Greyzems

DEPTH

Shallow (0-50 cm)

Moderately deep (50-100 cm)

Deep (>100 cm)

DISTRIBUTION (see under physiography)

GEOLOGY (adapted from Shields and Coote, 1988)

Alluvial deposits	**Basic effusive rock**
Colluvial deposits	**Metamorphic rock**
Eolian deposits	**Pyroclastic rock and/or tuff**
Marine deposits	**Sandstone**
Organic deposits	**Shale**
Acid cristalline rock	**Limestone**
Basic cristalline rock	**Evaporite**
Acid effusive rock	**Mixed rock**

CLIMATE

MEAN ANNUAL PRECIPITATION

Range in mm

MEAN TEMPERATURE

Range in °C

POPULATION DENSITY (inhabitants per sqkm)

Very low (0-5)

Low (5-10)

Medium (10-50)

High (50-100)

Very high (>100)

Varying

Note: figures on population density are often taken from obsolete censusses. This means that the figures must be considered in a comparative way; i.e. higher or lower than adjacent units.

LAND USE

Shifting cultivation

Permanent subsistence farming

Commercial farming

Mixed farming (intensive mix of agriculture and animal husbandry)

Pastoralism (often nomadic)

Forestry

Reserve (forest or wildlife)

VEGETATION

Forest land

Woodland

Bush and/or shrubland

Grassland

Swamp vegetation

Montane vegetation

Exposed soil surface (barren)

2.2 Classification of soil degradation as used for Eastern and Southern Africa

In this section further specifications of the mapping units, as proposed in the GLASOD guidelines are given. A condensed summary of these guidelines is given in the Annex. An example of the part of the matrix table dealing with the degradation characteristics of a mapping unit is given in Table 3.

Table 3. Listing of degradation characteristics of a mapping unit in the GLASOD matrix table (for explanation of symbols, see Annex).

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	2	2	1	Poor irrigation management
Wt	f	2	2	3	On valley fringes
U	I	0/1		5	Very slight Wt
SN				3	

NON-DEGRADED LANDS/MISCELLANEOUS LAND TYPES

It proved very difficult to distinguish between the various types of terrain not affected by human-induced degradation which are listed in the GLASOD guidelines. This is mainly due to the fact that some types were poorly defined. For example:

- SN (stabilized naturally), does this only include formerly unstable land which has been stabilized by some natural cause, or does it include all lands that are stable without human intervention?
- SA (stable by permanent form of agriculture): does this only include formerly unstable land, which has become stable because of permanent agriculture, or should all agricultural land which has not been degraded be included? The latter would be very hard to determine, and susceptible to very rapid changes.
- D (active dunes), A (desert), R (rock outcrops) and U (unstable terrain) are not mutually exclusive.

Because of the relatively low relevance of these land types for a map on human induced soil degradation, few efforts were made for further specification.

CAUSATIVE FACTORS

Often there are two or more causative factors for one degradation type. When hard to tell which factor was the most important, two factors are given in the matrix table. The causative factor i (over-intensive annual cropping) also includes "poor management annual cropping", which can be the causative factor for salinization or topsoil erosion.
The causative factor w (industrial waste) was not recognized for the region discussed in this text.

DEGREE

In one polygon, a given degradation type can occur in more than one degree. Although, at the GLASOD scale of generalization, double figures in the matrix table should be avoided as much as possible, two situations occur where more than one degree figure can be given:

- Degrees differ only one class.
  Example: moderate and severe topsoil erosion in 20% of the unit caused by deforestation:
  Wt - f - 2/3 - 2 - 3 (type-cause-degree-rate-extent).
- Locally severe degradation occurs in a unit which suffers from a very frequent or dominant but slight degradation of the same type.
  Example: infrequent extreme topsoil erosion and dominant slight topsoil erosion in same area, caused by overgrazing:
  Wt - g - 4 - 3 - 1 (type-cause-degree-rate-extent)
  U - g - 1 - 1 - 4 - slight Wt (remark added)
  The dominant topsoil erosion is provisionally stored under U (unstable), because the database structure does not allow double degradation types for one polygon.

RECENT PAST RATE

In the GLASOD guidelines, the recent past rate of soil degradation is not specified. For Eastern and Southern Africa, recent past rate has been attached to the degree, as shown below:

degree	rate
slight, no additional information	slow
moderate, degradation is not very recent	slow
slight, degradation is recent	medium
moderate, no additional information	medium
severe/extreme, degradation is not very recent	medium
moderate, degradation is recent	rapid
severe/extreme, no additional information	rapid

HISTORY

No information was found on historic human induced soil degradation in Eastern and Southern Africa.

OFF-SITE EFFECTS

Where known, off-site effects were mentioned in the matrix table. The effects concerned were in most cases of minor importance. As they occurred scattered within a unit, they could not even be flagged.

2.3 The GLASOD soil degradation classification system: constraints encountered during compilation

Two situations frequently occurring in Eastern and Southern Africa, and probably also in other parts of the world, could not be classified satisfactorily using the GLASOD guidelines. Both cases need further attention.

1. <u>Two types of soil degradation affect the same tract of land</u>

This situation occurs in two forms:

- Dependent, e.g. topsoil erosion and nutrient loss both caused by over intensive cropping.
- Independent, e.g. compaction caused by overgrazing which, in turn, causes topsoil erosion.

There are two different ways to visualize this situation in the matrix table (the independent form is taken as an example):

- separate:

  Wt - i - 2 - 2 - 4 - Cn occurs on same land

  Cn - i - 1 - 1 - 4 - Wt occurs on same land

This way of expressing has the advantage that it gives all the information, but it tends to overestimate the actual area affected.

- combined:

  Wt - i - 2 - 2 - 4 - slight Cn occurs in same area

  This way of expressing does not overestimate the total area affected, but the characterization of Cn is less clear

For the region discussed at present the second option was taken. The degradation type that poses the strongest limitation to agriculture is represented in the matrix table. The second type is mentioned in the remarks.

2. Soil degradation is partly natural, partly human induced

This situation occurs frequently in arid and semi-arid regions which suffer from a strong natural wind erosion. When overgrazed, this wind erosion will intensify, but it is not possible to determine to what degree overgrazing is the responsible factor.

For Eastern and Southern Africa, this situation is expressed as follows:

Et - g - 1 - 1 - 4 - natural process, intensified by overgrazing (type-cause-degree-rate-extent-remark).

3 INFORMATION ON INDIVIDUAL COUNTRIES

In this section, the following information is given for all larger countries:

- brief descriptions of relevant features;
- country map;
- experts consulted;
- references.

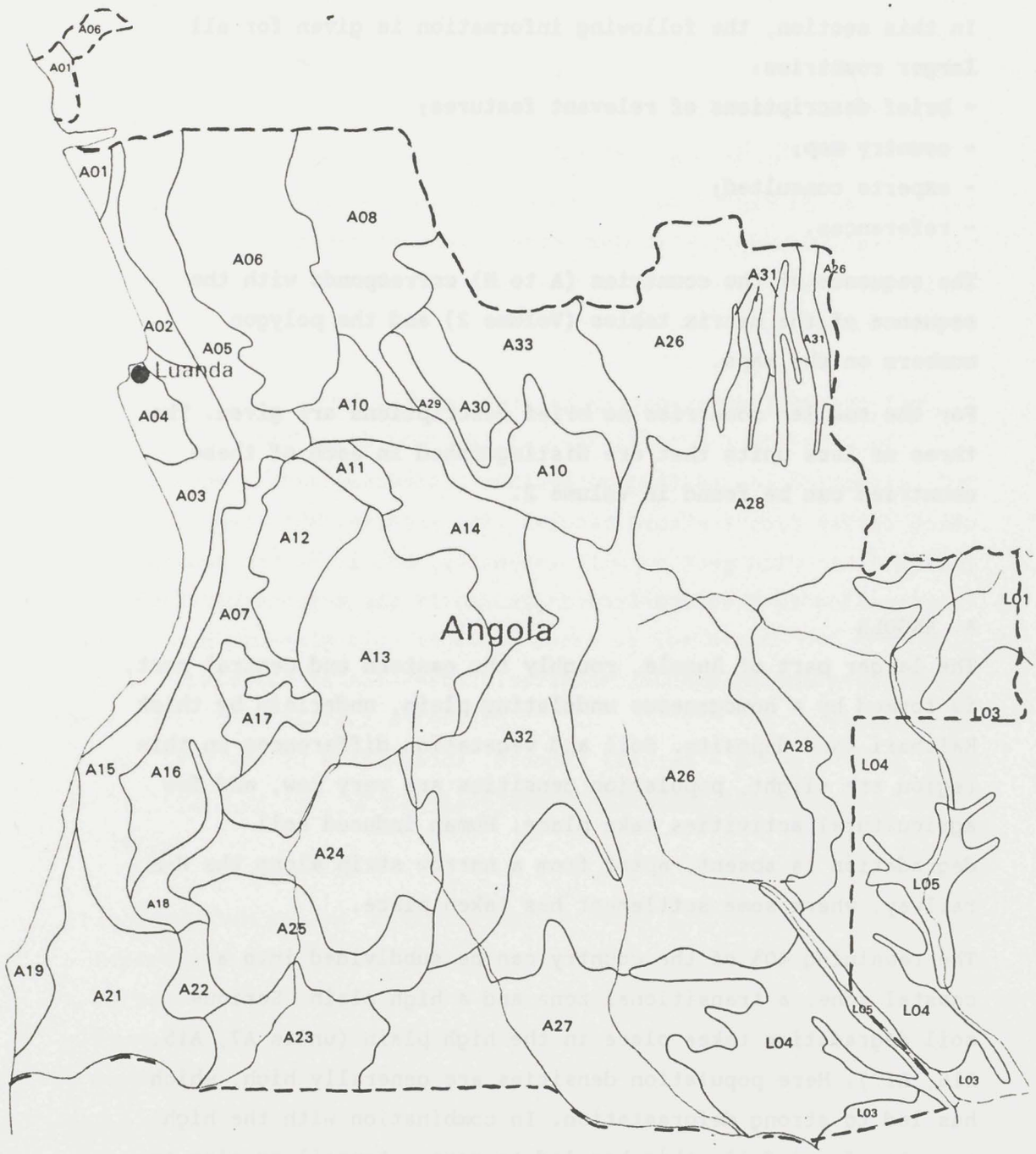
The sequence of the countries (A to M) corresponds with the sequence of the matrix tables (Volume 2) and the polygon numbers on the maps.

For the smaller countries no brief descriptions are given. The three or less units that are distinguished in each of these countries can be found in Volume 2.

A. ANGOLA

The larger part of Angola, roughly the eastern and central part, is formed by a homogeneous undulating plain, underlain by thick Kalahari sand deposits. Soil and vegetation differences in this region are slight, population densities are very low, and few agricultural activities take place. Human induced soil degradation is absent, apart from a narrow strip along the W-E railway, where some settlement has taken place.

The remaining 40% of the country can be subdivided into a coastal zone, a transitional zone and a high plain. Serious soil degradation takes place in the high plain (units A7, A15, A16, A17). Here population densities are generally high, which has led to strong deforestation. In combination with the high amounts of rainfall, this has led to severe topsoil erosion on the high plain and both severe topsoil erosion and terrain deformation in the transitional zones. Loss of topsoil is always accompanied by loss of nutrients and serious compaction.



Map A. Human induced soil degradation map of Angola. Scale 1 : 8.5 million approx. (see Volume 2 for unit descriptions).

The Angolan Government is well aware of the dangers of soil degradation, but conservation measures have not yet had any significant effects, probably due to the difficult political situation in the country.

Experts consulted

J.G. Paz. CNROA, Lisbon. Carried out many soil surveys all over Angola.

J.F. Broekhuis. Former consultant for CYBA-GEIGY in Angola.

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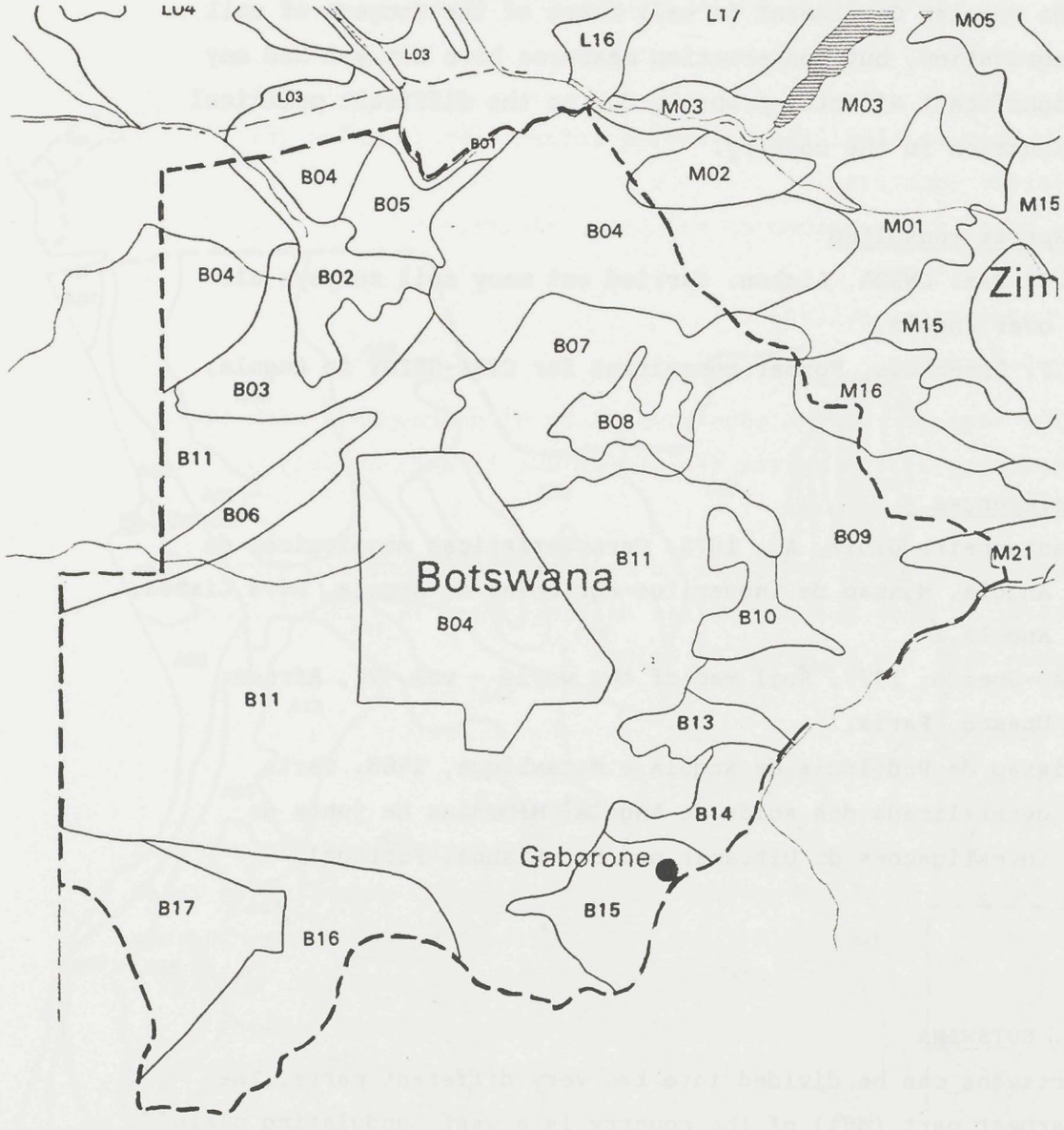
B. BOTSWANA

Botswana can be divided into two very different parts. The largest part (80%) of the country is a vast, undulating plain, covered by woodland and underlain by eolian Kalahari sands and alluvial deposits. Population density is generally very low. Human activities are found on the alluvial plains near the Okavango swamps in the north (unit B03) and near the Makadigdiki Salt flat in the north-east (unit B07), where moderate to severe degradation takes place. The actual Kalahari plain (unit B11) shows some overgrazing, concentrated around pump-sites. Unit B04 has the same physiography as B11, but is covered by game reserves. No degradation takes place in this unit.



Map B. Human induced soil degradation map of Botswana. Scale 1 : 7 million approx. (see Volume 2 for unit descriptions).

The majority of the Botswana population lives in the narrow strip of land in the east of the country, which is not covered by Kalahari sands. Moderate to severe degradation takes place here, caused by overgrazing and agriculture.

Little attention is given to conservation practices, although there is an increasing awareness of the degradation problems.

Conservation measures are however frustrated by political and infrastructural factors.

Experts consulted

A. Remmelzwaal. Former project manager of FAO Soil Survey Project, Gaborone.

E. van Waveren. Former staff member FAO Soil survey Project, Gaborone.

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Timberlake, J., 1980. Vegetation map of South East Botswana scale 1 : 500,000. Division of Land Utilization, Department of Agricultural Field Services, Ministry of Agriculture. Gaborone, Botswana.

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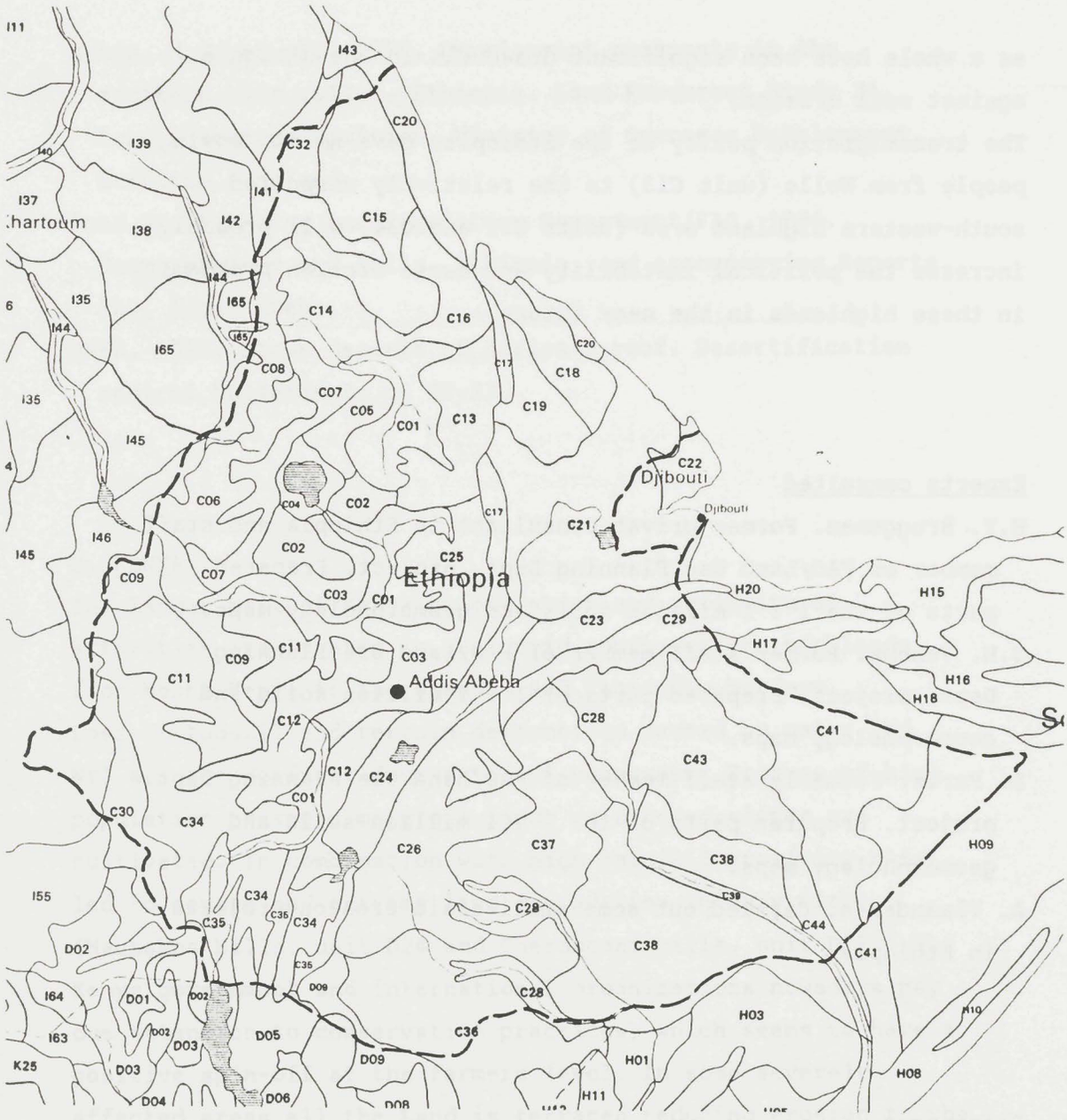
C. ETHIOPIA

Ethiopia is one of the worlds best known "disaster areas" considering soil erosion. In the recent past, the strong deterioration of Ethiopia's soil resources has been a major cause of the dramatic famines.

The larger part of Ethiopia's population lives in the western highlands (units C03, C04, C12, C13, C16 and C25), a heavily dissected basalt plateau. Rich soils are supporting high numbers of people as well as livestock. Heavy deforestation until the beginning of this century resulted in the present situation, where there are almost no forests left. Poor land management and a continuously growing population caused a dramatic acceleration of the soil erosion, especially in Wollo province (unit C13).

The eastern highlands (unit C26) are physically comparable to the western highlands. Since population density is lower, deforestation and erosion are less severe in this area.

The central rift valley (unit C24) separates the eastern and western highlands. It is a recent development area, with rapidly growing populating and increasing degradation problems.



Map C. Human induced soil degradation map of Ethiopia (also including Djibouti). Scale 1 : 11 million approx. (see Volume 2 for unit descriptions)

The northern and eastern lowlands are dry. Extensive nomadic pastoralism is the dominant land use, leading to a slight to moderate acceleration of the natural wind erosion.

Numerous erosion surveys and conservation projects have been conducted in Ethiopia in the past decades, but political instability, civil wars and a growing poverty of the country

as a whole have been significant drawbacks in the struggle against soil erosion.

The transmigration policy of the Ethiopian government, moving people from Wollo (unit C13) to the relatively unspoiled south-western highland area (units C11 and C34) will probably increase the political instability and cause erosion problems in these highlands in the near future.

Experts consulted

H.Y. Bruggeman. Former privat consultant in Ethiopia and staff member of FAO/Land Use Planning Dept. project. Prepared parts of the 1 : 1 million soils and geomorphology maps.

J.H. Venema. Former staff member of FAO/Land Use Planning Dept. project. Prepared parts of 1 : 1 million soils and geomorphology maps.

S. Paris. Formerly staff member of FAO/Land Use Planning Dept. project. Prepared parts of the 1 : 1 million soils and geomorphology maps.

A. Vlaanderen. Carried out some small-scale erosion projects in Ethiopia.

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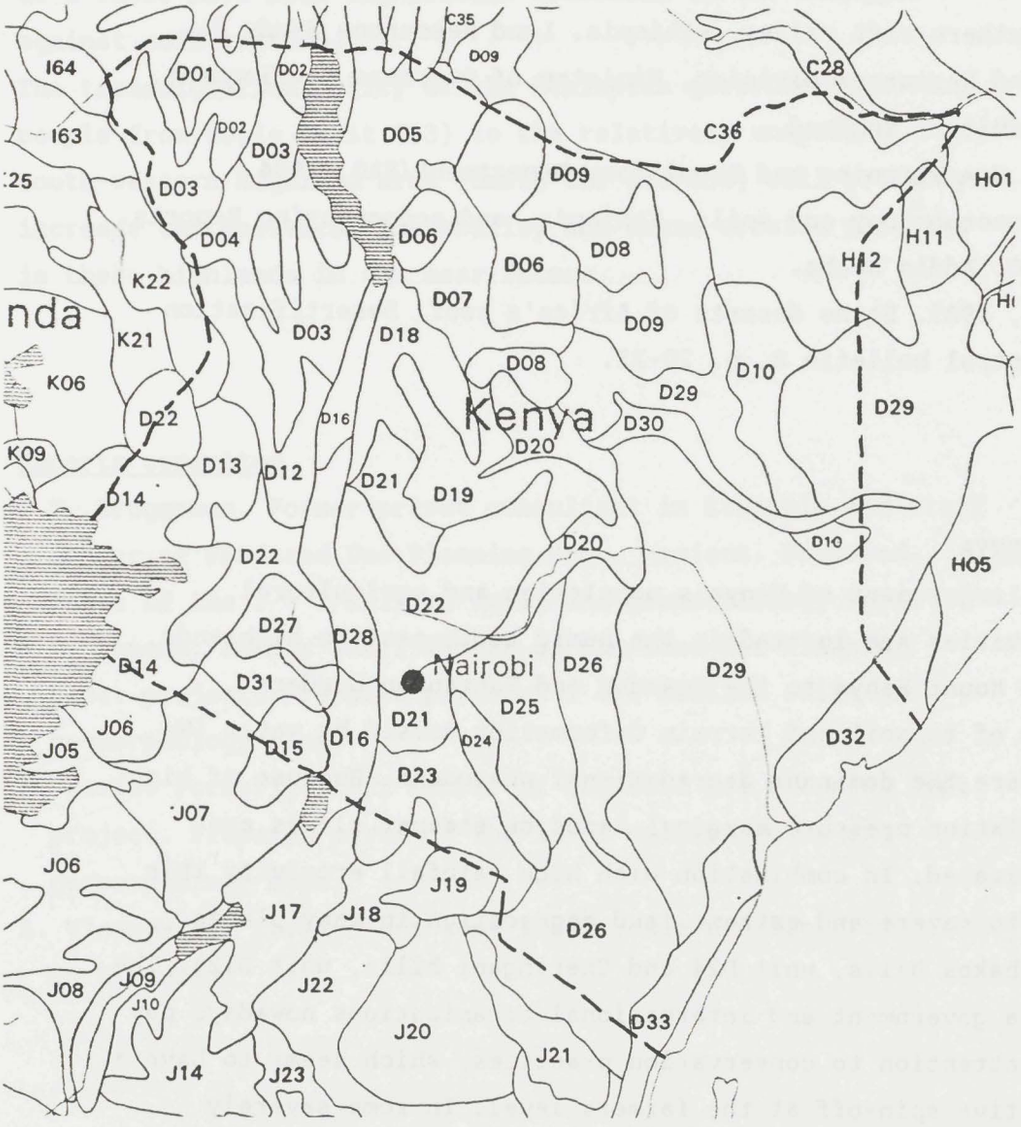
D. KENYA

The larger part of Kenya's population and agricultural activities are located in the humid south-eastern highlands, from Mount Kenya to the Ugandan and Tanzanian borders. Loss of topsoil and terrain deformation caused by water (Wd, Wt) are the dominant degradational phenomena. Because of high population pressure marginal lands on steeper slopes are cultivated. In combination with high rainfall erosivity this led to severe and extreme land degradation in many places (Machakos hills, unit D24 and Cherangani hills, unit D12). The Kenya government and international organizations nowadays pay due attention to conservation practices, which seems to have a positive spin-off at the farmers level. In some severely affected areas all the Land is terraced reducing erosion to the minimum (e.g. Taita hills, unit D26).

The remaining three quarters of the country are too dry to support large numbers of people or cattle. Degradation does occur to some degree, but it has not caused serious harm to the environment so far.



Map D. Human induced soil degradation map of Kenya. Scale 1 : 7.5 million approx. (see Volume 2 for unit descriptions).

Experts consulted

E.M.A. Smaling. Netherlands Soil Survey Institute (STIBOKA), carried out fertilizer studies all over the country (Contract GTZ).

L. Touber. Netherlands Soil Survey Institute (STIBOKA). Carried out several reconnaissance soil surveys in Kenya.

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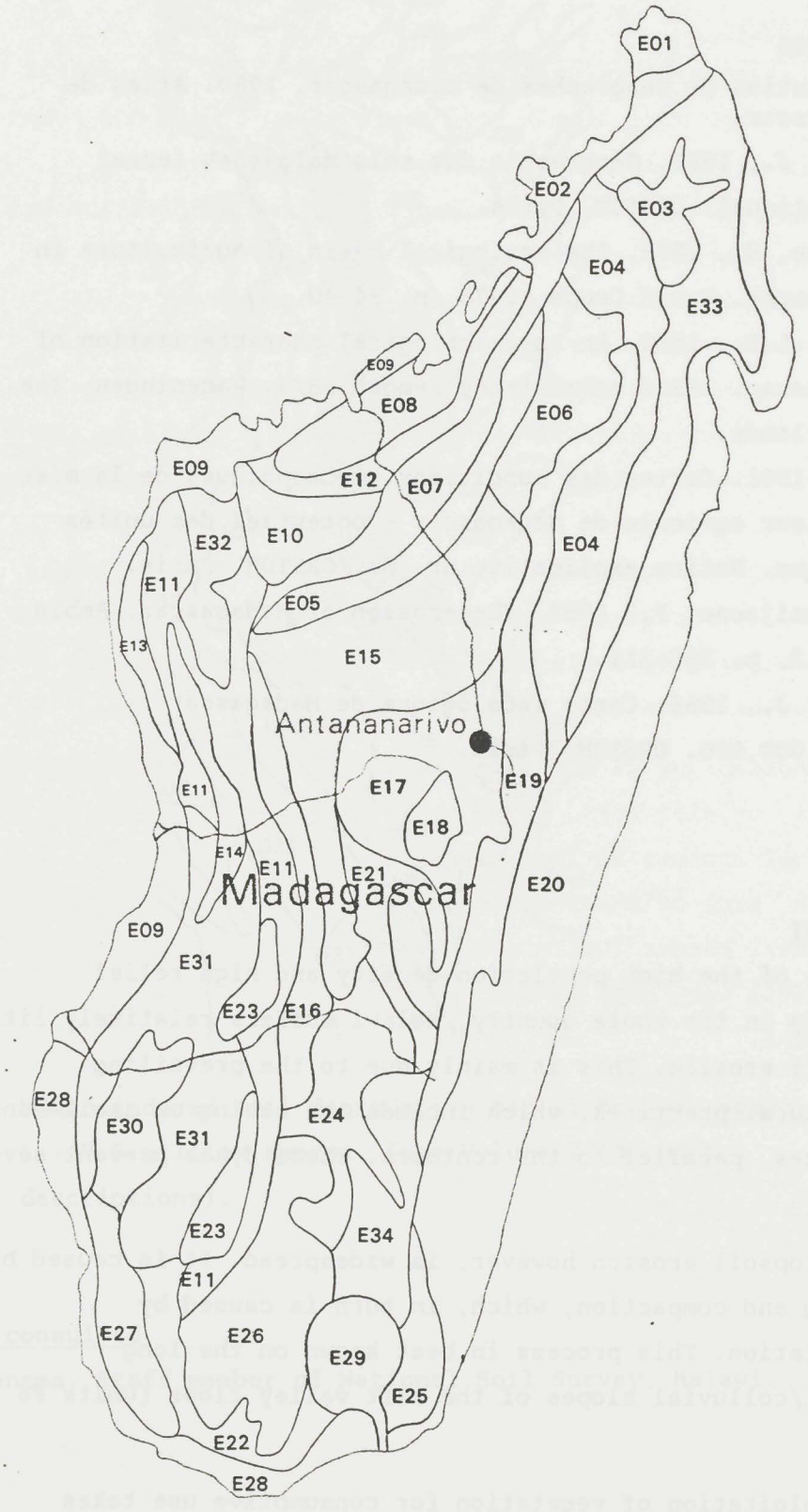
E. MADAGASCAR

Madagascar is a well known example of severe soil erosion in Africa. Wide and deep gullies have developed all over the island, especially at the western edge of the central highlands (units E5 and E16). It is questionable to what extent this erosion is caused by human activities, as there are no records of agricultural activities in the past.
Present population densities are relatively low all over the island and little agriculture takes place on steeper slopes.
Deforestation is not of a recent date. Large parts were deforested more than a century ago. The present-day erosion is mainly caused by overgrazing of pastures in combination with the high rainfall amounts (Central and Northern part of the country).
Conservation measures like reforestation and terracing seem to have positive effects. No detailed information is available.

Nutrient loss is a frequently occurring type of degradation, because agriculture is mainly of the low-input type, and little fertilizer is applied.

Expert consulted

J. Riquier. ORSTOM, Paris. Former teamleader, involved in the preparation of the 1 : 1 million soil map of Madagascar.



Map E. Human induced soil degradation map of Madagascar. Scale 1 : 7.5 million approx. (see Volume 2 for unit descriptions).

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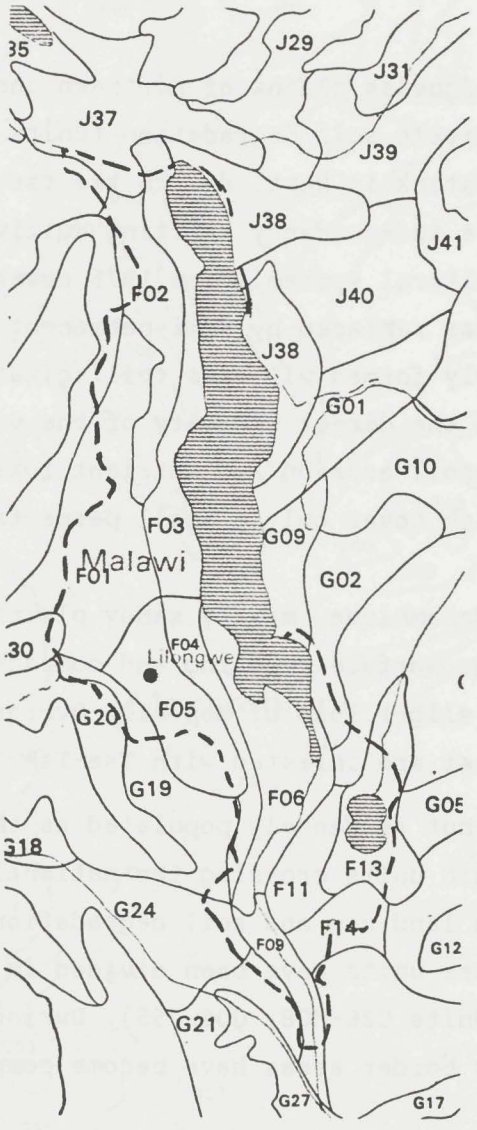
F. MALAWI

In spite of the high population density and high relief intensity in the whole country, Malawi suffers relatively little from soil erosion. This is mainly due to the prevailing agricultural practices, which include the sewing on small hand-made dykes, parallel to the contours. These dykes prevent severe erosion.

Slight topsoil erosion however, is widespread. It is caused by crusting and compaction, which, in turn is caused by deforestation. This process in best known on the long alluvial/colluvial slopes of the rift valley floor (units F6 and F9).

Over-exploitation of vegetation for consumptive use takes place on the southern rift valley scarp (Units F04). People move up this scarp from the densely populated rift valley floor.



Map F. Human induced soil degradation map of Malawi. Scale 1 : 7.5 million approx. (see Volume 2 for unit descriptions).

Expert consulted

J.H. Venema. Staff member of National Soil Survey, Malawi.

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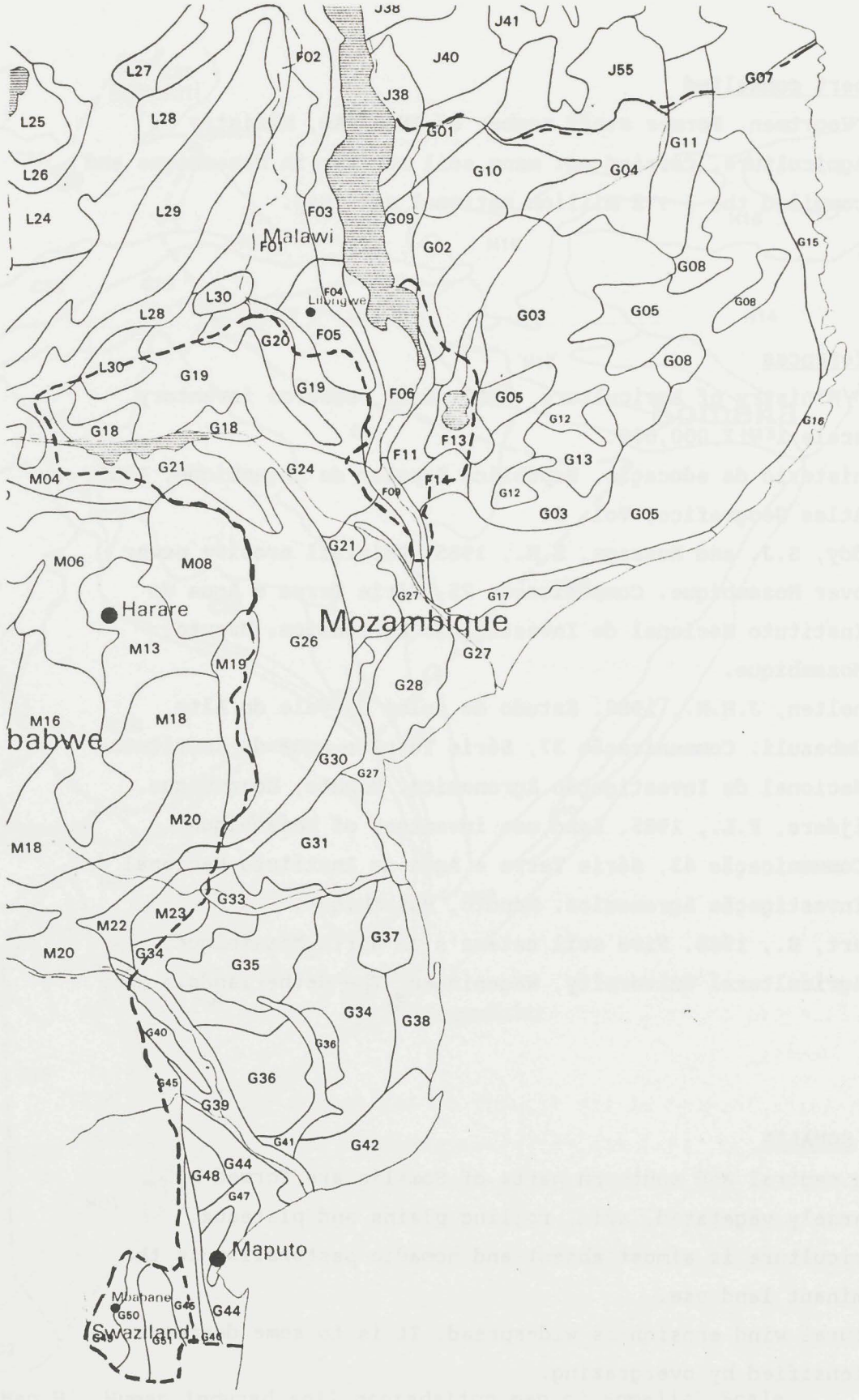
G. MOZAMBIQUE

The undulating granite/gneiss plains of northern and central Mozambique show very little soil degradation (Units G02, G03, G04, G05). Little livestock is kept, due to tse-tse infestation, and before independency shifting cultivation was the predominant agricultural system. From 1975 onward, shifting cultivation was replaced by semi-permanent cultivation around newly formed villages (villagization). Population pressure in the direct vicinity of the villages is high, causing some topsoil erosion and nutrient loss on the cultivated fields, which cover only a small percentage of the total area.

The southern part of Mozambique, mainly sandy plains, suffer from heavy overgrazing. Surface crusting and compaction takes place, resulting in a slight loss of topsoil. Overgrazing is absent in the areas that are infested with Tse-Tse.

Because Mozambique is not as densely populated as the adjacent countries, physiographic units crossing the national border can show abrupt changes in land use and soil degradation. Therefore, some of these units have been divided in two, along the national border (Units G26-M08; G04-J55). During the recent civil war, many border areas have become completely uninhabited.



Map G. Human induced soil degradation map of Mozambique (also including Swaziland). Scale 1 : 9 million approx. (see Volume 2 for unit descriptions).

Expert consulted

R. Voortman. Former staff member of INIA/FAO, Ministry of Agriculture. Carried out many soil surveys in Mozambique and compiled the 1 : 2 million national soil map.

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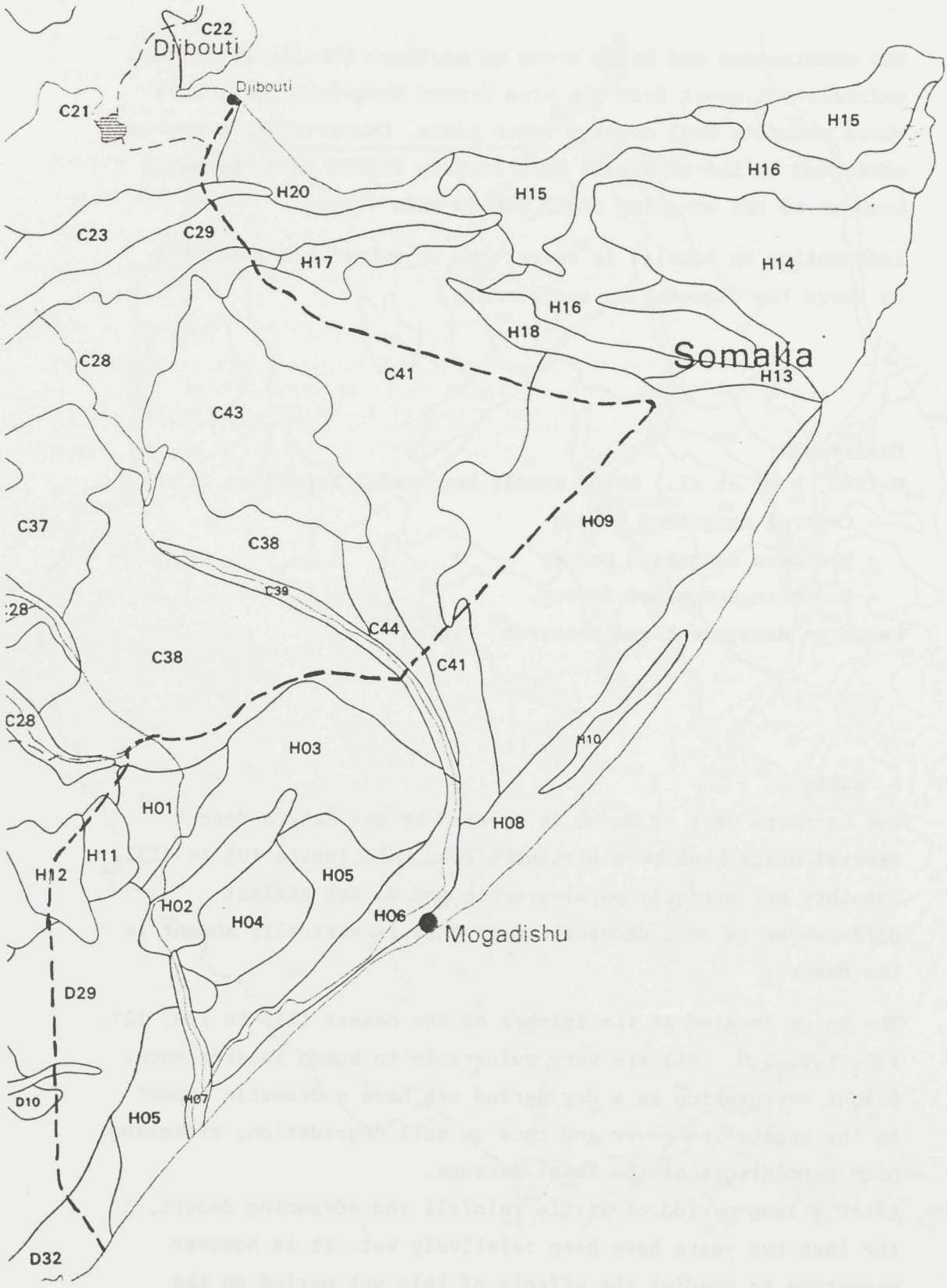
H. SOMALIA

The central and southern parts of Somalia are formed by sparsely vegetated, arid, rolling plains and plateaux. Agriculture is almost absent and nomadic pastoralism is the dominant land use.

Natural wind erosion is widespread. It is to some degree intensified by overgrazing.

Arable cropping is confined to the flood plains of the Shebelle and Juba rivers (units H6, H7 and C39), but soil degradation is insignificant.



Map H. Human induced soil degradation map of Somalia. Scale 1 : 7.5 million approx. (see Volume 2 for unit descriptions).

The mountaneous and hilly areas of northern Somalia are almost uninhabited, apart from the area around Hargeisha (unit H17) where moderate soil erosion takes place. Conservation measures advocated in the seventees have largely failed here, probably because of the on-going civil war in this region.

Information on Somalia is scarse and no expert was available to check the degradation assessments.

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I. SUDAN

The northern part of Sudan is covered by the Sahara desert. Several units have been distinghuished here (units I01 to I13), but they are strictly physiographic and do not reflect differences in soil degradation as this is virtually absent in the desert.

The units located at the fringes of the desert (I15 to I20, I27, I37, I38, I39, I41) are very vulnerable to human interference. Slight overgrazing in a dry period can have a dramatic impact on the vegetation cover and thus on soil degradation, effecting high percentages of the total acreage.
After a long period of little rainfall and advancing desert, the last two years have been relatively wet. It is however premature to predict the effects of this wet period on the vegetation and land degradation.

Map I. Human induced soil degradation map of Sudan. Scale 1 : 12 million approx. (see Volume 2 for unit descriptions).

The huge area covered by the central and eastern clay plains and swamps (unit I33 to I36 and I47 to I55) is nearly flat and does not suffer from soil degradation. The south-western part of the country, also known as ironstone country (units I57 to I61), suffers from both topsoil erosion and nutrient loss, due to poor management practices.

Expert consulted

M.F. Purnell. FAO/AGLS, Rome. Carried out a reconnaissance soil surveys in Sudan and wrote a number of overview reports about Sudan.

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J. TANZANIA

In large parts of Tanzania, slight degradation symptoms are predominant. Soils have low inherent fertility and slopes are mainly gentle. Where steep slopes occur, no agriculture is

practiced. Cultivated land suffers from slight to moderate loss of nutrients and slight loss of topsoil. The former is considered more restrictive to the agricultural potential.

Severe erosion occurs around the proposed new capital Dodoma (unit J49), around Kondoa (unit J23), near Dar es Salaam (unit J45) and on the slopes of the Usambara mountains (unit J21). These areas have the highest population density in the country.

Apart from very drastic anti-erosive measures at Kondoa, conservation practices do not seem to have much effect.

In the large game parks of Tanzania (Serengeti, (unit J07), Ruaka, Rungwa river, (unit J26), Selous, (units J41, J42) and others) degradation is almost completely absent.

Expert consulted

G.W. van Barneveld. Former head of the National Soil Service Project Tanga.

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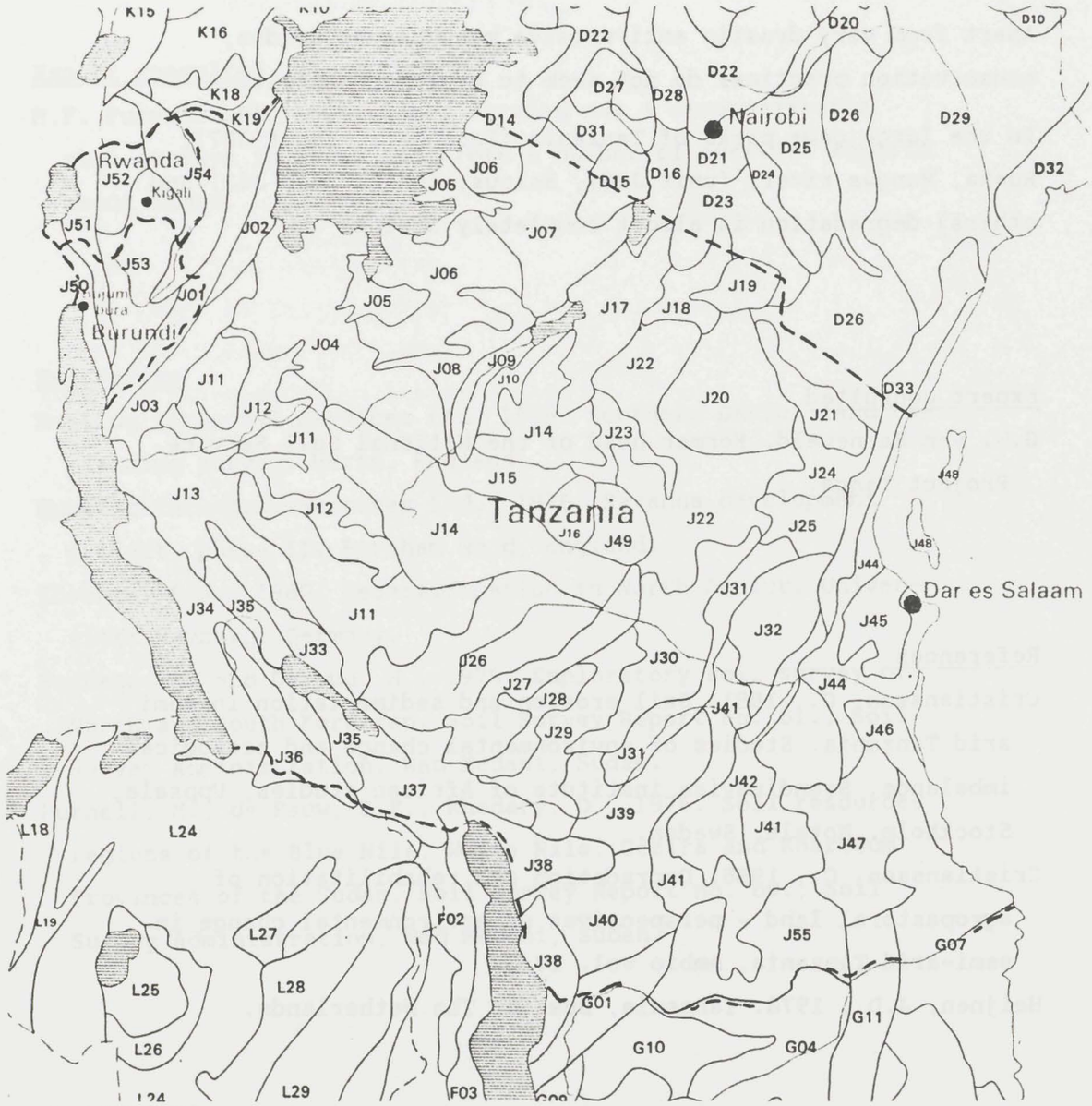

Map J. Human induced soil degradation map of Tanzania (also including Rwanda and Burundi). Scale 1 : 9 million approx. (see Volume 2 for unit descriptions).

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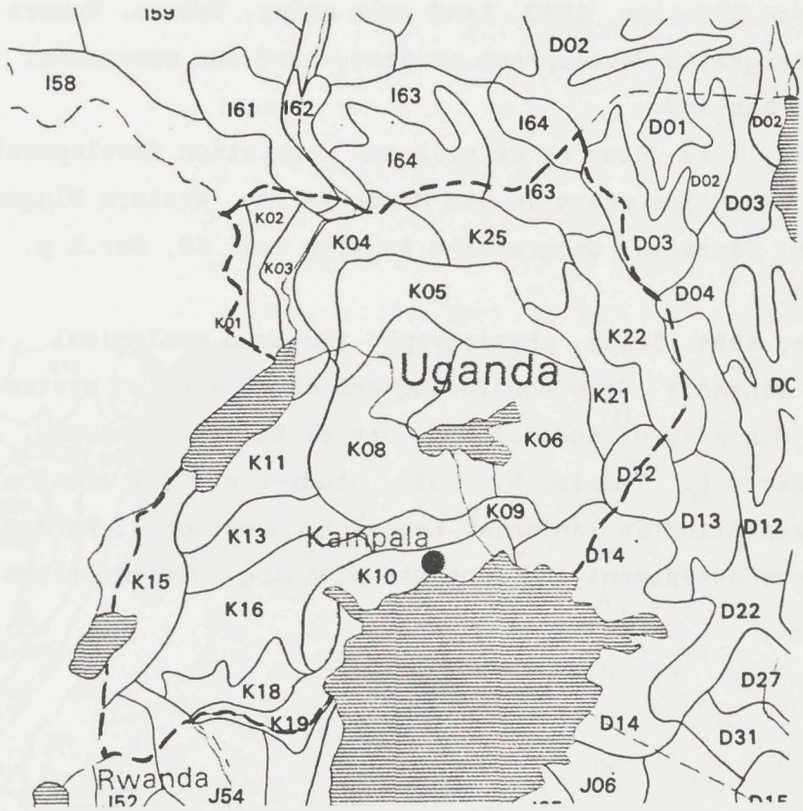
K. UGANDA

Uganda had a rather isolated position in Africa during the past twenty years, and there is hardly any recent information available. The knowledge of the consulted expert also goes back to the early nineteenseventees.

Land degradation in Uganda is strongest in the semi-arid Karamoja province (units K21 and K23). A long period of overgrazing left areas completely devastated and abandonned. The overgrazing problem is now spreading to neighbouring regions.

Moderate soil degradation takes place in the rather intensively cropped Southern and Lake Victoria regions (unit K09, K10, K18, J52).

Information on the application of conservation measures is lacking.



Map K. Human induced soil degradation map of Uganda. Scale 1 : 7.5 million approx. (see Volume 2 for unit descriptions).

Expert consulted

J. Harrop. Former staff member of the research division, Dept. of Agriculture, Uganda. Carried out several soil surveys in Uganda during the 1960's.

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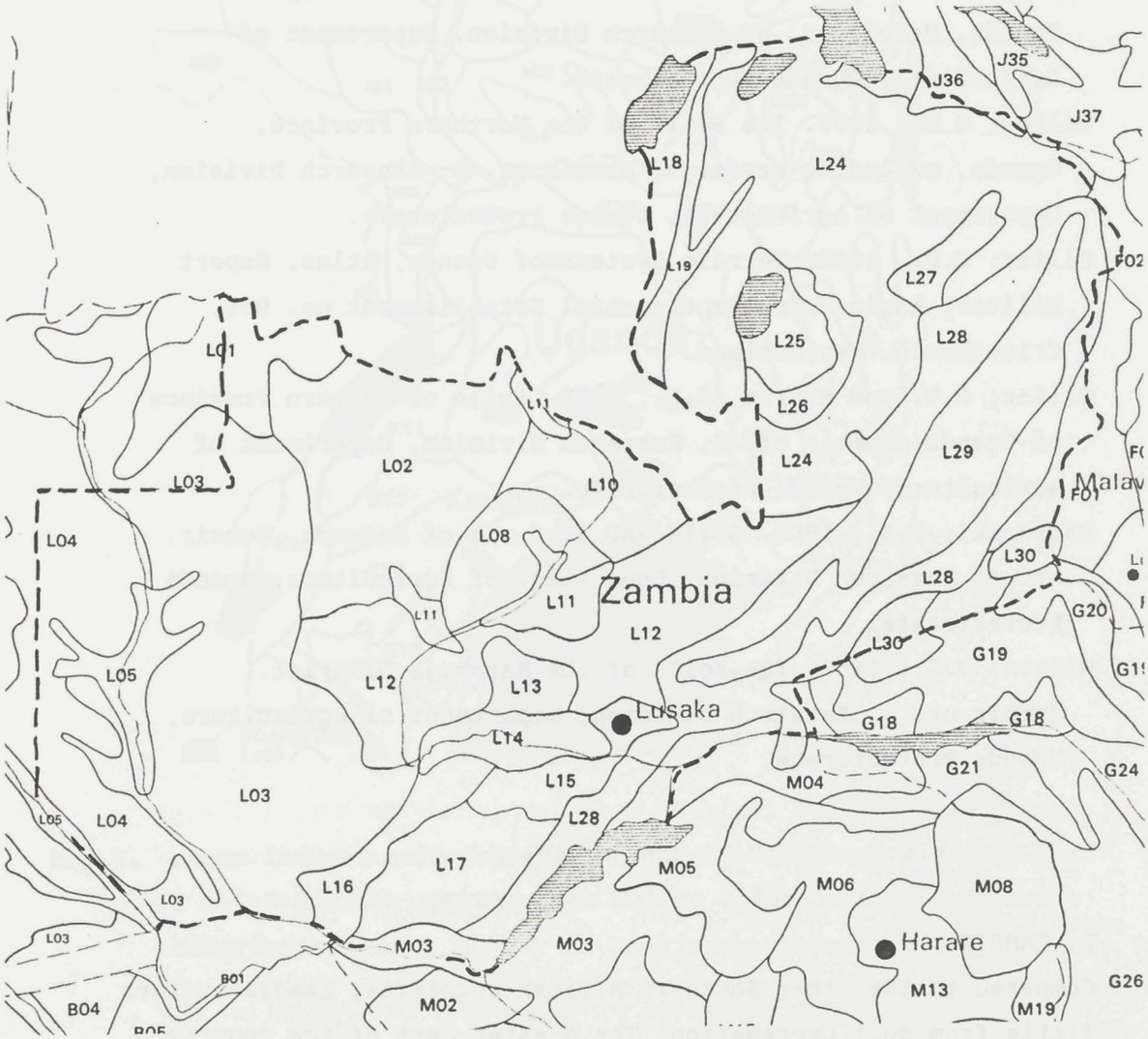
L. ZAMBIA

Compared to the other Southern African countries, Zambia suffers little from soil degradation. The greater part of the country is constituted of undulating plains: eolian Kalahari sand plains in the west (units L01, L03, L04) and erosional plains in the northern and central parts (units L02, L12, L24). High relief areas are only found in the east: The dissected rift valley scarps and adjacent hills (unit L28). However, population density is low, and little agriculture is practiced.

Mechanized commercial farming only takes place on the somewhat richer soils around Lusaka (units L12, L13, L15). The use of heavy machinery causes surface crusting and compaction, which, if poorly managed, can render these soils unsuitable for most agricultural uses.



Map L. Human induced soil degradation map of Zambia. Scale 1 : 8.5 million approx. (see Volume 2 for unit descriptions).

Expert consulted

Wen Ting-Tiang, Former staff member of Soil Survey Unit, Department of Agriculture, Zambia.

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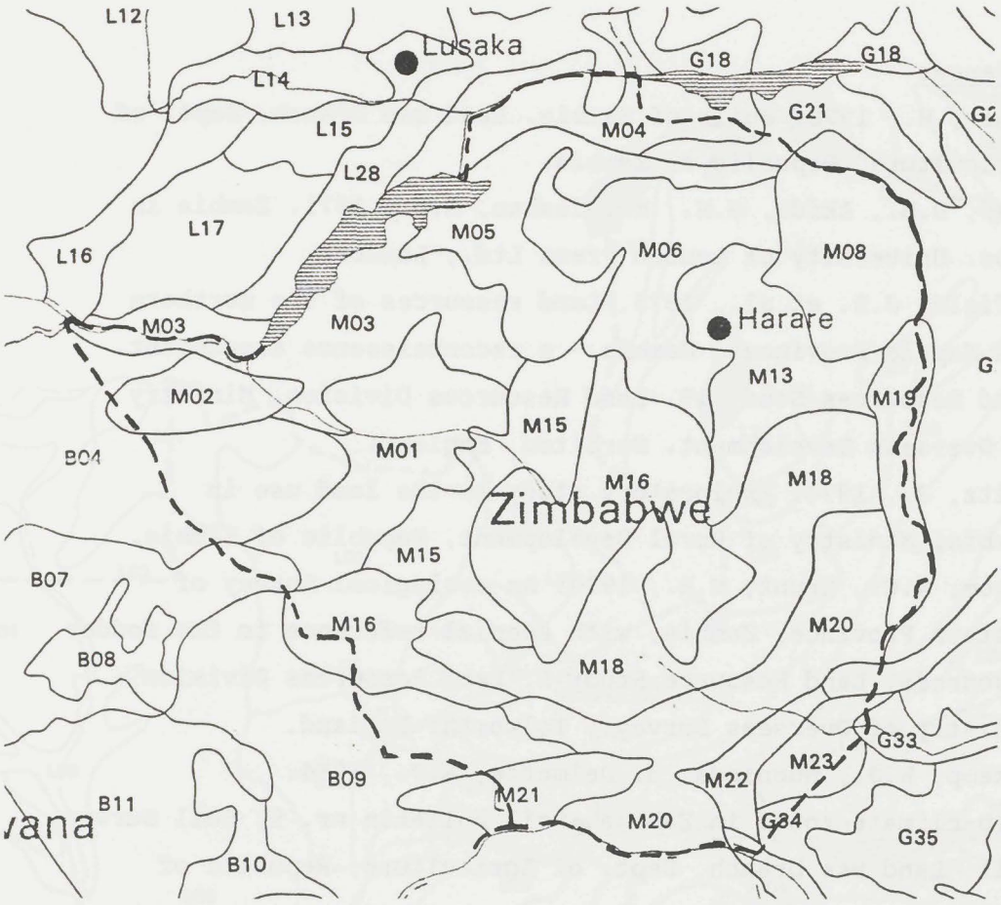
Wen Ting-Tiang, 1987. Soils of the north-west province. Soil Survey report no. 150. Soil Survey Unit, Research Branch, Dept. of Agriculture, Republic of Zambia.

M. ZIMBABWE

In Zimbabwe the pattern of soil degradation is dominated by the differences in land use and land ownership.

The former colonial lands, which are still private property, are well managed, have a low population density and suffer



Map M. Human induced soil degradation map of Zimbabwe. Scale 1 : 7.5 million approx. (see Volume 2 for unit descriptions)

only slightly from soil degradation. These lands are located relatively rich soils (units M06, M13, M15, M16, M20).

The communal or tribal lands (units M08, M18, M21) are poorly managed, have a high population density and are mostly (but not always) located on the relatively poor soils. Severe degradation is common, encompassing both topsoil erosion and loss of nutrients. High numbers off cattle also have a negative impact on these lands.

A multitude of conservation measures is taken, but the effects are not satisfactory, mainly due to the failing governmental control.

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RWANDA/BURUNDI (see map J)

Reference

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SWAZILAND (see map G)

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ANNEX. GLASOD guidelines, condensed summary

DEGRADATION TYPES

W : water erosion affected terrain
  Wt : loss of topsoil caused by water erosion
  Wd : terrain deformation caused by water erosion
E : wind erosion affected terrain
  Et : loss of topsoil caused by wind erosion
  Ed : terrain deformation caused by wind erosion
C : chemical deterioration of the soil
  Cn : loss of nutrients
  Cp : pollution and acidification from bio-industrial sources
  Cs : salinization
  Cd : discontinuation of flood-induced fertility
  Cg : gleysation as a result of waterlogging
  Co : other chemical problems
P : physical deterioration of the soil
  Pk : crusting/sealing of topsoil
  Pc : compaction
  Ps : soil structure deterioration due to dispersingaction of salts in the subsoil
  Pw : waterlogging
  Pa : aridification
  Pl : subsidence of organic soils
  Pt : cryoturbation and sollifluction caused by human induced disturbance of the permafrost layer
  Pu : concrete/turmac covered areas
B : biological deterioration
  Bb : imbalance of (micro) biological activity

MISCELLANEOUS

S : stable terrain
  SN : terrain is stabilized naturally
  SA : stable by permanent form of agriculture
  SH : terrain is stabilized by human intervention
  SHp: stabilized by paddy field bunding
  SHc: stabilized by conservation practices
  SHr: stabilized by reforestation, permanent plantation crops etc.
  SHe: stabilized by empoldering.
U : unstable terrain

Non used wastelands
  D : active dunes
  Z : salt flats
  R : rock outcrops
  A : deserts
  I : ice caps.

Moderate: the terrain is still suitable for use in local farming systems, but with greatly reduced agricultural productivity. Major structural alterations are required to restore productivity (e.g. draining for water logging or salinity; contour banks if the land is eroding). Original biotic functions partly destroyed.

Severe: the terrain is unreclaimable at the farm level. Major engineering works are required for terrain restoration. Original biotic functions largely destroyed.

Extreme: the terrain is unreclaimable and impossible to restore. Original biotic functions fully destroyed. The terrain has become non-vegetated and non-used wasteland.

DEGREE - WATER

1)Slight: in deep soils (rooting depth >50 cm): part of the topsoil removed, or shallow rills 20-50 m apart; in shallow soils (rooting depth <50 cm): some shallow rills at least 50 m apart; In pastoral country the groundcover of perennials of the original/optimal vegetation is >70%.

2)Moderate: in deep soils: all top soil removed, or shallow rills less than 20 m apart, or moderately deep gullies 20-50 m apart; in shallow soils: part of topsoil removed, or shallow rills 20-50 m apart; In pastoral country: groundcover of perennials of the original/optimal vegetation from 30% to 70%.

3)Severe: in deep soils: all topsoil and part of subsoil removed, or with moderately deep gullies less than 20 m apart; in shallow soils: all topsoil removed: lithic or leptic phases or with exposed hardpan; In pastoral country: groundcover of perennials of the original/ optimal vegetation is <30%.

DEGREE - WIND

1)Slight: in deep soils: topsoil partly removed or few (10-40% of area) shallow (0-5 cm) hollows; in shallow soils: very few (<10%) shallow hollows; In pastoral country: groundcover of perennials of the original/optimal vegetation >70%.

2)Moderate: in deep soils: all topsoil removed or with common (40-70% of area) shallow (0-5 cm) hollows, or few (10-40%) moderately deep (5-15 cm) hollows; in shallow soils: topsoil partly removed or few (10-40%) shallow (0-5 cm) hollows; In pastoral country: groundcover of perennials of the original/optimal vegetation from 30%-70%.

3)Severe: in deep soils: all topsoil and part of subsoil removed or with many (>70% of area) shallow (0-5 cm) or common (40-70%) moderately deep (5-15 cm) or few (10-40%) deep (15 cm) hollows/blowouts; In shallow soils: all top soil removed: lithic or leptic phases or with exposed hardpan. In pastoral country: groundcover of perennials of the original/ optimal vegetation is <30%.

OFF-SITE EFFECTS
Wr: sedimentation of reservoirs, lakes
Wf: flooding
Wc: coral reef destruction
Eo: overblowing.

CAUSE
f: deforestation
g: overgrazing
i: over intensive annual cropping
e: overexploration of vegetation for consumptive use
w: industrial waste
o: other

RATE
1: slow
2: medium
3: rapid

EXTENT

1: infrequent	(1-5% of the terrain affected)
2: common	(6-10% of the terrain affected)
3: frequent	(11-25% of the terrain affected)
4: very frequent	(26-50% of the terrain affected)
5: dominant	(>50% of the terrain affected)

REMARKS ON DEGRADATION TYPE
Any description that specifies the nature and location of the distinguished degradation type within the mapping unit. Descriptions may refer to landscape units (e.g. interfluves, floodplains, plateau edges), geografical location (e.g. north, south-east), or agricultural practices (e.g. state farms, cattle drinking places).

HISTORY (in general remarks, if specified)
a: early civilisation (more than 250 years ago)
b: era of European expansion (50 to 250 years ago).

DEGREE - GENERAL
None: there is no sign of present degradation; all original biotic functions are intact. Such land is considered stable
Slight: the terrain is suitable for use in local farming systems, but with somewhat reduced agricultural productivity. Restoration to full productivity is possible by modifications of the management system. Original biotic functions still largely intact.

DEGREE - SALINIZATION

Salinization should be considered as the relative change over the last 50 years in salinity status of the soil.

non-saline : EC <5 mS/cm; E.S.P. <15%; pH <8.5
slightly saline : EC 5-8 mS/cm; E.S.P. <15%; pH <8.5
moderately saline: EC 9-16 mS/cm; E.S.P. <15%; pH <8.5
severely saline : EC >16 mS/cm; E.S.P. <15%; pH <8.5

the present degree of human-induced salinization can now be identified from the change in salinity status.

1)Slight : salinity increase 1 class
2)Moderate: salinity increase 2 classes
3)Severe : salinity increase 3 classes

DEGREE - NUTRIENTS

1)Slight: cleared and cultivated grassland or savannas on inherently poor soils in tropical regions; cleared or cultivated formerly forestland in temperate regions on sandy soils, or in tropical (humid) regions on soils with rich parent materials.

2)Moderate: cleared and cultivated grassland or savannas in temperate regions, on soils high in inherent organic matter, when organic matter has declined markedly by mineralization (oxidation); cleared and cultivated formerly forested land on soils with moderately rich parent materials in humid tropical regions, where subsequent annual cropping is not being sustained by adequate fertilization.

3)Severe: cleared and cultivated formerly forestland in humid tropical regions on soils with inherently poor parent materials (soils with low CEC), where all above-ground biomass is removed during clearing and where subsequent crop growth is poor or non-existent and cannot be improved by N fertilizer alone.

4)Extreme: cleared formerly forested land with all above ground biomass removed during clearing, on soils with inherently poor parent materials, where no crop growth occurs and forest regeneration is not possible.

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Report no. 2082

Global Assessment of Soil Degradation-
Eastern and Southern Africa
Volume 2: Matrix tables/
mapping unit descriptions

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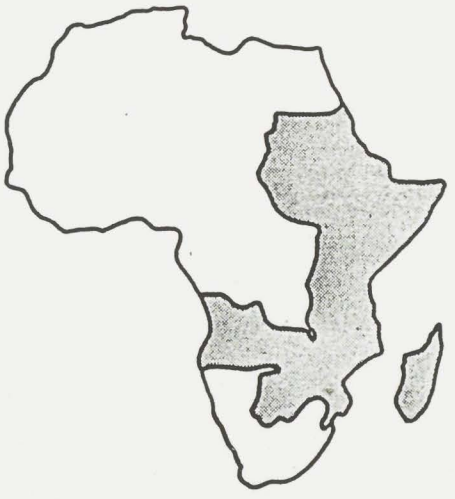
Global Assessment of Soil Degradation- Eastern and Southern Africa Volume 2: Matrix tables/ mapping unit descriptions

Report no. 2082

GLOBAL ASSESSMENT OF SOIL DEGRADATION - EASTERN AND SOUTHERN AFRICA.

Volume 2: MATRIX TABLES/MAPPING UNIT DESCRIPTIONS

R.T.A. Hakkeling



Netherlands Soil Survey Institute (STIBOKA), Wageningen, 1989

In this Volume, a matrix table is given for each mapping unit distinguished on the "Soil Degradation Map - Eastern and Southern Africa" (in folder in this Volume).

Matrix tables are made of general unit descriptions (Table 1 in Volume 1) and of a degradation characteristics table (Table 3 in Volume 1).

Larger countries are listed alphabetically. Smaller countries are grouped with a larger country:

Djibouti	: C21, C22	(listed with Ethiopia)
Mauritius	: E35	)
Réunion	: E36	) (listed with Madagascar)
Comores	: E37	)
Swaziland	: G45, G49, G50, G51	(listed with Mozambique)
Rwanda	: J50-J54	) (listed with Tanzania)
Burundi	: J01, J50, J51, J54	)

GLASOD MATRIX TABLE

Map unit : A01
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 7000

Physiography : Plain, undulating

Soil : ARo, sand, deep (ass)
FR , sand to loam, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 25-27 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : A02
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 8800

Physiography : Plain, undulating

Soil : CMe, loam, mod. deep to deep (dom)
LV , loam, mod. deep to deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Permanent subsistence and commercial farming
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : A03
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 22200

Physiography : Plain, undulating (dom)
Footslope, undulating (ass)
Soil : CMc, loam to clay, deep (ass)
VR , clay, deep (ass)
Geology : Limestone and alluvial deposits
Precipitation (an.mean) : 300-600 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Commercial farming and forestry
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : A04
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 7600

Physiography : Plain, level to undulating

Soil : AR , sand, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 300-600 mm
Temperature (mean) : 24-25 degr.C
Population density : Very low
Land use :
Vegetation : Forestland and grassland

General remarks : Largest part of unit is national park

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : A05
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 41400

Physiography : Upland, rolling to steep

Soil : LXf, loam to clay loam, mod. deep to deep (dom)
LPq, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : 23-26 degr.C
Population density : Low
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland and forestland

General remarks : Original vegetation largely intact, so little degradation in spite of high susceptability of soils

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	1	1	
Wt	f	3	1	1	Cn and Pc occur on same area
SN				5	

GLASOD MATRIX TABLE

Map unit : A06
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 60100

Physiography : Upland, rolling to steep (dom)
Mountains, steep (inc)
Soil : FR , clay, mod. deep to deep (dom)
NT , clay, mod. deep to deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 900-1300 mm
Temperature (mean) : 23-27 degr.C
Population density : Low to medium
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland and forestland

General remarks : Coffee plantations now abandoned

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A07
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 15100

Physiography : Hills, rolling to steep

Soil : AC , loam, mod. deep (dom)
FR , clay loam, mod. deep to deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 19-23 degr.C
Population density : Medium
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	3	2	4	Cn and Pc occur in same area
Wd	f	3	2	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : A08
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 44100

Physiography : Plain, undulating to rolling

Soil : ARo, sand, deep (dom)
FR , clay loam, deep (inc)
Geology : Eolian deposits and sandstone
Precipitation (an.mean) : 1200-1400 mm
Temperature (mean) : 20-24 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A10
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 38700

Physiography : Plain, undulating to rolling

Soil : FR , loam to clay, mod. deep (dom)
LPq, shallow (inc)

Geology : Mixed rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 21-22 degr.C
Population density : Low to medium
Land use : Commercial farming and mixed farming
Vegetation : Woodland

General remarks : Original vegetation is almost completely removed

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	4	Cn and Pc occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : A11
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 6300

Physiography : Plain, undulating

Soil : ARo, sand, deep

Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1200 mm
Temperature (mean) : 21-22 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A12
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 22700

Physiography : Plateau, undulating to rolling

Soil : FR , clay, mod. deep to deep (dom)
LPd, clay, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1500 mm
Temperature (mean) : 20-22 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Woodland

General remarks : LPd: shallow soil over petroferric horizon

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2	2	3	Cn and Pc occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : A13
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 69900

Physiography : Plateau, undulating to rolling

Soil : FR , clay, mod. deep to deep (dom)
ARo, sand, deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1500 mm
Temperature (mean) : 18-20 degr.C
Population density : Medium
Land use : Mixed farming and commercial farming
Vegetation : Woodland

General remarks : FR partly with petroferric horizon

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	3	2	5	Cn and Pc on subsistence farms
SN				5	

GLASOD MATRIX TABLE

Map unit : A14
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 32400

Physiography : Plain, undulating

Soil : FRx, clay, mod. deep to deep (dom)
LV , clay loam, mod. deep to deep (inc)
Geology : Mixed rock
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 19-21 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	2	Cn and Pc occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : A15
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 23800

Physiography : Footslope, undulating to rolling

Soil : CMe, loam, mod. deep

Geology : Sandstone and limestone
Precipitation (an.mean) : 100-400 mm
Temperature (mean) : 22-23 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	2	2	2	Cn and Pc occur in same area
Wd	i	2	2	1	Caused by strong runoff
SN				5	

GLASOD MATRIX TABLE

Map unit : A16
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 22800

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : LXf, clay loam, mod. deep to deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 20-24 degr.C
Population density : Low to medium
Land use : Permanent subsistence and pastoralism
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	3	2	2	Northern part of unit
Wd	f	3	2	1	Northern part of unit
SN				5	

GLASOD MATRIX TABLE

Map unit : A17
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 10100

Physiography : Plain, rolling (dom)
Mountains, steep (inc)
Soil : FR , loam to clay, shallow to mod. deep (ass)
AC , loam to clay, shallow to mod. deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 1200-1400 mm
Temperature (mean) : 20-22 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Forestland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	3/4	2	3	Cn and Pc occur in same area
Wd	f	3	2	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : A18
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 7400

Physiography : Mountains, steep

Soil : LPq, shallow (ass)
AC , loam to clay loam, shallow to deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 900-1100 mm
Temperature (mean) : 18-22 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : A19
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 9600

Physiography : Plain, level to rolling (dom)
Dunes, rolling (ass)
Soil : SCh, sand to loam, deep (ass)
ARh, sand, deep (ass)
Geology : Marine deposits and eolian deposits
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 17-23 degr.C
Population density : Very low
Land use :
Vegetation : Grassland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A21
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 43200

Physiography : Plateau, rolling (dom)
Hills, steep (ass)
Soil : LPe, loam, shallow (ass)
LPq, shallow (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 100-600 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland and forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : A22
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 6200

Physiography : Plain, undulating

Soil : VRe, clay, deep (dom)
CMe, loam, mod. deep to deep (inc)
Geology : Basic cristalline rock
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 21-22 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : A23
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 27800

Physiography : Plain, undulating

Soil : CMe, loam, mod. deep (dom)
AR , sand, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 21-22 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A24
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 43700

Physiography : Plain, undulating (dom)
Valley, level (inc)
Soil : FR , loam, mod. deep to deep (dom)
LPd, loam, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 800-1100 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Mixed farming
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2	2	2	Cn and Pc occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : A25
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 31700

Physiography : Plain, undulating (dom)
Valley, level to steep (inc)
Soil : ARh, sand, deep (dom)
RGe, sand, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks : High lifestock pressure, but no soil degradation yet

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A26
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 192600

Physiography : Plain, undulating (dom)
Valley, level (inc)
Soil : ARo, sand, deep (dom)
GL , sand, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 800-1400 mm
Temperature (mean) : 20-24 degr.C
Population density : Very low
Land use : Pastoralism and reserve
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : A27
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 78800

Physiography : Plain, undulating (dom)
Valley, level to steep (inc)
Soil : ARb, sand, deep (dom)
GLe, sand, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 21-22 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : A28
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 82400

Physiography : Plain, undulating (dom)
Valley, level (inc)
Soil : ARb, sand, deep (dom)
GLe, sand, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 21-23 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : A29
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 7600

Physiography : Hills, steep

Soil : LPq, shallow (dom)
FR , clay, mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 1100-1300 mm
Temperature (mean) : 22-23 degr.C
Population density : Very low
Land use :
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : A30
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 10900

Physiography : Plain, undulating

Soil : CMe, loam to clay loam, mod. deep to deep (ass)
VR , clay, deep (ass)
Geology : Sandstone and limestone
Precipitation (an.mean) : 1200-1300 mm
Temperature (mean) : 21-23 degr.C
Population density : Very low
Land use : Commercial farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1/2	1	3	Pc occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : A31
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 13700

Physiography : Valley, undulating to steep

Soil : FR , loam to clay, mod. deep to deep (dom)
AR , sand, mod. deep to deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1300-1500 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : A32
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 77400

Physiography : Plain, undulating (dom)
Valley, level to steep (inc)
Soil : ARo, sand, deep (dom)
RG , sand, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 800-1400 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Permanent subsistence and pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : A33
Country 1 : Angola
Country 2 :
Country 3 :
Area(km2) : 34000

Physiography : Plain, undulating

Soil : GLe, deep (ass)
ARh, sand, deep (ass)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : 1200-1400 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use : Commercial farming and permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt SN	f/i	1	1	2 5	Pc occurs in same area

GLASOD MATRIX TABLE

Map unit : B01
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 2500

Physiography : Valley, undulating

Soil : GL , clay, deep (ass)

Geology : Alluvial deposits
Precipitation (an.mean) : 600-700 mm
Temperature (mean) : 21-24 degr.C
Population density : Very low
Land use :
Vegetation : Swamp

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : B02
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 14900

Physiography : Swamp, undulating (dom)
Plain, undulating (ass)
Soil : HS , deep (ass)
FL , sand, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 500-600 mm
Temperature (mean) : 21-24 degr.C
Population density : Very low
Land use :
Vegetation : Swamp and grassland

General remarks : Unit is known as "Okavango Swamp"

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : B03
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 18900

Physiography : Plain, level

Soil : AR , sand, deep (dom)
SC , clay, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-700 mm
Temperature (mean) : 21-24 degr.C
Population density : Very low
Land use : Permanent subsistence and pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	f/g	2	3	2	Near Gumane and Maun
SN				5	

GLASOD MATRIX TABLE

Map unit : B04
Country 1 : Botswana
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 134100

Physiography : Plain, level to undulating

Soil : AR , sand, deep (dom)
GLe, sand to clay, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 450-500 mm
Temperature (mean) : 19-24 degr.C
Population density : Very low
Land use : Reserve
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : B05
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 8600

Physiography : Plain, level

Soil : AR , sand, deep (dom)
SC , clay, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-700 mm
Temperature (mean) : 21-24 degr.C
Population density : Very low
Land use :
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : B06
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 13600

Physiography : Hills, undulating to rolling

Soil : AR , sand, shallow to mod. deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 350-500 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : B07
Country 1 : Botswana
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 37000

Physiography : Plain, level to undulating

Soil : RGc, sand, deep (dom)
GLe, sand to clay, deep (ass)

Geology : Alluvial deposits
Precipitation (an.mean) : 450-500 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	3	3	4	
SN				5	

GLASOD MATRIX TABLE

Map unit : B08
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 8300

Physiography : Plain, level

Soil : SCg, loam to clay, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 450 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland

General remarks : Unit is known as "Makadigdiki Flats"

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Z				5	

GLASOD MATRIX TABLE

Map unit : B09
Country 1 : Botswana
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 60900

Physiography : Plain, undulating (dom)
Valley, level to steep (ass)
Soil : RGe, loam to clay loam, mod. deep (dom)
LV , loam to clay loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-500 mm
Temperature (mean) : 16-19 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i/e	3	3	1	
Wt	i/e	2/3	3	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : B10
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 9200

Physiography : Hills, rolling to steep (dom)
Plain, undulating (ass)
Soil : LPq, shallow (dom)
LV , loam to clay loam, mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 400-500 mm
Temperature (mean) : 17-19 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	e	2	3	3	
Et	i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : B11
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 19900

Physiography : Plain, level to undulating

Soil : ARh, sand, deep (dom)
GLc, sand to clay, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 450-500 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	i	1	1	2	
Cn	g	1	1	1	Due to vegetation decrease (eastern part)
SN				5	

GLASOD MATRIX TABLE

Map unit : B13
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 6700

Physiography : Plain, level to undulating

Soil : AR , sand, deep (dom)
CMc, loam, mod. deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-500 mm
Temperature (mean) : 17-19 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks : Cambisol partly with petrocalcic phase

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : B14
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 9400

Physiography : Plain, level to undulating (dom)
Hills, steep (inc)
Soil : ARo, sand, deep (ass)
LXf, loam, deep (ass)
Geology : Sandstone and shale
Precipitation (an.mean) : 400-500 mm
Temperature (mean) : 19-21 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	2	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : B15
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 13800

Physiography : Plain, undulating

Soil : LXf, sandy loam to clay loam, mod. deep

Geology : Acid cristalline rock
Precipitation (an.mean) : 500-600 mm
Temperature (mean) : 19-21 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/e	2/3	3	4	
Wd	i/e	1	3	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : B16
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 31400

Physiography : Plain, undulating to rolling

Soil : AR , sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 500-600 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	i	1	2	2	Mainly along border
SN				5	

GLASOD MATRIX TABLE

Map unit : B17
Country 1 : Botswana
Country 2 :
Country 3 :
Area(km2) : 21800

Physiography : Plain, undulating to rolling

Soil : AR , sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 500-600 mm
Temperature (mean) : 19-21 degr.C
Population density : Very low
Land use : Reserve
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : C01
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 67800

Physiography : Valley, steep

Soil : LPe, loam, shallow (ass)
CMe, loam, shallow to mod. deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : Varying
Temperature (mean) : 15-25 degr.C
Population density : Varying
Land use : Permanent subsistence
Vegetation : Bush/shrubland

General remarks : Valley slopes are 'stepped' with lithologically defined terraces

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	3	3	4	Poorly managed natural terraces
Wd	f/g	3	3	1	Poorly managed natural terraces
U	f/g	1	1	5	Slight Wt

GLASOD MATRIX TABLE

Map unit : C02
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 16700

Physiography : Mountains, steep

Soil : LVx, loam, mod. deep (ass)
AN , loam, mod. deep (ass)
Geology : Basic effusive rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : 1200-1600 mm
Temperature (mean) : 10-20 degr.C
Population density : Medium to high
Land use : Mixed farming
Vegetation : Grassland and montane vegetation

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	2	2	4	
Wd	f/g	2	2	2	
Wr					Sedimentation of reservoirs
U				5	Partly slight Wt

GLASOD MATRIX TABLE

Map unit : C03
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 31700

Physiography : Plateau, undulating (dom)
Valley, steep (inc)
Soil : VR , clay, deep (dom)
LV , clay loam, mod. deep (inc)
Geology : Basic effusive rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : 1000-1600 mm
Temperature (mean) : 10-20 degr.C
Population density : High
Land use : Permanent subsistence
Vegetation : Grassland

General remarks : Local stone mantles because of Wt

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	2	2	4	Severe Wt near Addis Abeba (infrequent)
Wd	f/g	2	2	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : C04
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 5400

Physiography : Plain, undulating to rolling (dom)
Footslope, inclined (ass)
Soil : LVx, clay, mod. deep (ass)
VR , clay, deep (ass)
Geology : Basic effusive rock and alluvial deposits
Precipitation (an.mean) : 1400-1600 mm
Temperature (mean) : 15-20 degr.C
Population density : Medium to high
Land use : Mixed farming
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	2	3	3	
Wd	f/g	2	3	1	
SN				5	Alluvial plains near lake Tana

GLASOD MATRIX TABLE

Map unit : C05
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 9100

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
LPe, loam, shallow (ass)
Geology : Basic effusive rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : 1000-1200 mm
Temperature (mean) : 10-20 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Grassland and montane vegetation

General remarks : Area has very little soil, due to natural erosion

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	3/4	3	1	
Wd	f/g	3/4	3	1	
R				5	

GLASOD MATRIX TABLE

Map unit : C06
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 26900

Physiography : Hills, rolling

Soil : LV , clay, shallow to deep (ass)
NT , clay, deep (ass)
Geology : Basic effusive rock and metamorphic rock
Precipitation (an.mean) : 1000-1600 mm
Temperature (mean) : 20-25 degr.C
Population density : Low
Land use : Permanent subsistence and pastoralism
Vegetation : Bush/shrubland

General remarks : Recent transmigration area, Wt, Wd and Cn to be expected soon

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	2	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : C07
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 22000

Physiography : Mountains, steep

Soil : LPe, clay loam, shallow (dom)
NT , clay, deep (ass)

Geology : Basic effusive rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : 1000-1600 mm
Temperature (mean) : 15-25 degr.C
Population density : Low
Land use : Permanent subsistence and pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/f	2	2	2	
Wd	g/f	2	2	1	
SN				4	

GLASOD MATRIX TABLE

Map unit : C08
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 17500

Physiography : Plain, undulating to rolling

Soil : VR , clay, deep

Geology : Basic effusive rock and colluvial deposits
Precipitation (an.mean) : 700-1100 mm
Temperature (mean) : 25-30 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	4	
SN				5	

GLASOD MATRIX TABLE

Map unit : C09
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 27300

Physiography : Valley, undulating to rolling (dom)
Hills, steep (inc)
Soil : NTu, clay, deep

Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 1000-2000 mm
Temperature (mean) : 20-30 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : C11
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 68200

Physiography : Mountains, steep (dom)
Plateau, rolling (ass)
Soil : NTu, clay, mod. deep to deep (ass)
ALu, clay, mod. deep to deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1400-2000 mm
Temperature (mean) : 15-20 degr.C
Population density : Medium
Land use : Mixed farming and commercial farming
Vegetation : Forestland and grassland

General remarks : Relatively little degradation due to good vegetation cover

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	2	3	1	
Wd	f/g	2	3	2	
U				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : C12
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 13200

Physiography : Mountains, steep (dom)
Plateau, rolling (ass)
Soil : NTm, clay, deep (ass)
AL , clay, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1200-1600 mm
Temperature (mean) : 10-20 degr.C
Population density : High to very high
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i/g	4	3	3	
Wt	f/g	3	3	3	
U				3	
SN				3	

GLASOD MATRIX TABLE

Map unit : C13
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 26800

Physiography : Mountains, steep

Soil : LPe, loam, shallow (dom)
LPq, shallow (ass)
Geology : Basic effusive rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : Varying
Population density : Medium
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	4	3	5	Completely stripped slopes
Wd	i	4	3	2	
Et	i	2	2	4	

GLASOD MATRIX TABLE

Map unit : C14
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 17400

Physiography : Hills, steep (dom)
Valley, undulating to rolling (ass)
Soil : CMe, loam, shallow to mod. deep (dom)
LPq, shallow (inc)
Geology : Mixed rock
Precipitation (an.mean) : 600-1200 mm
Temperature (mean) : 20-25 degr.C
Population density : Varying
Land use : Permanent subsistence and pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2/3	2	2	
Cn	1	2	3	2	
Wd	g	2/3	2	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : C15
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 44700

Physiography : Hills, steep

Soil : LPq, shallow (dom)
CMe, loam, mod. deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : 200-600 mm
Temperature (mean) : 20-30 degr.C
Population density : Low to medium
Land use : Permanent subsistence and pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	3	
Wd	g	3	3	1	
U	g	1	1	4	Slight Wt
SN				4	

GLASOD MATRIX TABLE

Map unit : C16
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 17900

Physiography : Mountains, steep

Soil : LPq, shallow (ass)
LPe, loam, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : Varying
Population density : Medium
Land use : Permanent subsistence and pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/i	3	3	4	
Wd	g/i	3	3	2	
Et	g/i	3	3	4	
U	g/i	1	1	3	Slight Wt

GLASOD MATRIX TABLE

Map unit : C17
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 12900

Physiography : Footslope, undulating to rolling

Soil : LPq, shallow (dom)
FL , sand to loam, mod. deep to deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : 25-30 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	1	1	
Wt	g	3	2	2	
Et	g	2	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : C18
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 18500

Physiography : Hills, steep

Soil : LPq, shallow (dom)
CLh, loam, shallow (ass)
Geology : Limestone and basic effusive rock
Precipitation (an.mean) : 100-200 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U			5		Strong natural wind erosion

GLASOD MATRIX TABLE

Map unit : C19
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 16600

Physiography : Plain, rolling (dom)
Hills, steep (ass)
Soil : LPq, shallow

Geology : Basic effusive rock
Precipitation (an.mean) : 100-300 mm
Temperature (mean) : 25-30 degr.C
Population density : Medium
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Unit is lava flow with many little volcanoes

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A			5		

GLASOD MATRIX TABLE

Map unit : C20
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 19800

Physiography : Plain, undulating (dom)
Dunes, rolling (ass)
Soil : SCh, sand to loam, deep (ass)
AR , sand, deep (ass)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : 100-400 mm
Temperature (mean) : 25-30 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	1	3	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : C21
Country 1 : Ethiopia
Country 2 : Djibouti
Country 3 : Somalia
Area(km2) : 81000

Physiography : Plain, undulating to steep

Soil : LPq, shallow (dom)
SCh, loam, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 100-600 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Unit is faulted lava plain

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	2	1	1	Near Awash, caused by irrigation
Et	g	1	1	3	Natural process, intensified by overgrazing
Wt	g	3	2	1	Near cattle water places
A				5	

GLASOD MATRIX TABLE

Map unit : C22
Country 1 : Djibouti
Country 2 : Ethiopia
Country 3 :
Area(km2) : 8100

Physiography : Upland, steep

Soil : LPq, shallow (dom)
RG , loam, shallow (inc)
Geology : Basic effusive rock
Precipitation (an.mean) : 100-200 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	1	2	Natural process, intensified by overgrazing
A				5	

GLASOD MATRIX TABLE

Map unit : C23
Country 1 : Ethiopia
Country 2 : Somalia
Country 3 :
Area(km2) : 17500

Physiography : Footslope, undulating (dom)
Hills, steep (inc)
Soil : FL , loam, deep (dom)
LPq, shallow (ass)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 300-1000 mm
Temperature (mean) : 25-30 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	4	Natural process, intensified by overgrazing
Wd	g	1	1	4	Natural process, intensified by overgrazing

GLASOD MATRIX TABLE

Map unit : C24
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 31400

Physiography : Plain, level to undulating

Soil : ANl, loam to clay, mod. deep to deep (ass)
CM , loam to clay, mod. deep to deep (ass)
Geology : Pyroclastic rocks/tuffs and alluvial deposits
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : 15-25 degr.C
Population density : High
Land use : Mixed farming and pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	3	3	3	Near cattle water places
Et	g	2	2	3	
Cs	i	2	1	1	Near Awash, caused by irrigation
SN				5	

GLASOD MATRIX TABLE

Map unit : C25
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 21800

Physiography : Mountains, steep

Soil : LPq, shallow (ass)
CM , loam, mod. deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1000-1500 mm
Temperature (mean) : Varying
Population density : Medium to high
Land use : Mixed farming
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/i	3	3	4	
Wd	g/i	3	3	2	
U	g/i	1	1	3	Slight Wt
SN				4	

GLASOD MATRIX TABLE

Map unit : C26
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 62700

Physiography : Mountains, steep (dom)
Plateau, undulating (ass)
Soil : LPq, shallow (ass)
LV , loam, mod. deep to deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : 1000-1600 mm
Temperature (mean) : 10-20 degr.C
Population density : Medium
Land use : Commercial farming and mixed farming
Vegetation : Grassland and forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2/3	2	4	
Wd	f	2/3	2	1	
U				4	
SN				3	

GLASOD MATRIX TABLE

Map unit : C28
Country 1 : Ethiopia
Country 2 : Kenya
Country 3 :
Area(km2) : 42700

Physiography : Valley, steep (dom)
Plateau, undulating (ass)
Soil : VR , clay, mod. deep (ass)
LPk, loam, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 200-900 mm
Temperature (mean) : 20-30 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks : Unit consists of deep gorges and plateau remnants

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/f	2	3	2	Poorly managed natural terraces
Wd	g/f	2	3	1	
U				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : C29
Country 1 : Ethiopia
Country 2 : Somalia
Country 3 :
Area(km2) : 28900

Physiography : Plateau, undulating (dom)
Mountains, steep (ass)
Soil : LV , loam, mod. deep to deep (ass)
LPq, shallow (ass)
Geology : Mixed rock
Precipitation (an.mean) : 700-1200 mm
Temperature (mean) : 10-20 degr.C
Population density : High
Land use : Permanent subsistence and commercial farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	3	3	3	With moderate Cn
Wd	i	3	3	3	
U				3	
SH				4	Stabilized by terraces

GLASOD MATRIX TABLE

Map unit : C30
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 20500

Physiography : Hills, steep (dom)
Footslope, inclined (ass)
Soil : AL , clay, deep (ass)
FL , loam, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1200-1800 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : C32
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 :
Area(km2) : 12300

Physiography : Plain, undulating (dom)
Hills, rolling to steep (ass)
Soil : CMe, loam to clay, mod. deep (dom)
LPq, shallow (ass)
Geology : Mixed rock
Precipitation (an.mean) : 100-200 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				4	Guesswork
SN				5	

GLASOD MATRIX TABLE

Map unit : C34
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 : Kenya
Area(km2) : 71600

Physiography : Mountains, steep (dom)
Valley, steep (ass)
Soil : AL , clay, mod. deep to deep (ass)
NTu, clay, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1000-2000 mm
Temperature (mean) : 15-25 degr.C
Population density : Varying
Land use : Mixed farming and forestry
Vegetation : Forestland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2	1	1	Southern part of unit, near Kenya
SN				5	

GLASOD MATRIX TABLE

Map unit : C35
Country 1 : Ethiopia
Country 2 : Sudan
Country 3 : Kenya
Area(km2) : 23400

Physiography : Footslope, undulating to rolling (dom)
Valley, level (ass)
Soil : FL , loam, deep (dom)
FLs, clay, deep (ass)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 700-1800 mm
Temperature (mean) : 25-30 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland and swamp

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : C36
Country 1 : Ethiopia
Country 2 : Kenya
Country 3 :
Area(km2) : 80600

Physiography : Plain, undulating (dom)
Hills, rolling to steep (inc)
Soil : CMx, loam, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 300-1000 mm
Temperature (mean) : 20-25 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	1	On footslopes of hills
Wd	f/g	2	2	1	Near highlands (northern part)
Et	g	1	1	2	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : C37
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 34900

Physiography : Plain, undulating

Soil : CMc, loam, mod. deep

Geology : Limestone
Precipitation (an.mean) : 300-1000 mm
Temperature (mean) : 20-25 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	2	
Et	g	1	1	2	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : C38
Country 1 : Ethiopia
Country 2 : Somalia
Country 3 :
Area(km2) : 103300

Physiography : Plain, undulating (dom)
Hills, steep (inc)

Soil : GYh, loam, shallow (ass)
SCh, loam, mod. deep (ass)

Geology : Evaporites and limestone
Precipitation (an.mean) : 100-500 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and grassland

General remarks : Strong decrease of vegetation has not lead to strong degradation yet, but this may happen in the near future

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	1	2	
Et	g	1	1	2	Natural process, intensified by overgazing
SN				5	

GLASOD MATRIX TABLE

Map unit : C39
Country 1 : Ethiopia
Country 2 : Somalia
Country 3 :
Area(km2) : 11200

Physiography : Valley, level

Soil : FL , loam to clay, deep (dom)
VR , clay, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 100-500 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism and permanent subsistence
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	1	2	1	Caused by irrigation
Eo	g	1	1	4	Natural process, int. by overgrazing in unit C38
SN				5	

GLASOD MATRIX TABLE

Map unit : C41
Country 1 : Ethiopia
Country 2 : Somalia
Country 3 :
Area(km2) : 106400

Physiography : Plain, undulating to rolling

Soil : CL , sandy loam to loam, shallow to mod. deep (dom)
AR , sand, shallow to mod. deep (ass)
Geology : Limestone and sandstone
Precipitation (an.mean) : 150-300 mm
Temperature (mean) : 20-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	
Wd	g	1	1	1	
Et	g	1	1	3	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : C43
Country 1 : Ethiopia
Country 2 :
Country 3 :
Area(km2) : 48300

Physiography : Plain, undulating to rolling (dom)
Hills, steep to ridged (ass)
Soil : CL , loam, shallow to mod. deep (dom)
LPq, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 150-500 mm
Temperature (mean) : 20-25 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	3	
Wd	g	2/3	2	1	
Et	g	1	1	2	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : C44
Country 1 : Ethiopia
Country 2 : Somalia
Country 3 :
Area(km2) : 11200

Physiography : Plateau, undulating to rolling (dom)
Hills, steep (ass)
Soil : GYh, loam, mod. deep (ass)
LPq, shallow (ass)
Geology : Evaporites and limestone
Precipitation (an.mean) : 100-500 mm
Temperature (mean) : 25-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and grassland

General remarks : Unit is step faulted plateau edge

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	2	2	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : D01
Country 1 : Kenya
Country 2 : Sudan
Country 3 :
Area(km2) : 7300

Physiography : Valley, level to undulating

Soil : SNh, clay, deep (ass)
FLc, clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Swamp and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : D02
Country 1 : Sudan
Country 2 : Kenya
Country 3 :
Area(km2) : 31800

Physiography : Plain, undulating

Soil : SNh, loam to clay, deep (dom)
SC , loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	
U				5	Natural sheet erosion

GLASOD MATRIX TABLE

Map unit : D03
Country 1 : Kenya
Country 2 : Uganda
Country 3 : Sudan
Area(km2) : 33000

Physiography : Upland, rolling to steep

Soil : LPc, loam, shallow (dom)
LPq, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 150-900 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	Low vegetation cover causes natural erosion

GLASOD MATRIX TABLE

Map unit : D04
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 12900

Physiography : Plain, undulating (dom)
Dunes, rolling to steep (inc)
Soil : SC , loam to clay, deep (dom)
AR , sand, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 150-300 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	3	Natural process, intensified by overgrazing
Ed	g	1	1	3	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : D05
Country 1 : Kenya
Country 2 : Ethiopia
Country 3 :
Area(km2) : 20200

Physiography : Upland, undulating to rolling (dom)
Valley, level (inc)
Soil : CLh, loam, mod. deep (dom)
FLc, deep (inc)
Geology : Basic effusive rock
Precipitation (an.mean) : 150-300 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks : High degradation hazard but little actual degradation because of very low population density

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	Natural process, intensified by overgrazing
Wd	g	1	1	1	Natural process, intensified by overgrazing
Et	g	1	1	1	Natural process, intensified by overgrazing
U				5	

GLASOD MATRIX TABLE

Map unit : D06
Country 1 : Kenya
Country 2 : Ethiopia
Country 3 :
Area(km2) : 20200

Physiography : Mountains, rolling to steep

Soil : LPe, shallow (dom)
NT , clay, mod. deep to deep (inc)
Geology : Basic effusive rock
Precipitation (an.mean) : 150-1400 mm
Temperature (mean) : 18-30 degr.C
Population density : Very low to medium
Land use : Pastoralism and permanent subsistence
Vegetation : Bush/shrubland and forestland

General remarks : Top of mount Marsabit has more precipitation, good soils and higher poulation density than rest of mountains

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	3	3	4	Lower slopes
Wt	g	2	3	2	
Wd	g/i	3	3	1	Top of Mount Marsabit
Ed	g	2	2	3	
SN				4	

GLASOD MATRIX TABLE

Map unit : D07
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 11000

Physiography : Plain, undulating

Soil : SN , clay to loam, deep (dom)
AR , sand, deep (inc)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 150-550 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/g	3	2	1	Southern part, at foot of Ndoto Mountains
Et	g	3	2	1	Natural process, intensified by overgrazing
Wt	g	2	1	3	As Et
Eo	g	1	1	3	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : D08
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 11200

Physiography : Plateau, rolling to steep

Soil : LPq, shallow

Geology : Basic effusive rock
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use :
Vegetation :

General remarks : Unit is recent lava flow, no soil, no vegetation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				5	

GLASOD MATRIX TABLE

Map unit : D09
Country 1 : Kenya
Country 2 : Ethiopia
Country 3 :
Area(km2) : 28100

Physiography : Plain, undulating

Soil : SN , clay, mod. deep (ass)
VR , clay, deep (ass)
Geology : Metamorphic rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : D10
Country 1 : Kenya
Country 2 : Somalia
Country 3 :
Area(km2) : 14100

Physiography : Plain, undulating

Soil : ARo, sand, deep (ass)
ARb, sand to sandy loam, deep (ass)
Geology : Alluvial deposits and eolian deposits
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : D12
Country 1 : Kenya
Country 2 : Uganda
Country 3 :
Area(km2) : 13500

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
CMe, loam, shallow to mod. deep (ass)
Geology : Basic cristalline rock
Precipitation (an.mean) : 600-1400 mm
Temperature (mean) : 10-22 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Forestland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	3	3	4	Degradation started very recently
Wd	f/g	3	3	3	Degradation started very recently
SN				5	Areas under natural vegetation

GLASOD MATRIX TABLE

Map unit : D13
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 8400

Physiography : Plain, undulating

Soil : FR , clay, mod. deep to deep

Geology : Acid cristalline rock
Precipitation (an.mean) : 1000-2000 mm
Temperature (mean) : 10-16 degr.C
Population density : Medium to very high
Land use : Mixed farming
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	1	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : D14
Country 1 : Kenya
Country 2 : Uganda
Country 3 : Tanzania
Area(km2) : 21400

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : FR , clay, mod. deep to deep (ass)
LV , clay, mod. deep to deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 600-1600 mm
Temperature (mean) : 20-22 degr.C
Population density : High to very high
Land use : Mixed farming
Vegetation : Grassland

General remarks : Swampy Kano plains are included in this unit

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	4	
Wd	g	3	3	2	
Pk	f	1	1	2	In Kano plains
R				2	
SN				4	

GLASOD MATRIX TABLE

Map unit : D15
Country 1 : Kenya
Country 2 : Tanzania
Country 3 :
Area(km2) : 6700

Physiography : Plateau, undulating to rolling (dom)
Hills, steep (ass)
Soil : VR , clay, deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-1600 mm
Temperature (mean) : 14-20 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	On loose sandy patches
Wd	g	1	1	1	On lower footslopes
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : D16
Country 1 : Kenya
Country 2 : Tanzania
Country 3 :
Area(km2) : 11200

Physiography : Plain, undulating (dom)
Mountains, steep (ass)
Soil : CM , clay, mod. deep (dom)
LPq, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 300-850 mm
Temperature (mean) : 20-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks : Unit forms rift valley floor, with many little volcanoes

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	2	2	
Eo	g	1	2	2	
R				5	
SN				5	

GLASOD MATRIX TABLE

Map unit : D18
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 11800

Physiography : Mountains, steep (dom)
Footslope, undulating to rolling (ass)
Soil : CM , loam, shallow to mod. deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-900 mm
Temperature (mean) : 16-22 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Forestland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : D19
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 16300

Physiography : Plain, undulating

Soil : LV , loam, shallow to deep (ass)
CM , loam, shallow to deep (ass)
Geology : Basic cristalline rock
Precipitation (an.mean) : 300-550 mm
Temperature (mean) : 22-24 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	1	1	1	In southern part, at transition to higher terrain
SN				5	

GLASOD MATRIX TABLE

Map unit : D20
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 12900

Physiography : Plain, rolling (dom)
Valley, rolling to steep (ass)
Soil : CM , loam, shallow to mod. deep (ass)
LV , loam, shallow to mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 300-650 mm
Temperature (mean) : 24-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	4	Deeper soils on moderately steep slopes
Wd	g	2	2	1	Deeper soils on moderately steep slopes
SN				5	

GLASOD MATRIX TABLE

Map unit : D21
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 11800

Physiography : Plateau, level to undulating

Soil : PHh, clay, deep (ass)
VR , clay, deep (ass)
Geology : Basic cristalline rock
Precipitation (an.mean) : 450-900 mm
Temperature (mean) : 18-20 degr.C
Population density : Medium to high
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : D22
Country 1 : Kenya
Country 2 : Uganda
Country 3 :
Area(km2) : 35400

Physiography : Mountains, rolling to steep

Soil : NT , clay, deep (dom)
LPq, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1000-2000 mm
Temperature (mean) : 10-12 degr.C
Population density : Medium to very high
Land use : Mixed farming
Vegetation : Forestland and montane vegetation

General remarks : Population and agriculture is concentrated on lower slopes

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2/3	3	4	Cultivated lower slopes
Wd	f	2	3	2	Cultivated lower slopes
R				3	
SN				4	

GLASOD MATRIX TABLE

Map unit : D23
Country 1 : Kenya
Country 2 : Tanzania
Country 3 :
Area(km2) : 15800

Physiography : Upland, undulating to rolling (dom)
Valley, level (ass)
Soil : LV , loam, shallow to deep (dom)
VR , clay, deep (ass)
Geology : Metamorphic rock and basic effusive rock
Precipitation (an.mean) : 300-550 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	2	2	3	Hilly areas
Wd	f/g	2	2	2	Hilly areas
Eo	f/g	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : D24
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Hills, steep

Soil : LPq, shallow (ass)
CM , loam, shallow to mod. deep (ass)
Geology : Metamorphic rock and basic effusive rock
Precipitation (an.mean) : 600-1600 mm
Temperature (mean) : 18-24 degr.C
Population density : Medium to high
Land use : Pastoralism
Vegetation : Grassland

General remarks : Machakos hills are populated since historic times, Chiulu Range is recently populated

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	3	3	
Wt	g	3	3	3	
R				4	
SH				2	Conservation scheme in Machakos hills

GLASOD MATRIX TABLE

Map unit : D25
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 16900

Physiography : Upland, undulating to rolling (dom)
Plateau, undulating (inc)
Soil : AC , clay, deep (ass)
FR , clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 500-900 mm
Temperature (mean) : 21-23 degr.C
Population density : Medium to high
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	4	Caused by sealing, Pk occurs in same area
Wd	g	3	3	2	On steeper slopes
Pk	g	1	1	1	No Wt yet
SN				5	

GLASOD MATRIX TABLE

Map unit : D26
Country 1 : Kenya
Country 2 : Tanzania
Country 3 :
Area(km2) : 42100

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : FRr, clay, deep (dom)
LPe, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 200-700 mm
Temperature (mean) : 23-29 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks : Large area occupied by Tsavo national park, no degradation.
Taita hills: heavy erosion in past, now stabilized by conservation practices

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	1	1	On footslopes around hills, now stabilized
Wt	g	1	1	4	Result of Pc in same area
Eo	g	1	1	3	
SH				2	Taita hills, stabilized by cons. practices (SHc)
SN				4	

GLASOD MATRIX TABLE

Map unit : D27
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 6700

Physiography : Hills, steep to rolling

Soil : AN , clay, deep (ass)
CM , clay, shallow to mod. deep (ass)
Geology : Pyroclastic rocks/tuffs
Precipitation (an.mean) : 1000-2000 mm
Temperature (mean) : 12-16 degr.C
Population density : Low
Land use :
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : D28
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 8400

Physiography : Complex, complex

Soil : CM , clay, mod. deep (dom)
LPq, shallow (ass)
Geology : Pyroclastic rocks/tuffs and basic effusive rock
Precipitation (an.mean) : 600-1200 mm
Temperature (mean) : 16-24 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	4	
Wd	g	2	2	2	Partly natural process, partly stabilized
Et	g	1	2	1	
R				5	
SN				4	

GLASOD MATRIX TABLE

Map unit : D29
Country 1 : Kenya
Country 2 : Somalia
Country 3 :
Area(km2) : 141600

Physiography : Plain, level (dom)
Valley, level (ass)
Soil : SN , clay, deep (dom)
VR , clay, deep (inc)
Geology : Alluvial deposits and marine deposits
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 23-29 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	Near rivers/cattle drinking places
Et	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : D30
Country 1 : Kenya
Country 2 : Somalia
Country 3 :
Area(km2) : 6700

Physiography : Valley, level

Soil : GL , clay, deep (dom)
SN , clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 150-350 mm
Temperature (mean) : 23-29 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and swamp

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : D31
Country 1 : Kenya
Country 2 :
Country 3 :
Area(km2) : 6700

Physiography : Upland, level to rolling

Soil : PHl, loam, deep (ass)
SNm, loam, deep (ass)
Geology : Pyroclastic rocks/tuffs
Precipitation (an.mean) : 400-1000 mm
Temperature (mean) : 19-22 degr.C
Population density : Very low
Land use : Commercial farming and permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	1	1	1	
Wt	i	1	1	1	
Et	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : D32
Country 1 : Kenya
Country 2 : Somalia
Country 3 :
Area(km2) : 16300

Physiography : Upland, undulating to rolling

Soil : CM , loam, mod. deep to deep

Geology : Alluvial deposits and marine deposits
Precipitation (an.mean) : 300-1000 mm
Temperature (mean) : 23-29 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : D33
Country 1 : Kenya
Country 2 : Tanzania
Country 3 :
Area(km2) : 16800

Physiography : Upland, undulating to rolling

Soil : CM , clay, shallow to deep (ass)
LV , clay, shallow to deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : 500-1000 mm
Temperature (mean) : 23-29 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2	1	3	
Wd	f	2	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : E01
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 4300

Physiography : Mountains, steep

Soil : FR , clay, mod. deep to deep (dom)
LPq, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1100-1800 mm
Temperature (mean) : 24-27 degr.C
Population density : Low
Land use : Commercial farming and permanent subsistence
Vegetation : Grassland

General remarks : Top of mountains is still forested and stable

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	2	2	3	
Cn	i	2	2	5	
Wt	i	1	1	3	
SN				3	

GLASOD MATRIX TABLE

Map unit : E02
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 9000

Physiography : Mountains, rolling to steep (dom)
Plain, level (inc)
Soil : PLe, shallow (dom)
FL , loam, deep (inc)
Geology : Sandstone
Precipitation (an.mean) : 1800-2000 mm
Temperature (mean) : 25-27 degr.C
Population density : Varying
Land use : Commercial farming
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	2	3	1	
Wt	i	1	2	1	
R				1	
Z				1	
SN				5	

GLASOD MATRIX TABLE

Map unit : E03
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 6900

Physiography : Mountains, steep

Soil : LPd, loam, shallow

Geology : Acid cristalline rock
Precipitation (an.mean) : 1400-1800 mm
Temperature (mean) : 20-22 degr.C
Population density : Varying
Land use :
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	2	2	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : E04
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 31200

Physiography : Upland, rolling

Soil : FRh, loam, mod. deep (ass)
AC , loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1200-1600 mm
Temperature (mean) : 20-25 degr.C
Population density : Low
Land use : Commercial farming
Vegetation : Grassland and forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	4	
Wd	g	2	2	2	
Pl	i	2	3	1	In valleys
Pw	i	1	3	1	In valleys
SN				4	

GLASOD MATRIX TABLE

Map unit : E05
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 13000

Physiography : Upland, rolling to steep

Soil : LVf, loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock and limestone
Precipitation (an.mean) : 1600-2000 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	4	3	3	Partly stabilized and reforested
Wt	g	3	3	4	
SN				4	

GLASOD MATRIX TABLE

Map unit : E06
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 14600

Physiography : Upland, undulating (dom)
Valley, steep (ass)
Soil : CMd, loam, mod. deep to deep (dom)
LV , loam, mod. deep to deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1600-2000 mm
Temperature (mean) : 22-24 degr.C
Population density : Low to medium
Land use : Permanent subsistence and commercial farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	3	1	1	
Wt	g	2	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : E07
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 16100

Physiography : Footslope, undulating (dom)
Valley, steep (inc)
Soil : CMd, loam, mod. deep to deep (dom)
FL , sand, deep (inc)
Geology : Sandstone
Precipitation (an.mean) : 1600-2000 mm
Temperature (mean) : 24-27 degr.C
Population density : Low
Land use : Commercial farming
Vegetation : Grassland and woodland

General remarks : Regular natural sedimentation of the valleys

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	3	2	
Wt	g	2	2	4	
Wf					
SN				5	

GLASOD MATRIX TABLE

Map unit : E08
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 11500

Physiography : Plateau, undulating to rolling (dom)
Footslope, undulating (ass)
Soil : NTh, clay, deep (dom)
LPq, shallow (ass)
Geology : Basic effusive rock and limestone
Precipitation (an.mean) : 1600 mm
Temperature (mean) : 26-27 degr.C
Population density : Low to medium
Land use : Commercial farming and pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	3	3	1	On paddies
Wt	g	2	2	1	On steeper slopes
Pw	i	2	3	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : E09
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 27000

Physiography : Plain, undulating

Soil : ARb, sand, deep (dom)
FLt, deep (inc)
Geology : Alluvial deposits and marine deposits
Precipitation (an.mean) : 800-1600 mm
Temperature (mean) : 26-27 degr.C
Population density : Low
Land use : Commercial farming
Vegetation : Grassland and forestland

General remarks : Many mangrove swamps near coast (FLt)

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Co	i	3	3	1	Catclay in coastal swamp
Cn	i	2	1	2	Bb occurs in same area
Cs	i	2	2	1	Ps occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : E10
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 9300

Physiography : Plateau, rolling

Soil : LPq, shallow (ass)
RGc, loam, mod. deep (ass)
Geology : Limestone
Precipitation (an.mean) : 1400-1800 mm
Temperature (mean) : 25-27 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland

General remarks : Unit is karst plateau

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	4	
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : E11
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 27000

Physiography : Footslope, undulating to rolling (dom)
Valley, steep (ass)
Soil : LVf, loam, mod. deep to deep (dom)
FL , sand, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 800-1600 mm
Temperature (mean) : 24-27 degr.C
Population density : Low
Land use : Commercial farming and pastoralism
Vegetation : Grassland and woodland

General remarks : Regular natural sedimentation of valleys. Rice cultivation in valleys.

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	3	4	
Wt	g	2	2	4	
Pc	i	2	2	1	
SN				4	

GLASOD MATRIX TABLE

Map unit : E12
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 9400

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : VR , clay, deep (dom)
RG , sandy loam to clay loam, mod. deep to deep (ass)
Geology : Sandstone and alluvial deposits
Precipitation (an.mean) : 1600-2000 mm
Temperature (mean) : 26-27 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	2	1	1	
Wf					
SN				5	

GLASOD MATRIX TABLE

Map unit : E13
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 4600

Physiography : Plain, rolling (dom)
Hills, steep (inc)
Soil : FRh, clay, mod. deep to deep (dom)
LPq, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 26 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	2	3	
Wt	g	2	1	4	
R				4	
SN				3	

GLASOD MATRIX TABLE

Map unit : E14
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 7500

Physiography : Plain, undulating

Soil : LPk, loam, shallow (dom)
LPq, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	2	3	
R				4	
SN				5	

GLASOD MATRIX TABLE

Map unit : E15
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 40600

Physiography : Upland, rolling to steep

Soil : FRh, loam, mod. deep (dom)
AC , loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1400-1800 mm
Temperature (mean) : 19-25 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	1	3	
Wt	g	2	1	4	
Cn	i	1	1	1	
SN				4	

GLASOD MATRIX TABLE

Map unit : E16
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 14900

Physiography : Upland, rolling to steep

Soil : CMo, loam, mod. deep (ass)
LPu, loam, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1600 mm
Temperature (mean) : 22-27 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	4	3	3	
Wt	f	3	3	3	
R				2	
SN				5	

GLASOD MATRIX TABLE

Map unit : E17
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 30600

Physiography : Upland, rolling (dom)
Swamp, level (inc)
Soil : FRh, loam, mod. deep (dom)
GLd, clay, deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1400-1800 mm
Temperature (mean) : 16-19 degr.C
Population density : High to very high
Land use : Mixed farming
Vegetation : Grassland

General remarks : Largest cities of Madagascar in this unit. Very high population density around cities

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	2	3	1	
Cn	i	2	2	2	
Wt	g	2	2	1	
Pw	i	2	3	1	
Sh				1	Stable by paddy field bunding (SHp) -
SN				5	

GLASOD MATRIX TABLE

Map unit : E18
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 3500

Physiography : Plateau, undulating (dom)
Mountains, steep (ass)
Soil : FRr, clay, deep (ass)
AN , loam, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1400-1600 mm
Temperature (mean) : 14-16 degr.C
Population density : High to very high
Land use : Permanent subsistence
Vegetation : Grassland

General remarks : Unit consists of basalt plateaus and escarpments

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	2	3	2	Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : E19
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 23600

Physiography : Mountains, steep

Soil : CMo, loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1400-2400 mm
Temperature (mean) : 18-23 degr.C
Population density : Low
Land use : Shifting cultivation
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	1	1	
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : E20
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 74500

Physiography : Upland, steep

Soil : FRh, loam, mod. deep to deep (dom)
AC , loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1600-3200 mm
Temperature (mean) : 18-24 degr.C
Population density : Medium
Land use : Commercial farming and shifting cultivation
Vegetation : Forestland

General remarks : Near coast higher temperature/precipitation/population density. Plantations near coast

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	f	3	3	2	
Wt	f	3	3	2	Bb occurs in same area
Pl	i	2	3	1	In upland swamp. Pw occurs as well
Wf				1	
SN				5	

GLASOD MATRIX TABLE

Map unit : E21
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 8800

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
RGu, loam, mod. deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1200-1800 mm
Temperature (mean) : 16-21 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	1	
R				5	
SN				4	

GLASOD MATRIX TABLE

Map unit : E22
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 8300

Physiography : Plain, undulating

Soil : ARo, sand, deep

Geology : Sandstone
Precipitation (an.mean) : 300-600 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	3	2	2	Pa occurs in same area
Pc	i	2	2	2	Pa occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : E23
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 8700

Physiography : Hills, steep

Soil : LPq, shallow (dom)
RGe, sand, mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	1	1	3	
R				5	
Wt	g	3	3	3	

GLASOD MATRIX TABLE

Map unit : E24
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 14500

Physiography : Upland, undulating to rolling

Soil : CMd, loam, mod. deep (ass)
NTh, loam to clay, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1400 mm
Temperature (mean) : 19-23 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	2	2	4	Pk occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : E25
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Mountains, steep

Soil : RGd, loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1600-2000 mm
Temperature (mean) : 18-24 degr.C
Population density : Low
Land use : Shifting cultivation
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	3	3	1	
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : E26
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 24400

Physiography : Plain, undulating to rolling (dom)
Hills, steep (ass)
Soil : CMd, sandy loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-1000 mm
Temperature (mean) : 23-25 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	5	Pk and Pa occur in same area
R				2	
SN				3	

GLASOD MATRIX TABLE

Map unit : E27
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 10800

Physiography : Plateau, undulating

Soil : LPq, shallow (dom)
LPk, loam, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 300-900 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use : Shifting cultivation
Vegetation : Bush/shrubland

General remarks : Unit is karst plateau

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				5	
SN				4	

GLASOD MATRIX TABLE

Map unit : E28
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 15000

Physiography : Dunes, undulating to steep

Soil : RGc, sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 24-25 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	2	2	Bb and Pa occur in same area
Et	i	1	2	2	Bb and Pa occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : E29
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 8800

Physiography : Plain, undulating (dom)
Hills, steep (ass)
Soil : CMe, loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Basic effusive rock and acid effusive rock
Precipitation (an.mean) : 500-800 mm
Temperature (mean) : 24-25 degr.C
Population density : Low
Land use : Commercial farming and mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	3	2	
R				4	
SN				5	

GLASOD MATRIX TABLE

Map unit : E30
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 8700

Physiography : Upland, rolling to steep

Soil : LPd, loam, shallow

Geology : Sandstone
Precipitation (an.mean) : 400-800 mm
Temperature (mean) : 24-25 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i	3	3	4	
Wt	i	2	2	4	
SN				4	

GLASOD MATRIX TABLE

Map unit : E31
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 34400

Physiography : Plain, level to undulating

Soil : ARb, sand, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 400-800 mm
Temperature (mean) : 24-25 degr.C
Population density : Very low
Land use : Shifting cultivation and pastoralism
Vegetation : Grassland and forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	g/i	3	2	4	Pk and Wt occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : E32
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 9200

Physiography : Plain, undulating to rolling (dom)
Hills, steep (ass)
Soil : LXf, loam, mod. deep (ass)
NTh, clay, mod. deep to deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : 1400-1800 mm
Temperature (mean) : 24-27 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	1	2	2	Some heavy gullies in hills
SN				5	

GLASOD MATRIX TABLE

Map unit : E33
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 34100

Physiography : Mountains, steep

Soil : FRh, loam, mod. deep

Geology : Metamorphic rock
Precipitation (an.mean) : 1500-2000 mm
Temperature (mean) : 20-22 degr.C
Population density : Low
Land use : Shifting cultivation
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	f/i	3	3	2	
Wt	f/i	3	3	1	
R				2	
SN				5	

GLASOD MATRIX TABLE

Map unit : E34
Country 1 : Madagascar
Country 2 :
Country 3 :
Area(km2) : 15400

Physiography : Upland, rolling to steep (dom)
Valley, steep (inc)
Soil : FRh, loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1400 mm
Temperature (mean) : 19-23 degr.C
Population density : Very low
Land use : Pastoralism and shifting cultivation
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/g	2	1	2	
Cn	i	1	1	2	
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : E35
Country 1 : Mauritius
Country 2 :
Country 3 :
Area(km2) :

Physiography : Plain, undulating (dom)
Plateau, undulating (ass)
Soil : CMu, loam, mod. deep (ass)
NTe, clay, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1500-3000 mm
Temperature (mean) : 19-24 degr.C
Population density : Very high
Land use : Mixed farming
Vegetation : Forestland

General remarks : Mainly sugarcane plantations

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	3	2	On recently reclaimed high slopes
SN				5	

GLASOD MATRIX TABLE

Map unit : E36
Country 1 : Reunion
Country 2 :
Country 3 :
Area(km2) :

Physiography : Mountains, steep

Soil : LPq, shallow (ass)
FR , loam to clay, mod. deep to deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1500-3000 mm
Temperature (mean) : 23-25 degr.C
Population density : High to very high
Land use : Commercial farming
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	1	1	2	
R				4	
SN				5	

GLASOD MATRIX TABLE

Map unit : E37
Country 1 : Comores
Country 2 :
Country 3 :
Area(km2) :

Physiography : Mountains, steep

Soil : LPq, shallow (ass)
CMu, loam, mod. deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 1500-3000 mm
Temperature (mean) : 25-26 degr.C
Population density : Very high
Land use : Mixed farming
Vegetation : Forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	3	3	3	
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : F01
Country 1 : Malawi
Country 2 : Zambia
Country 3 :
Area(km2) : 23600

Physiography : Plain, undulating to rolling (dom)
Valley, undulating (inc)
Soil : ACh, sand to clay, deep (dom)
GL , loam to clay, deep (inc)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 700-950 mm
Temperature (mean) : 19-22 degr.C
Population density : Low to high
Land use : Mixed farming
Vegetation : Woodland

General remarks : Large part of unit covered by game reserve, no degradation here

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	2	4	
SN				5	

GLASOD MATRIX TABLE

Map unit : F02
Country 1 : Malawi
Country 2 : Zambia
Country 3 :
Area(km2) : 11400

Physiography : Hills, steep (dom)
Plateau, undulating (inc)
Soil : LPq, shallow (dom)
FRu, clay, deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1200-1800 mm
Temperature (mean) : 17-21 degr.C
Population density : Low to medium
Land use : Permanent subsistence and reserve
Vegetation : Woodland and montane vegetation

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : F03
Country 1 : Malawi
Country 2 : Tanzania
Country 3 :
Area(km2) : 12900

Physiography : Mountains, steep (dom)
Plain, undulating (inc)
Soil : LPq, shallow (dom)
FL , loam to clay, deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1200-2400 mm
Temperature (mean) : Varying
Population density : Low to high
Land use :
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : F04
Country 1 : Malawi
Country 2 :
Country 3 :
Area(km2) : 5200

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
LPe, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 20-23 degr.C
Population density : Low to high
Land use : Forestry and permanent subsistence
Vegetation : Woodland

General remarks : People from densely populated rift valley floor are driven-up the lower slopes for fuelwood

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	e	2	3	2	Lower slopes near rift valley floor
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : F05
Country 1 : Malawi
Country 2 : Mozambique
Country 3 :
Area(km2) : 11000

Physiography : Plain, undulating to rolling

Soil : NT , clay loam to clay, deep (ass)
LV , clay loam to clay, deep (ass)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 19-22 degr.C
Population density : Very high
Land use : Mixed farming
Vegetation : Woodland

General remarks : Heavier soil erosion in Mozambique part caused by high lifestock pressure

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	1	2	2	Pc and Pk occur in same area
Cn	i	1	1	1	Mainly in Mozambique
SN				5	

GLASOD MATRIX TABLE

Map unit : F06
Country 1 : Malawi
Country 2 :
Country 3 :
Area(km2) : 14200

Physiography : Plain, level to inclined (dom)
Mountains, steep (ass)
Soil : FLc, sand to clay, deep (dom)
LPq, shallow (ass)
Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : 700-1100 mm
Temperature (mean) : 21-25 degr.C
Population density : Low to very high
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks : Rift valley floor includes major mountain block and dissected areas

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	e	1	1	2	On long alluvial slopes
U				4	Mountain block and dissected areas
SN				5	

GLASOD MATRIX TABLE

Map unit : F09
Country 1 : Malawi
Country 2 : Mozambique
Country 3 :
Area(km2) : 5200

Physiography : Plain, level

Soil : VR , clay, deep (ass)
FLc, sand to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 700-950 mm
Temperature (mean) : 25-27 degr.C
Population density : Medium to high
Land use : Commercial farming and permanent subsistence
Vegetation : Grassland and swamp

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	4	On long alluvial slopes
SN				5	

GLASOD MATRIX TABLE

Map unit : F11
Country 1 : Malawi
Country 2 :
Country 3 :
Area(km2) : 6300

Physiography : Upland, undulating to rolling (dom)
Hills, steep (ass)
Soil : LXf, clay, deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1500 mm
Temperature (mean) : 20-25 degr.C
Population density : High to very high
Land use : Commercial farming and permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	2	2	2	Small subsistence farms in western hills
SN				5	

GLASOD MATRIX TABLE

Map unit : F13
Country 1 : Malawi
Country 2 : Mozambique
Country 3 :
Area(km2) : 8400

Physiography : Plain, level to undulating (dom)
Swamp, level (ass)
Soil : VR , clay, deep (dom)
GL , clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1100 mm
Temperature (mean) : 22-25 degr.C
Population density : Medium to very high
Land use : Commercial farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : F14
Country 1 : Malawi
Country 2 : Mozambique
Country 3 :
Area(km2) : 5100

Physiography : Mountains, steep (dom)
Hills, steep (ass)
Soil : LPq, shallow (dom)
NT , clay, deep (ass)
Geology : Metamorphic rock and basic cristalline rock
Precipitation (an.mean) : 1600-2400 mm
Temperature (mean) : 17-22 degr.C
Population density : Low to very high
Land use : Commercial farming
Vegetation : Woodland and montane vegetation

General remarks : Commercial estates are well managed and suffer from relatively little soil degradation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2	1	2	Lower slopes of mount Mulange
Wd	f	2	1	2	Lower slopes of mount Mulange
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : G01
Country 1 : Mozambique
Country 2 : Tanzania
Country 3 :
Area(km2) : 12400

Physiography : Plain, undulating

Soil : ACf, loam, mod. deep (ass)
ARo, sand, mod. deep (ass)
Geology : Sandstone and limestone
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 20-22 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	1	Higher parts of unit
Wt	f/i	1	1	1	On somewhat steeper slopes
SN				5	

GLASOD MATRIX TABLE

Map unit : G02
Country 1 : Mozambique
Country 2 : Malawi
Country 3 :
Area(km2) : 11200

Physiography : Upland, undulating to rolling (dom)
Hills, steep (inc)
Soil : FRr, loam to clay, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 1000-1500 mm
Temperature (mean) : 18-20 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Sheet erosion is natural process which is accelerated by agriculture

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	1	2	Near new villages, slight Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : G03
Country 1 : Mozambique
Country 2 : Malawi
Country 3 :
Area(km2) : 60400

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : FRh, loam to clay, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 20-24 degr.C
Population density : Very low
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland

General remarks : Moderate soil degradation in Malawi part, due to higher population densities

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	1	3	Natural process, intensified by agriculture
Wd	f/i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : G04
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 26900

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : LXf, loam, mod. deep (dom)
ARb, sand, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use :
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G05
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 125200

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : LXf, loam, mod. deep (dom)
ARb, sand, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Medium
Land use : Shifting cultivation
Vegetation : Woodland

General remarks : Strongest soil degradation west of rio Lugenda

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	4	Near new villages, slight Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : G07
Country 1 : Mozambique
Country 2 : Tanzania
Country 3 :
Area(km2) : 38500

Physiography : Plain, undulating (dom)
Hills, rolling to steep (inc)
Soil : ARo, sand, deep (dom)
FR , loam, mod. deep (ass)
Geology : Alluvial deposits and sandstone
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 22-26 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Denser agriculture in Tanzania part

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	2	2	Areas more distant from coast
SN				5	

GLASOD MATRIX TABLE

Map unit : G08
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 15400

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : ARb, sand, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 22-26 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	1	4	
Wd	f/i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : G09
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 5300

Physiography : Upland, rolling (dom)
Hills, steep (inc)
Soil : FRr, loam to clay, mod. deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 1000-1500 mm
Temperature (mean) : 18-20 degr.C
Population density : Very low
Land use :
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G10
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 16100

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : FRh, loam to clay, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 20-24 degr.C
Population density : Very low
Land use :
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : G11
Country 1 : Mozambique
Country 2 : Tanzania
Country 3 :
Area(km2) : 17200

Physiography : Plain, undulating

Soil : LVx, loam to clay, mod. deep (dom)
AR , sand, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 22-26 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	2	1	Near new villages, Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : G12
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 6800

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
FRr, clay, mod. deep to deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1800-2300 mm
Temperature (mean) : 18-20 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : G13
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 9900

Physiography : Upland, undulating to rolling (dom)
Hills, steep (inc)
Soil : FR , loam to clay, mod. deep to deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1400-1800 mm
Temperature (mean) : 22-24 degr.C
Population density : Medium
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	1	4	
Wd	f/i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : G15
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 6400

Physiography : Plain, level (dom)
Dunes, rolling (ass)
Soil : VR , clay, deep (dom)
RGe, sand, deep (ass)
Geology : Sandstone and limestone
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 24-28 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	2	2	2	
Wd	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : G16
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 6200

Physiography : Plain, undulating (dom)
Dunes, rolling (ass)
Soil : ARb, sand, deep (dom)
RGe, sand, deep (ass)
Geology : Alluvial deposits and eolian deposits
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G17
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 6100

Physiography : Plateau, undulating (dom)
Dunes, rolling (ass)
Soil : ARo, sand, deep

Geology : Alluvial deposits and eolian deposits
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Unit consists of alluvial terrace remnants

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G18
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 7300

Physiography : Hills, steep

Soil : LPq, shallow (dom)
LXf, loam, mod. deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 24-28 degr.C
Population density : Very low
Land use :
Vegetation : Woodland

General remarks : Unit forms dissected edge of plain

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : G19
Country 1 : Mozambique
Country 2 : Zambia
Country 3 : Malawi
Area(km2) : 39300

Physiography : Upland, rolling to steep

Soil : LXf, loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 600-1400 mm
Temperature (mean) : 18-26 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	2	1	Near new villages
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : G20
Country 1 : Mozambique
Country 2 : Malawi
Country 3 :
Area(km2) : 9400

Physiography : Hills, steep

Soil : LPq, shallow (dom)
LXf, loam, mod. deep (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 18-22 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : G21
Country 1 : Mozambique
Country 2 : Zimbabwe
Country 3 : Malawi
Area(km2) : 25300

Physiography : Plain, undulating

Soil : CMx, loam, deep (dom)
PL , loam to clay, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 24-28 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G24
Country 1 : Mozambique
Country 2 : Malawi
Country 3 :
Area(km2) : 17700

Physiography : Plain, rolling to steep

Soil : LPq, shallow (ass)
CM , clay, mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 24-28 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Grassland and woodland

General remarks : Unit is heavily dissected

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	3	Slight Pk and Pc occur in same area
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : G26
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 50600

Physiography : Upland, undulating to steep

Soil : LXf, loam to clay, mod. deep to deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 20-22 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	2	Slight Pk and Pc occur in same area
Wd	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : G27
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 25400

Physiography : Plain, level

Soil : FL , loam to clay, deep (ass)
GL , loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Medium
Land use : Permanent subsistence and commercial farming
Vegetation : Grassland

General remarks : Dunes and tidal swamp in coastal zone

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G28
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 14100

Physiography : Plateau, undulating (dom)
Dunes, rolling (inc)
Soil : ARo, sand, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 800-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use : Forestry
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : G30
Country 1 : Mozambique
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 12900

Physiography : Plain, undulating (dom)
Footslope, steep (ass)
Soil : VR , clay, deep (dom)
CM , shallow to mod. deep (ass)
Geology : Basic effusive rock and sandstone
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN			5		

GLASOD MATRIX TABLE

Map unit : G31
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 19200

Physiography : Plain, undulating

Soil : ARo, sand, deep (dom)
AC , loam, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 22-24 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : No lifestock due to tse-tse

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : G33
Country 1 : Mozambique
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 4900

Physiography : Valley, rolling to steep

Soil : LPq, shallow (ass)
LVh, loam, mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U		5			

GLASOD MATRIX TABLE

Map unit : G34
Country 1 : Mozambique
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 39400

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : ARb, sand, deep (dom)
GL , deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use :
Vegetation : Grassland and woodland

General remarks : No lifestock due to tse-tse

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : G35
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 15500

Physiography : Plain, undulating

Soil : ARb, sand, deep (ass)
LV , loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks : No lifestock due to tse-tse

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : G36
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 17900

Physiography : Plain, undulating

Soil : ARb, sand to sandy loam, deep (ass)
LV , loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use : Permanent subsistence and pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	3	Pk and Pc occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : G37
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 5800

Physiography : Plain, undulating

Soil : LVh, loam to clay, deep

Geology : Sandstone
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-24 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : G38
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 11400

Physiography : Plain, undulating (dom)
Dunes, rolling (inc)
Soil : AR , sand, deep (dom)
LV , loam, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : G39
Country 1 : Mozambique
Country 2 : Zimbabwe
Country 3 :
Area(km2) : 13100

Physiography : Valley, rolling to steep

Soil : FL , deep (dom)
CM , loam to clay, shallow (ass)
Geology : Alluvial deposits and sandstone
Precipitation (an.mean) : 400-1000 mm
Temperature (mean) : 22-24 degr.C
Population density : Low to high
Land use : Commercial farming and permanent subsistence
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	2	1	1	Near coast, caused by poor irrigation management
SN				5	

GLASOD MATRIX TABLE

Map unit : G40
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 2800

Physiography : Plain, undulating

Soil : ARb, sand, deep (dom)
LVx, loam, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 22-24 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	3	Slight Pc and Pk occur in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : G41
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 4700

Physiography : Valley, level

Soil : SCh, loam to clay, deep (ass)
GLe, loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 24-26 degr.C
Population density : Varying
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	g	2	2	3	Slight Pc occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : G42
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 14000

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : ARb, sand, deep (ass)
FLe, loam to clay, deep (ass)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-24 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Hazard for salinization in valleys

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : G44
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 11000

Physiography : Plain, undulating (dom)
Valley, level (inc)
Soil : ARb, sand, deep (dom)
FLe, loam to clay, deep (inc)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : Varying
Temperature (mean) : 22-24 degr.C
Population density : Varying
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	2	Near Maputo
SN				5	

GLASOD MATRIX TABLE

Map unit : G45
Country 1 : Mozambique
Country 2 : Swaziland
Country 3 :
Area(km2) : 7400

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
LVh, loam, shallow (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 22-24 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	1	1	Mostly on Zwaziland side
U				5	

GLASOD MATRIX TABLE

Map unit : G46
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 4500

Physiography : Plain, undulating to inclined

Soil : LVx, loam to clay, deep (dom)
VRe, clay, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 400-800 mm
Temperature (mean) : 22-24 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks : Thorny bush is replacing the grasses, due to overgrazing

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	3	Slight Pk occurs in same area
Wd	i	1	1	1	In Vertisols
SN				5	

GLASOD MATRIX TABLE

Map unit : G47
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 4600

Physiography : Plain, level

Soil : FL , loam to clay, deep (ass)
HS , deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-24 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	1	1	1	Caused by irrigation
SN				5	

GLASOD MATRIX TABLE

Map unit : G48
Country 1 : Mozambique
Country 2 :
Country 3 :
Area(km2) : 3700

Physiography : Plain, undulating to rolling

Soil : CMx, loam, shallow to mod. deep (dom)
LPq, shallow (ass)
Geology : Sandstone and limestone
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 22-24 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Bush/shrubland and grassland

General remarks : Thorny bush replaces the grass, due to overgrazing

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	1	3	Slight Pc and Pk occur in same area
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : G49
Country 1 : Swaziland
Country 2 :
Country 3 :
Area(km2) : 5400

Physiography : Upland, rolling to steep

Soil : LPe, loam, shallow (dom)
FRr, loam to clay, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1300-1500 mm
Temperature (mean) : 17-18 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3/4	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : G50
Country 1 : Swaziland
Country 2 :
Country 3 :
Area(km2) : 5400

Physiography : Upland, rolling

Soil : LPq, shallow (ass)
AC , loam, mod. deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 20-21 degr.C
Population density : Varying
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3/4	1	3	
Wd	g	2	1	2	Near cattle drinking places
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : G51
Country 1 : Swaziland
Country 2 :
Country 3 :
Area(km2) : 5400

Physiography : Plain, undulating

Soil : SN , clay, deep (dom)
RGe, loam, mod. deep (ass)
Geology : Basic effusive rock and sandstone
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 23-24 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	1	4	
SN				5	

GLASOD MATRIX TABLE

Map unit : H01
Country 1 : Somalia
Country 2 : Kenya
Country 3 :
Area(km2) : 12200

Physiography : Upland, rolling to steep

Soil : LPq, shallow (ass)
LPe, shallow (ass)
Geology : Sandstone and basic effusive rock
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 25-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				5	
SN				5	

GLASOD MATRIX TABLE

Map unit : H02
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 12400

Physiography : Plateau, undulating

Soil : VR , clay, deep (dom)
CM , clay to loam, mod. deep (ass)
Geology : Limestone
Precipitation (an.mean) : 300-400 mm
Temperature (mean) : 25-30 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	2	2	1	Edges of plateau
SN				5	

GLASOD MATRIX TABLE

Map unit : H03
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 43700

Physiography : Plain, undulating

Soil : LPe, loam, shallow (ass)
CMe, loam, shallow to mod. deep (ass)
Geology : Limestone
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 25-30 degr.C
Population density : Low to medium
Land use : Pastoralism and permanent subsistence
Vegetation : Bush/shrubland

General remarks : Surface is often covered with stones

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	2	
Et	g	1	1	3	Natural process, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : H04
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 15700

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : NT , clay, deep (dom)
PL , sand to clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-500 mm
Temperature (mean) : 25-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks : Nitosol is probably a relict, very hard to manage

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	1	1	2	At transition plain/valley
SN				5	

GLASOD MATRIX TABLE

Map unit : H05
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 39300

Physiography : Plain, level to undulating

Soil : SNh, clay, deep (dom)
VR , clay, deep (ass)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 300-500 mm
Temperature (mean) : 27-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks : Soils are both salic and sodic

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : H06
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 19100

Physiography : Valley, level

Soil : VR , clay, deep (ass)
GL , clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 27-30 degr.C
Population density : Medium to high
Land use : Mixed farming and commercial farming
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i	2	1	1	On levees
Cs	i	2	2	2	Irrigation of soils with salic subsoil
SN				5	

GLASOD MATRIX TABLE

Map unit : H07
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 4500

Physiography : Valley, level

Soil : FLc, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 27-30 degr.C
Population density : Medium
Land use : Mixed farming and commercial farming
Vegetation : Forestland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : H08
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 43100

Physiography : Dunes, undulating to rolling

Soil : ARc, sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 27-3000 mm
Temperature (mean) : PA/SU degr.C
Population density : Very low
Land use : Pastoralism and permanent subsistence
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Eo	g	4	1	3	Reactivation of stable dunes near Mogadisciu
D				4	Active dunes
SN				4	Stable dunes

GLASOD MATRIX TABLE

Map unit : H09
Country 1 : Somalia
Country 2 : Ethiopia
Country 3 :
Area(km2) : 127300

Physiography : Plain, undulating

Soil : GYh, sand to loam, shallow

Geology : Limestone and evaporites
Precipitation (an.mean) : 150-300 mm
Temperature (mean) : 20-30 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	
Wd	g	1	1	1	
Et	g	1	1	5	Largely natural, intensified by overgrazing
SN				3	Actual extent is not sure

GLASOD MATRIX TABLE

Map unit : H10
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Upland, rolling (dom)
Dunes, rolling (ass)
Soil : RGc, sand to loam, deep

Geology : Eolian deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 25-30 degr.C
Population density : Very low
Land use : Permanent subsistence and pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	3	1	4	Historic overgrazing triggered dune activation
SN				5	

GLASOD MATRIX TABLE

Map unit : H11
Country 1 : Somalia
Country 2 : Kenya
Country 3 :
Area(km2) : 7300

Physiography : Plateau, undulating (dom)
Hills, steep (ass)
Soil : LVk, clay, mod. deep (ass)
LPq, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 200-300 mm
Temperature (mean) : 20-25 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Forestland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				4	
SN				5	

GLASOD MATRIX TABLE

Map unit : H12
Country 1 : Somalia
Country 2 : Kenya
Country 3 :
Area(km2) : 9600

Physiography : Plain, undulating (dom)
Plateau, undulating (ass)
Soil : ARb, sand, deep (dom)
CL1, clay, mod. deep (ass)
Geology : Limestone and sandstone
Precipitation (an.mean) : 200-900 mm
Temperature (mean) : 20-15 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	2	Near El Wak
SN				5	

GLASOD MATRIX TABLE

Map unit : H13
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 14300

Physiography : Mountains, steep

Soil : LPq, shallow (ass)
CLe, loam, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 0-200 mm
Temperature (mean) : 25-30 degr.C
Population density : Very low
Land use :
Vegetation : Bush/shrubland

General remarks : Unit forms Nogal valley walls

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	

GLASOD MATRIX TABLE

Map unit : H14
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 55800

Physiography : Plateau, undulating to rolling

Soil : CLe, loam, shallow (ass)
CMc, loam, shallow to mod. deep (ass)
Geology : Limestone
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 20-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	On steeper slopes of north-eastern part
Wd	g	1	1	1	On steeper slopes of north-eastern part
Et	g	1	1	4	Largely natural, intensified by overgrazing
SN				5	

GLASOD MATRIX TABLE

Map unit : H15
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 43900

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
CLe, loam, shallow to mod. deep (inc)
Geology : Limestone
Precipitation (an.mean) : 0-200 mm
Temperature (mean) : 20-25 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface

General remarks : Some vegetation and commercial farming in oases near sea

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				4	
R				5	

GLASOD MATRIX TABLE

Map unit : H16
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 49600

Physiography : Plain, level to undulating

Soil : AR , sand, deep (ass)
SC , sand to loam, deep (ass)
Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 0-200 mm
Temperature (mean) : 27-30 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	1	1	1	At foot of higher areas
Et	g	1	1	5	Largely natural, intensified by overgrazing
Wt	g	1	1	4	Largely natural, intensified by overgrazing
SN				2	Actual extent is not very sure

GLASOD MATRIX TABLE

Map unit : H17
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 9300

Physiography : Upland, rolling (dom)
Plateau, undulating (ass)
Soil : CL , loam, mod. deep (ass)
AR , sand, deep (ass)
Geology : Limestone and sandstone
Precipitation (an.mean) : 300-600 mm
Temperature (mean) : 25-30 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks : In recent past, this area suffers strongly from the civil war, larger cities are uninhabited, most people have fled.

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	2	2	3	On plateau remnant, caused by poor management
Wd	i/g	2	2	2	Plateau sideslopes, caused by poor management
SN				5	Probably with some natural Et

GLASOD MATRIX TABLE

Map unit : H18
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 10400

Physiography : Upland, rolling

Soil : CLe, loam, shallow to mod. deep (dom)
LPq, shallow (ass)
Geology : Limestone
Precipitation (an.mean) : 0-200 mm
Temperature (mean) : 20-25 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				5	Natural wind and water erosion
SN				5	

GLASOD MATRIX TABLE

Map unit : H20
Country 1 : Somalia
Country 2 :
Country 3 :
Area(km2) : 15700

Physiography : Dunes, rolling (dom)
Footslope, undulating (ass)
Soil : AR , sand, deep (dom)
CMe, sand to loam, mod. deep (ass)
Geology : Eolian deposits and colluvial deposits
Precipitation (an.mean) : 0-200 mm
Temperature (mean) : 25-30 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks : Area is almost uninhabited

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
U				3	
D				5	

GLASOD MATRIX TABLE

Map unit : I01
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 111800

Physiography : Plain, undulating

Soil : ARb, sand, deep (dom)
RGe, sand to loam, deep (ass)
Geology : Eolian deposits
Precipitation (an.mean) : 0-50 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks : Stabilized sand sheet

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A			5		

GLASOD MATRIX TABLE

Map unit : I02
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 51900

Physiography : Plain, undulating (dom)
Dunes, rolling to steep (inc)
Soil : ARh, sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 0-25 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks : Active sand sheet

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A			5		

GLASOD MATRIX TABLE

Map unit : I03
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 5100

Physiography : Upland, rolling (dom)
Hills, steep (ass)
Soil : ARb, sand, deep (dom)
LPe, sand to sandy loam, shallow (ass)
Geology : Eolian deposits and sandstone
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A				5	

GLASOD MATRIX TABLE

Map unit : I04
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 59700

Physiography : Plain, undulating

Soil : ARh, sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Active sand sheet

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A				5	

GLASOD MATRIX TABLE

Map unit : I05
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 138400

Physiography : Plain, undulating to rolling

Soil : ARh, sand, deep (dom)
LPe, sand, shallow (ass)
Geology : Eolian deposits
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks : Active sand sheet

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A		5			

GLASOD MATRIX TABLE

Map unit : I06
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 12100

Physiography : Plateau, undulating to rolling

Soil : SCh, sand to loam, shallow to mod. deep

Geology : Sandstone
Precipitation (an.mean) : 0-50 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A		5			

GLASOD MATRIX TABLE

Map unit : I07
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 28600

Physiography : Upland, rolling (dom)
Dunes, rolling (inc)
Soil : LPe, sand to sandy loam, shallow (dom)
ARh, sand, deep (inc)
Geology : Sandstone
Precipitation (an.mean) : 0-50 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Narrow alluvial strip along Nile shows high population densities and subsitence farming. This area has high natural wind erosion hazard (deflation and overblowing)

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A				5	

GLASOD MATRIX TABLE

Map unit : I08
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 14700

Physiography : Upland, rolling

Soil : LPe, sand to loam, shallow (dom)
RGe, sand to loam, mod. deep to deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 0-25 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A				5	

GLASOD MATRIX TABLE

Map unit : I09
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 82600

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : ARh, sand, deep (dom)
LPq, shallow (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 0-50 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks : Active sand sheet

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A		5			

GLASOD MATRIX TABLE

Map unit : I10
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 1900

Physiography : Plain, undulating (dom)
Hills, steep (ass)
Soil : ARh, sand, deep (dom)
LPq, shallow (ass)
Geology : Eolian deposits and sandstone
Precipitation (an.mean) : 0-25 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A		5			

GLASOD MATRIX TABLE

Map unit : I11
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 29800

Physiography : Plain, undulating to rolling

Soil : FL , sand to clay loam, mod. deep to deep (dom)
LPe, clay loam, shallow (ass)
Geology : Mixed rock
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 27-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A				5	

GLASOD MATRIX TABLE

Map unit : I12
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 57900

Physiography : Plain, undulating

Soil : LPe, sand to loam, shallow (ass)
LV , sand to clay loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Soil surface very stony

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
A				5	

GLASOD MATRIX TABLE

Map unit : I13
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 144300

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
FLe, sand to sandy loam, mod. deep to deep (inc)
Geology : Basic effusive rock
Precipitation (an.mean) : 0-300 mm
Temperature (mean) : 28-29 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				5	
SN				2	

GLASOD MATRIX TABLE

Map unit : I14
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 13700

Physiography : Plain, inclined to undulating (dom)
Dunes, undulating to rolling (ass)
Soil : SC , sand to loam, deep (ass)
AR , sand, deep (ass)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 28-29 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	3	1	Erkowit plateau near Port Sudan
U				5	Natural wind and water erosion

GLASOD MATRIX TABLE

Map unit : I15
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 92300

Physiography : Plain, undulating (dom)
Valley, undulating (ass)
Soil : ARh, sand, mod. deep to deep (dom)
LV , clay loam, deep (ass)
Geology : Sandstone and eolian deposits
Precipitation (an.mean) : 50-400 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use :
Vegetation : Exposed soil surface and grassland

General remarks : Shallow sand sheet over compact clayloam. Vegetation very susceptible to overgrazing

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et A	g	2	2	5 4	Natural process, intensified by overgrazing

GLASOD MATRIX TABLE

Map unit : I16
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 26000

Physiography : Plain, inclined (dom)
Hills, steep (ass)
Soil : FLe, loam to clay loam, deep (dom)
LPq, shallow (ass)
Geology : Sandstone
Precipitation (an.mean) : 0-200 mm
Temperature (mean) : 25-27 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Soils are very stony

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et A	g	1	1	5 5	Natural process, intensified by overgrazing

GLASOD MATRIX TABLE

Map unit : I17
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 50600

Physiography : Plain, level to undulating

Soil : CMe, sandy loam to clay loam, deep (dom)
LPe, loam, shallow (ass)
Geology : Sandstone and metamorphic rock
Precipitation (an.mean) : 100-300 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Bush/shrubland and exposed soil surface

General remarks : Strong desertification occurs

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	e/g	3	3	2	
Et	g	2	1	5	Natural process, intensified by overgazing
SN				4	

GLASOD MATRIX TABLE

Map unit : I18
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 96100

Physiography : Plain, level (dom)
Hills, steep (inc)
Soil : ARh, sand, deep (dom)
LPq, shallow (inc)
Geology : Eolian deposits and sandstone
Precipitation (an.mean) : 50-200 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Strong desertification occurs

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g/e	2	3	5	Natural process, intensified by overgrazing
R				3	
SN				3	

GLASOD MATRIX TABLE

Map unit : I19
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 11400

Physiography : Plain, level (dom)
Hills, rolling (inc)
Soil : LVh, loam to clay loam, deep (dom)
LPq, shallow (inc)
Geology : Sandstone
Precipitation (an.mean) : 100-300 mm
Temperature (mean) : 27-29 degr.C
Population density : Low to medium
Land use : Pastoralism and permanent subsistence
Vegetation : Bush/shrubland and exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : I20
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 35500

Physiography : Plain, undulating

Soil : LPe, loam, shallow (dom)
CMe, loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 300-500 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks : Area suffers strongly from recent period of drought

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/e	2	3	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : I21
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 10600

Physiography : Mountains, steep

Soil : LPe, loam, shallow

Geology : Basic effusive rock
Precipitation (an.mean) : 300-500 mm
Temperature (mean) : 21-23 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Woodland and montane vegetation

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i	3	3	2	Caused by poor management
U	i	1	3	5	Rapidly increasing slight Wd
SH				3	SHc, stabilized by terraces
SN				2	

GLASOD MATRIX TABLE

Map unit : I22
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 46200

Physiography : Hills, rolling to steep

Soil : LPq, shallow (dom)
LVx, sandy loam to clay loam, shallow to mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-650 mm
Temperature (mean) : 23-25 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	e/g	2	3	3	
R				5	
SN				3	

GLASOD MATRIX TABLE

Map unit : I23
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 27000

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : ARh, sand, deep (dom)
FLe, clay loam to clay, deep (ass)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : 400-700 mm
Temperature (mean) : 26-28 degr.C
Population density : Low to medium
Land use : Commercial farming and pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/e	2	1	2	Et occurs in same area
Wd	g	2	1	1	
Cn	i	2	3	5	Mainly caused by mechanized farming
SN				3	

GLASOD MATRIX TABLE

Map unit : I24
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 22800

Physiography : Dunes, undulating

Soil : ARh, sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 600-750 mm
Temperature (mean) : 26-28 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Exposed soil surface and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	i	3	2	2	Due to low surface cover of crops. With mod. Wt
SN				5	

GLASOD MATRIX TABLE

Map unit : I25
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 24900

Physiography : Valley, level (dom)
Plain, undulating (ass)
Soil : FLe, sand to clay, deep (dom)
ARh, sand, deep (ass)
Geology : Alluvial deposits and eolian deposits
Precipitation (an.mean) : 400-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	2/3	3	2	Et occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : I26
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 14200

Physiography : Plain, level (dom)
Dunes, rolling (inc)
Soil : VR , clay, deep (dom)
ARh, sand, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 650-850 mm
Temperature (mean) : 27-29 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I27
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 191700

Physiography : Dunes, undulating to rolling

Soil : ARb, sand to sandy loam, deep

Geology : Eolian deposits
Precipitation (an.mean) : 200-700 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Eo	g	3	3	1	Recent reactivation of stabilized dunes
Cn	i	2	2	3	Around villages, with some Wt
SN				5	

GLASOD MATRIX TABLE

Map unit : I28
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 18200

Physiography : Plain, undulating

Soil : LVx, loam, mod. deep (dom)
CMe, loam, mod. deep (ass)
Geology : Eolian deposits and metamorphic rock
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism and permanent subsistence
Vegetation : Grassland and bush/shrubland

General remarks : Dense deforestation along central railway

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	e/g	3	2	3	With slight Cn
Et	e	2	3	2	With slight Cn
Cn	i	1	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : I29
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 9400

Physiography : Plain, level

Soil : FLe, loam to clay, deep (dom)
ARh, sand, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 700-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Low to medium
Land use : Pastoralism and commercial farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	1	Extent is increasing
SN				5	

GLASOD MATRIX TABLE

Map unit : I30
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 29600

Physiography : Plateau, undulating (dom)
Hills, steep (inc)
Soil : VRe, clay, deep (dom)
CMe, loam to clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g	2	3	2	
Wt	g	2	2	3	
Wd	g	2	2	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : I31
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 21100

Physiography : Plateau, undulating to rolling (dom)
Hills, steep (ass)
Soil : LVx, clay loam, deep (dom)
LPq, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	2	3	Around hills, very susceptible soils
SN				5	

GLASOD MATRIX TABLE

Map unit : I32
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 15200

Physiography : Plain, undulating (dom)
Valley, undulating (ass)
Soil : VRe, clay, deep (dom)
CMe, sandy loam to clay loam, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 550-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I33
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 60300

Physiography : Plain, level

Soil : VRe, clay, deep (dom)
LVx, clay loam, mod. deep to deep (inc)
Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : 500-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	1	Mechanized farming in western part
SN				5	

GLASOD MATRIX TABLE

Map unit : I34
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 10700

Physiography : Valley, level

Soil : VRe, clay, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 200-600 mm
Temperature (mean) : 27-29 degr.C
Population density : Medium to high
Land use : Pastoralism and commercial farming
Vegetation : Grassland and bush/shrubland

General remarks : Soils are poorly drained and salic/sodic

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I35
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 33900

Physiography : Plain, level

Soil : VRh, clay, deep

Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 27-28 degr.C
Population density : Medium to high
Land use : Commercial farming and permanent subsistence
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I36
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 15800

Physiography : Plain, level

Soil : VRe, clay, deep

Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 27-29 degr.C
Population density : High
Land use : Permanent subsistence and commercial farming
Vegetation : Bush/shrubland and grassland

General remarks : Soils have improved under irrigation (higher organic matter content in topsoil)

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I37
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 14600

Physiography : Plain, inclined to undulating (dom)
Hills, steep (inc)
Soil : LV , clay loam to clay, mod. deep to deep (dom)
LPq, shallow (inc)
Geology : Sandstone
Precipitation (an.mean) : 100-200 mm
Temperature (mean) : 27-29 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Grassland

General remarks : Unit is completely deforested by Khartoum inhabitants

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	5	Slight Et occurs in same area

GLASOD MATRIX TABLE

Map unit : I38
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 33400

Physiography : Plain, level

Soil : CMv, clay, deep (dom)
VRe, clay, deep (inc)
Geology : Basic cristalline rock and metamorphic rock
Precipitation (an.mean) : 200-600 mm
Temperature (mean) : 27-29 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks : Soils are partly salic and sodic

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/g	4	1	1	Badlands along river
U	f/g	0/1	1	5	Very slight Wt

GLASOD MATRIX TABLE

Map unit : I39
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 22700

Physiography : Plain, level (dom)
Dunes, undulating (ass)
Soil : LVh, clay loam, deep (dom)
ARh, sand, deep (ass)
Geology : Alluvial deposits and eolian deposits
Precipitation (an.mean) : 100-200 mm
Temperature (mean) : 28-29 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Exposed soil surface and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	5	Slight Et occurs in same area

GLASOD MATRIX TABLE

Map unit : I40
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 11800

Physiography : Valley, level to undulating

Soil : VRe, clay, deep (ass)
FLe, sandy loam to clay loam, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 0-300 mm
Temperature (mean) : 27-29 degr.C
Population density : High
Land use : Permanent subsistence and commercial farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	2	2	1	Poor irrigation management
Wt	f	2	2	3	On valley fringes
U	i	0/1		5	Very slight Wt
SN				3	

GLASOD MATRIX TABLE

Map unit : I41
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 24800

Physiography : Plain, level to undulating

Soil : LVh, clay loam, deep (dom)
FLc, clay loam, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 100-300 mm
Temperature (mean) : 28-29 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Exposed soil surface and bush/shrubland

General remarks : Probably some erosion problems around recent refugee camps near Ethiopian border

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	2	2	
U	g	0/1	1	5	Very slight Wt

GLASOD MATRIX TABLE

Map unit : I42
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 14600

Physiography : Plain, level

Soil : FLe, clay, deep (ass)
CMe, clay loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 27-29 degr.C
Population density : Medium
Land use : Commercial farming and permanent subsistence
Vegetation : Grassland

General remarks : Soils have improved by irrigation (higher organic matter content in topsoil)

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I43
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 4600

Physiography : Plain, undulating

Soil : FLc, loam, deep (ass)
ARh, sand, deep (ass)
Geology : Alluvial deposits and eolian deposits
Precipitation (an.mean) : 0-100 mm
Temperature (mean) : 28-29 degr.C
Population density : Low
Land use : Pastoralism and permanent subsistence
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Et	g/i	1	1	4	Natural process, intensified by man
SN				5	

GLASOD MATRIX TABLE

Map unit : I44
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 12700

Physiography : Valley, steep

Soil : RGc, sandy loam to clay loam, shallow to mod. deep

Geology : Alluvial deposits
Precipitation (an.mean) : 200-700 mm
Temperature (mean) : 25-28 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/g	4	1	5	Badland area, developed long ago

GLASOD MATRIX TABLE

Map unit : I45
Country 1 : Sudan
Country 2 : Ethiopia
Country 3 :
Area(km2) : 67500

Physiography : Plain, level

Soil : VRe, clay, deep

Geology : Mixed rock
Precipitation (an.mean) : 500-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	1	1	1	
Wt	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : I46
Country 1 : Sudan
Country 2 : Ethiopia
Country 3 :
Area(km2) : 29800

Physiography : Plain, undulating to rolling

Soil : VRd, clay, deep (dom)
FL , loam to clay, deep (inc)

Geology : Alluvial deposits
Precipitation (an.mean) : 800-900 mm
Temperature (mean) : 27-29 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	2	2	3	Along streams and roads
Wt	g	2	2	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : I47
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 29500

Physiography : Plain, level (dom)
Dunes, undulating to rolling (inc)
Soil : VRe, clay, deep (dom)
ARh, sand, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-850 mm
Temperature (mean) : 26-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : I48
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 57400

Physiography : Plain, level (dom)
Valley, level (inc)
Soil : VRe, clay, deep (dom)
FL , sand to loam, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 750-1100 mm
Temperature (mean) : 27-29 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : I49
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 9900

Physiography : Swamp, level

Soil : HS , deep (ass)
GLu, clay, deep (ass)
Geology : Organic deposits and alluvial deposits
Precipitation (an.mean) : 800-900 mm
Temperature (mean) : 28-29 degr.C
Population density : Low
Land use :
Vegetation : Swamp and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : I50
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 9900

Physiography : Plain, level

Soil : VRe, clay, deep (ass)
GLv, clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 27-29 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : I51
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 30900

Physiography : Swamp, level

Soil : FLu, clay, deep (dom)
HS , deep (ass)
Geology : Alluvial deposits and organic deposits
Precipitation (an.mean) : 750-1000 mm
Temperature (mean) : 27-29 degr.C
Population density : Low
Land use :
Vegetation : Swamp and grassland

General remarks : Unit contains about 20% open water

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I53
Country 1 : Sudan
Country 2 : Ethiopia
Country 3 :
Area(km2) : 115900

Physiography : Plain, level (dom)
Swamp, level (ass)
Soil : VRe, clay, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 27-29 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks : Vertisols are partly sodic and partly gleyic

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I54
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 11700

Physiography : Plain, level

Soil : CMe, loam to clay, deep (dom)
GLe, loam to clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 27-29 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pc	i/g	1	1	2	Along Nile, slight Pk occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : I55
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 33400

Physiography : Plain, level

Soil : VR , clay, deep (dom)
SN , clay, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 900-1100 mm
Temperature (mean) : 28-29 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks : Vertisols are sodic and often calcaric

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : I56
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 2200

Physiography : Mountains, steep

Soil : LPe, loam, shallow (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 750-850 mm
Temperature (mean) : 25-27 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Exposed soil surface

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				4	
SN				5	

GLASOD MATRIX TABLE

Map unit : I57
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 135500

Physiography : Plain, undulating (dom)

Soil : CMo, clay, mod. deep (dom)
LPe, sandy loam to clay loam, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1500 mm
Temperature (mean) : 25-26 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : LPe: shallow soil over ironstone (top of catena)

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	f/i	1	1	3	
Wt	f/i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : I58
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 28500

Physiography : Plain, undulating

Soil : LXf, clay, deep (dom)
LPe, sandy loam to clay loam, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1500 mm
Temperature (mean) : 25-26 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Bush/shrubland

General remarks : Unit was covered with tropical rain forest, present vegetation is secondary bushland, with gallery forest

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	f/i	1	1	5	
SN				3	
Wt	f/i	2	2	2	Slight Cn occurs in same area

GLASOD MATRIX TABLE

Map unit : I59
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 32300

Physiography : Upland, rolling

Soil : LPe, loam, shallow (ass)
CMo, loam, mod. deep to deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 900-1200 mm
Temperature (mean) : 25-27 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Ironstone at top of catena

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	2	2	2	
Cn	f/i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : I60
Country 1 : Sudan
Country 2 :
Country 3 :
Area(km2) : 37100

Physiography : Plain, undulating (dom)
Valley, level (inc)
Soil : RGe, sandy loam, mod. deep (ass)
CMo, sandy loam to clay, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 900-1200 mm
Temperature (mean) : 26-28 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	f/i	1	1	5	
Wt	f/i	1	1	3	Slight Cn occurs in same area
SN				4	

GLASOD MATRIX TABLE

Map unit : I61
Country 1 : Sudan
Country 2 : Uganda
Country 3 :
Area(km2) : 9000

Physiography : Hills, steep

Soil : LPq, shallow (dom)
LPe, loam, shallow (ass)
Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 1000-1200 mm
Temperature (mean) : 25-27 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	2	2	2	
Cn	f/i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : I62
Country 1 : Sudan
Country 2 : Uganda
Country 3 :
Area(km2) : 4480

Physiography : Valley, undulating

Soil : LPe, loam, shallow (ass)
FL , sand to clay, deep (ass)
Geology : Metamorphic rock and alluvial deposits
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 25-27 degr.C
Population density : Low
Land use : Permanent subsistence and pastoralism
Vegetation : Grassland and woodland

General remarks : Extreem degradation around Juba

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	2	5	
Wt	e/i	2	2	2	Moderate Cn occurs in same area
SN				4	

GLASOD MATRIX TABLE

Map unit : I63
Country 1 : Sudan
Country 2 : Uganda
Country 3 :
Area(km2) : 13400

Physiography : Footslope, undulating

Soil : LXf, loam, shallow to deep (dom)
LPe, loam, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1100 mm
Temperature (mean) : 27-29 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	2	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : I64
Country 1 : Sudan
Country 2 : Uganda
Country 3 :
Area(km2) : 17400

Physiography : Mountains, steep

Soil : NTu, clay, deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 20-22 degr.C
Population density : Low
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland

General remarks : Little degradation because of stable soils and dense vegetation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	2	1	Recent patato cultivation
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : I65
Country 1 : Sudan
Country 2 : Ethiopia
Country 3 :
Area(km2) : 37100

Physiography : Plain, level (dom)
Hills, steep (inc)
Soil : VRe, clay, deep (dom)
LPq, shallow (inc)
Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : 500-800 mm
Temperature (mean) : 26-28 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks : Heavy degradation around recent refugee camps. Heavy production decrease by compaction occurred between 1945 and 1955

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pc	i	3	2	5	With locally slight Wd and Wt
SN				4	

GLASOD MATRIX TABLE

Map unit : J01
Country 1 : Tanzania
Country 2 : Rwanda
Country 3 :
Area(km2) : 15200

Physiography : Upland, undulating to rolling (dom)
Valley, level to undulating (ass)
Soil : FR , clay, mod. deep to deep (dom)
HS , deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 21-24 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	1	
Cn	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J02
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 6700

Physiography : Plateau, rolling (dom)
Valley, steep (inc)
Soil : CMo, sandy loam, deep (ass)
FR , clay, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 21-24 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Bb	i	2	1	1	Nematodes in former banana plantations
Cn	i	1/2	1	3	
Wt	i/f	2	2	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : J03
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 12300

Physiography : Plateau, undulating (dom)
Hills, undulating to steep (ass)
Soil : NTu, clay, deep (ass)
FR , clay, deep (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 800-1600 mm
Temperature (mean) : 18-20 degr.C
Population density : Low to medium
Land use : Permanent subsistence and shifting cultivation
Vegetation : Woodland

General remarks : Higher precipitation near Burundi border

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/g	3	2	3	Strongest near Burundi border
Wt	f/i	2	2	2	Strongets near Burundi border
SN				5	

GLASOD MATRIX TABLE

Map unit : J04
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 21800

Physiography : Plain, undulating (dom)
Hills, rolling to steep (inc)
Soil : CMo, sandy loam, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 22-23 degr.C
Population density : Medium to high
Land use : Mixed farming and reserve
Vegetation : Woodland

General remarks : Denser cultivation near lake Victoria

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	f/i	1	1	2	
Wt	g/i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J05
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 10700

Physiography : Plain, level

Soil : VRe, clay, deep (dom)
CMo, sandy loam, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 22-23 degr.C
Population density : High
Land use : Permanent subsistence
Vegetation : Grassland

General remarks : Plain is seasonally inundated

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	i	1	1	1	On sandy 'islands'
Wt	g/i	1	1	1	On sandy 'islands'
SN				5	

GLASOD MATRIX TABLE

Map unit : J06
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 29100

Physiography : Plain, level to undulating

Soil : SNg, deep (ass)
PLe, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 22-23 degr.C
Population density : Medium to high
Land use : Mixed farming
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1/2	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J07
Country 1 : Tanzania
Country 2 : Kenya
Country 3 :
Area(km2) : 24700

Physiography : Upland, level to rolling

Soil : PHl, loam, deep (ass)
SNm, loam, deep (ass)
Geology : Pyroclastic rocks/tuffs
Precipitation (an.mean) : 400-1000 mm
Temperature (mean) : 19-22 degr.C
Population density : Very low
Land use : Reserve
Vegetation : Grassland and woodland

General remarks : Unit it occupied by Serengeti game park

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : J08
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 9500

Physiography : Plain, level to undulating (dom)
Hills, undulating to rolling (ass)
Soil : PHh, clay, mod. deep (dom)
LPq, shallow (inc)
Geology : Mixed rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-23 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/g	2	1	3	On plains and footslopes of hills
SN				5	

GLASOD MATRIX TABLE

Map unit : J09
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 7800

Physiography : Valley, level

Soil : VRe, clay, deep (dom)
SC , clay, deep (inc)
Geology : Alluvial deposits
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-23 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	2	1	2	Caused by irrigation
SN				5	

GLASOD MATRIX TABLE

Map unit : J10
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 5000

Physiography : Hills, steep (dom)
Footslope, undulating to rolling (ass)
Soil : LPq, shallow (ass)
CMo, sandy loam, deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 22-23 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	2	2	On footslopes
Wt	f	2	2	3	On footslopes
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : J11
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 49000

Physiography : Plain, undulating

Soil : CMo, sandy loam, deep (dom)
FR , clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 22-23 degr.C
Population density : Very low
Land use : Shifting cultivation and reserve
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	i	1	1	1	
Wt	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J12
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 22300

Physiography : Valley, level (dom)
Swamp, level (ass)
Soil : GLu, clay, deep (ass)
VRe, clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 22-23 degr.C
Population density : Very low
Land use : Reserve
Vegetation : Swamp and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : J13
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 22800

Physiography : Plain, undulating to rolling (dom)
Mountains, steep (inc)
Soil : CMo, sandy loam, deep (ass)
FR , clay, deep (ass)
Geology : Sandstone and shale
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 19-23 degr.C
Population density : Very low
Land use : Mixed farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	
Wd	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J14
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 51700

Physiography : Plain, undulating (dom)
Hills, rolling to steep (inc)
Soil : CMo, sandy loam, deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock
Precipitation (an.mean) : 400-1200 mm
Temperature (mean) : 22-23 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	2	1	2	On footslopes of hills
Wt	f/i	1/2	1	2	On plain and footslopes of hills
SN				5	

GLASOD MATRIX TABLE

Map unit : J15
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 8900

Physiography : Plain, undulating

Soil : CMo, sandy loam to loam, mod. deep (dom)
VR , clay, deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 21-23 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Woodland and bush/shrubland

General remarks : Low population density caused by tse-tse infestation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	2	
Pk	i	1	1	1	
Wd	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J16
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Plain, level (dom)
Swamp, level (ass)
Soil : ARo, sand, deep (dom)
SC , deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 21-23 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J17
Country 1 : Tanzania
Country 2 : Kenya
Country 3 :
Area(km2) : 17400

Physiography : Complex, complex

Soil : PH , clay loam to clay, shallow to deep (dom)
LPq, shallow (ass)
Geology : Pyroclastic rocks/tuffs and basic effusive rock
Precipitation (an.mean) : Varying
Temperature (mean) : 15-21 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks : Unit forms rift valley floor, with many volcanoes and alluvial plains

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g/i	2	1	2	
Et	g	1	1	1	Very susceptible soil, little degradation
Wt	g	1	1	1	Very susceptible soil, little degradation
Wr		3			
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : J18
Country 1 : Tanzania
Country 2 : Kenya
Country 3 :
Area(km2) : 7300

Physiography : Plain, level to rolling

Soil : ANz, loam, mod. deep to deep (ass)
CH , loam, shallow (ass)
Geology : Pyroclastic rocks/tuffs
Precipitation (an.mean) : Varying
Temperature (mean) : 19-22 degr.C
Population density : Low to medium
Land use : Commercial farming and mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	1	2	Very susc. soils. Relatively little degradation
Et	g	1	1	1	Very susc. soils. Relatively little degradation
Wd	g	1	1	1	Very sucs. soils. Relatively little degradation
Wr		3			
SN				5	

GLASOD MATRIX TABLE

Map unit : J19
Country 1 : Tanzania
Country 2 : Kenya
Country 3 :
Area(km2) : 5600

Physiography : Mountains, steep

Soil : NTu, clay, mod. deep to deep (ass)
LPq, shallow (ass)
Geology : Basic effusive rock and pyroclastic rocks/tuffs
Precipitation (an.mean) : Varying
Temperature (mean) : Varying
Population density : High
Land use : Permanent subsistence
Vegetation : Forestland and montane vegetation

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	2	Locally on lower slopes
Wd	f	1	1	1	Locally on lower slopes
Pc	i	1	1	2	On S-W slopes
R				5	Higher slopes
SN				4	

GLASOD MATRIX TABLE

Map unit : J20
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 23500

Physiography : Plain, undulating

Soil : LV , clay loam, mod. deep (dom)
VR , clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use : Pastoralism
Vegetation : Bush/shrubland

General remarks : No agriculture because of very unreliable precipitation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1/2	1	4	
SN				5	

GLASOD MATRIX TABLE

Map unit : J21
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 7800

Physiography : Mountains, steep (dom)
Plateau, rolling (ass)
Soil : NTu, clay, mod. deep to deep (ass)
LPq, shallow (ass)
Geology : Pyroclastic rocks/tuffs
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : 18-24 degr.C
Population density : High
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	2	2	Poor land management
Wt	f	3	2	4	Poor land management
SN				5	

GLASOD MATRIX TABLE

Map unit : J22
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 36800

Physiography : Plain, undulating to rolling

Soil : LV , clay loam, mod. deep (dom)
LPq, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 23-25 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3	2	2	
Wt	g	2	2	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J23
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 6100

Physiography : Hills, steep (dom)
Footslope, undulating to rolling (ass)
Soil : LPq, shallow (ass)
PHh, loam, shallow (ass)
Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 500-700 mm
Temperature (mean) : 22-23 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Woodland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	g	3/4	2	4	Strongest near Kondoa, now partly stabilized
Wt	g	1	1	4	
SN				4	

GLASOD MATRIX TABLE

Map unit : J24
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 6700

Physiography : Plain, undulating to rolling

Soil : FR , loam, mod. deep

Geology : Metamorphic rock
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 24-26 degr.C
Population density : Low to medium
Land use : Shifting cultivation
Vegetation : Grassland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	1	3	Long period of sisal cultivation
SN				5	

GLASOD MATRIX TABLE

Map unit : J25
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 7200

Physiography : Plain, level to rolling

Soil : CMo, sandy loam, deep (dom)
LV , clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 24-26 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J26
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 29800

Physiography : Plain, undulating (dom)
Hills, rolling to steep (inc)
Soil : CMo, sandy loam, deep (ass)
FR , clay, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : Varying
Temperature (mean) : 22-23 degr.C
Population density : Very low
Land use : Mixed farming and reserve
Vegetation : Woodland and bush/shrubland

General remarks : Unit largely occupied by Ruaka and Rungwa River gameparks

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	1	1	2	
Wd	i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J27
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 15400

Physiography : Plain, level

Soil : SCn, deep (dom)
AR , sand, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 23-24 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Grassland

General remarks : Heavy tse-tse infestation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : J28
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 6600

Physiography : Mountains, steep

Soil : LPq, shallow (dom)
FR , loam to clay, mod. deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 17-21 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i/g	2	1	2	
Wt	i	1	2	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : J29
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 15400

Physiography : Plateau, undulating to rolling

Soil : NTu, clay, deep (ass)
FR , clay, deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 17-21 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	2	
Wd	g	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J30
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 21000

Physiography : Mountains, steep (dom)
Plateau, undulating to rolling (ass)
Soil : NTu, clay, deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1200-1800 mm
Temperature (mean) : 15-21 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Forestland and bush/shrubland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	2/3	3	3	Wt occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : J31
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 13200

Physiography : Plain, level

Soil : FL , deep

Geology : Alluvial deposits
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 25-26 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : J32
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 15500

Physiography : Plain, undulating to rolling (dom)
Mountains, steep (inc)
Soil : FR , clay, mod. deep to deep (dom)
NTu, clay, mod. deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 24-26 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Uluguru Mountains form strongly eroded isolated mountain block

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	3	2	In Uluguru Mountains
Wt	f	3	3	2	In Uluguru Mountains
SN				5	

GLASOD MATRIX TABLE

Map unit : J33
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 7800

Physiography : Plain, level to undulating

Soil : CMo, sandy loam, deep (ass)
ARo, sand, deep (ass)
Geology : Colluvial deposits
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 22-24 degr.C
Population density : Very low
Land use : Shifting cultivation
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J34
Country 1 : Tanzania
Country 2 : Zambia
Country 3 :
Area(km2) : 24300

Physiography : Plain, undulating (dom)
Hills, rolling to steep (ass)
Soil : FRh, clay loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Mixed rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 20-24 degr.C
Population density : Low to medium
Land use : Shifting cultivation
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	1	
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : J35
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 7800

Physiography : Plain, level

Soil : SN , clay, deep (ass)
SC , clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 23-24 degr.C
Population density : Low to medium
Land use : Permanent subsistence and shifting cultivation
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	1	1	3	Caused by irrigation
SN				5	

GLASOD MATRIX TABLE

Map unit : J36
Country 1 : Tanzania
Country 2 : Zambia
Country 3 :
Area(km2) : 11600

Physiography : Plateau, undulating to rolling (dom)
Hills, steep (inc)
Soil : CMo, sandy loam to loam, mod. deep (ass)
ARo, sand, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 18-21 degr.C
Population density : Low
Land use : Shifting cultivation
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J37
Country 1 : Tanzania
Country 2 : Malawi
Country 3 :
Area(km2) : 18600

Physiography : Mountains, steep (dom)
Plain, undulating (ass)
Soil : AN , loam, shallow to mod. deep (dom)
LPq, shallow (ass)
Geology : Pyroclastic rocks/tuffs
Precipitation (an.mean) : 800-1800 mm
Temperature (mean) : 15-21 degr.C
Population density : Medium
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	2	1	1	Relatively little degradation
Wd	f	2	1	1	Relatively little degradation
SN				5	

GLASOD MATRIX TABLE

Map unit : J38
Country 1 : Tanzania
Country 2 : Mozambique
Country 3 :
Area(km2) : 9300

Physiography : Mountains, steep

Soil : NTu, clay, deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1200-1600 mm
Temperature (mean) : 15-21 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	2	1	2	
Wd	f/i	2	1	1	
U				5	

GLASOD MATRIX TABLE

Map unit : J39
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 17600

Physiography : Plain, level to rolling

Soil : FR , loam to clay, deep (ass)
LV , loam to clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1800 mm
Temperature (mean) : 23-26 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	2	1	
Wt	f/i	2	2	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J40
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 18400

Physiography : Plain, undulating to rolling (dom)
Hills, steep (inc)
Soil : LVf, loam to clay, deep (dom)
LPq, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 23-25 degr.C
Population density : Low
Land use : Permanent subsistence and shifting cultivation
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	2	Slight Wt occurs as well
SN				5	

GLASOD MATRIX TABLE

Map unit : J41
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 39900

Physiography : Plateau, undulating to rolling

Soil : CMo, sandy loam, deep

Geology : Sandstone
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Mixed farming and reserve
Vegetation : Woodland

General remarks : Largest part of unit is occupied by Selous gamepark

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1/2	1	1	Outside gamepark
SN				5	

GLASOD MATRIX TABLE

Map unit : J42
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 17600

Physiography : Hills, steep (dom)
Valley, steep (inc)
Soil : CMo, loam, mod. deep (dom)
GL , deep (inc)
Geology : Sandstone
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 24-26 degr.C
Population density : Very low
Land use : Reserve
Vegetation : Woodland

General remarks : Completely occupied by Selous gamepark

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : J44
Country 1 : Tanzania
Country 2 : Kenya
Country 3 :
Area(km2) : 22700

Physiography : Plain, undulating

Soil : ARb, sand, deep (ass)
FR , loam to clay, deep (ass)
Geology : Alluvial deposits and marine deposits
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 27 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	1	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : J45
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 8900

Physiography : Upland, rolling

Soil : CMo, sandy loam, deep (ass)
FR , clay, deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 26-27 degr.C
Population density : Medium to high
Land use : Permanent subsistence and commercial farming
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i	2	2	3	
Wt	i	2	2	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : J46
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 8200

Physiography : Hills, steep

Soil : LPq, shallow (ass)
VR , clay, mod. deep to deep (ass)
Geology : Mixed rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 26-27 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Bush/shrubland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	3	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J47
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 19600

Physiography : Plain, level to rolling

Soil : LV , clay, mod. deep (ass)
FR , clay, mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Shifting cultivation
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	1	
Cn	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J48
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 3300

Physiography : Plain, level to undulating

Soil : CMo, sand, deep (ass)
GL , deep (inc)
Geology : Limestone and sandstone
Precipitation (an.mean) : 1200-1800 mm
Temperature (mean) : 27 degr.C
Population density : High
Land use : Permanent subsistence and commercial farming
Vegetation :

General remarks : Islands Zanzibar and Pemba, both completely cultivated

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : J49
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 7200

Physiography : Plain, undulating (dom)
Hills, rolling to steep (ass)
Soil : CMo, sandy loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 21-23 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Grassland

General remarks : Very high population density around Dodoma

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	2	4	
Wd	g	3	2	1	
U	g	1	1	5	Very slight Wt

GLASOD MATRIX TABLE

Map unit : J50
Country 1 : Burundi
Country 2 : Rwanda
Country 3 :
Area(km2) : 5600

Physiography : Mountains, steep (dom)
Plain, level to undulating (ass)
Soil : NTu, loam to clay, mod. deep to deep (dom)
VR , clay, deep (ass)
Geology : Metamorphic rock and alluvial deposits
Precipitation (an.mean) : 900-1400 mm
Temperature (mean) : 21-22 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Grassland

General remarks : Unit is grouping of rift valley escarpment and floor

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	2	2	2	Slopes and footslopes
Wt	f	2	2	2	Slopes and footslopes
SN				5	

GLASOD MATRIX TABLE

Map unit : J51
Country 1 : Rwanda
Country 2 : Burundi
Country 3 :
Area(km2) : 7900

Physiography : Upland, rolling to steep

Soil : FRu, clay, shallow to mod. deep (ass)
CMu, clay, shallow to mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 1400-2000 mm
Temperature (mean) : 21-24 degr.C
Population density : High to very high
Land use : Permanent subsistence
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i	3	2	3	Cn occurs as well
Wt	i	3	2	3	Cn occurs as well
Cn	i	2	2	4	On better maintained terraces
SN				4	

GLASOD MATRIX TABLE

Map unit : J52
Country 1 : Rwanda
Country 2 : Uganda
Country 3 :
Area(km2) : 10100

Physiography : Upland, rolling to steep

Soil : NTu, clay, mod. deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1100-1300 mm
Temperature (mean) : 21-23 degr.C
Population density : High to very high
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	3	3	3	Cn occurs in same area
Wd	i/g	3	3	2	Cn occurs in same area
Cn	i	2	2	4	On better maintained terraces
R				3	
SN				3	

GLASOD MATRIX TABLE

Map unit : J53
Country 1 : Burundi
Country 2 : Rwanda
Country 3 :
Area(km2) : 19600

Physiography : Plain, undulating (dom)
Valley, level to rolling (ass)
Soil : FR , clay, mod. deep (dom)
NTu, clay, mod. deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 21-23 degr.C
Population density : Medium to high
Land use : Mixed farming
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i	2	2	3	Cn occurs in same area
Wt	i	2	2	4	Cn occurs in same area
Cn	i	2	2	4	On better maintained terraces

GLASOD MATRIX TABLE

Map unit : J54
Country 1 : Tanzania
Country 2 : Rwanda
Country 3 : Uganda
Area(km2) : 16900

Physiography : Hills, steep (dom)
Valley, steep (inc)
Soil : FR , clay, shallow to deep (dom)
HS , clay, deep (inc)
Geology : Sandstone and metamorphic rock
Precipitation (an.mean) : 800-1200 mm
Temperature (mean) : 21-24 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks : In Rwanda this unit is occupied by a national park

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	1	2	
Cn	i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : J55
Country 1 : Tanzania
Country 2 :
Country 3 :
Area(km2) : 22800

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : LVf, loam, mod. deep (dom)
CMo, sandy loam, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 24-26 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : K01
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 2200

Physiography : Plateau, undulating (dom)
Valley, undulating (inc)
Soil : FRh, clay loam, mod. deep to deep (dom)
AR , sand, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1400-1500 mm
Temperature (mean) : 23-25 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	1	2	Around Arua, Wt occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : K02
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 4500

Physiography : Plain, undulating to rolling

Soil : LPe, sand, shallow (dom)
FR , clay, mod. deep to deep (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 23-24 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1/2	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : K03
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : ARl, sand, deep (dom)
VR , clay, deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 1000 mm
Temperature (mean) : 23-26 degr.C
Population density : Low to medium
Land use : Permanent subsistence
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	2	2	In southern part
SN				5	

GLASOD MATRIX TABLE

Map unit : K04
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 11200

Physiography : Plain, undulating to rolling (dom)
Hills, steep (inc)
Soil : LPe, sandy loam to clay loam, shallow (dom)
LPq, shallow (inc)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1100 mm
Temperature (mean) : 23-25 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : K05
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 15200

Physiography : Plain, undulating

Soil : AL , clay loam, deep (dom)
PTa, sand, mod. deep to deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 900-1300 mm
Temperature (mean) : 23-25 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : K06
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 19100

Physiography : Plain, undulating (dom)
Valley, level (ass)
Soil : PTa, sand, mod. deep (dom)
FL , clay, deep (ass)
Geology : Metamorphic rock and alluvial deposits
Precipitation (an.mean) : 1000-1200 mm
Temperature (mean) : 23-25 degr.C
Population density : High
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	2	4	With common slight Wt
SN				5	

GLASOD MATRIX TABLE

Map unit : K08
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 24700

Physiography : Plain, undulating (dom)
Valley, level (inc)
Soil : FRh, clay loam, deep (dom)
FLe, sandy loam to clay, deep (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 900-1300 mm
Temperature (mean) : 22-24 degr.C
Population density : Low to medium
Land use : Mixed farming
Vegetation : Grassland and swamp

General remarks : Valleys are swampy and not cultivated

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/i	2	1	2	Slight Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : K09
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Upland, rolling (dom)
Valley, level (ass)
Soil : NTh, clay loam to clay, deep (dom)
FLe, sand to clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1100-1300 mm
Temperature (mean) : 21-23 degr.C
Population density : High to very high
Land use : Permanent subsistence and commercial farming
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	1	2	3	Slight Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : K10
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 7300

Physiography : Plateau, undulating to steep (dom)
Valley, level (ass)
Soil : FRh, clay loam to clay, mod. deep to deep (dom)
FLe, sandy loam to clay loam, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 21-23 degr.C
Population density : High to very high
Land use : Permanent subsistence and commercial farming
Vegetation : Grassland and forestland

General remarks : Unit consists of plateau remnants, with wide swampy valleys

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	2	2	3	Slight Cn occurs in same area
Cn	i	1	1	2	No Wt occurs
SN				5	

GLASOD MATRIX TABLE

Map unit : K11
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 11200

Physiography : Upland, rolling to steep

Soil : NTh, clay, deep (ass)
FRh, clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 1100-1500 mm
Temperature (mean) : 21-22 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/i	2	2	2	Slight Cn occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : K13
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 7900

Physiography : Upland, rolling to steep (dom)
Valley, steep (inc)
Soil : AC , loam to clay loam, shallow to deep (dom)
FL , sandy loam, deep (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 1100-1200 mm
Temperature (mean) : 19-21 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Forestland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/i	1	1	3	Mainly after burning of vegetation
SN				5	

GLASOD MATRIX TABLE

Map unit : K15
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 11200

Physiography : Plain, undulating (dom)
Mountains, steep (ass)
Soil : GL , sand to clay, deep (dom)
LPe, clay loam, shallow (ass)
Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : Varying
Temperature (mean) : Varying
Population density : Varying
Land use : Mixed farming
Vegetation : Grassland and forestland

General remarks : Unit is combination of rift valley floor and Ruwenzori mountain block

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/i	2	2	2	Lower slopes of mountains
SN				5	

GLASOD MATRIX TABLE

Map unit : K16
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 16900

Physiography : Plain, undulating to rolling (dom)
Valley, level (ass)
Soil : FR , clay loam, mod. deep to deep (dom)
FL , clay, deep (ass)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 900-1150 mm
Temperature (mean) : 19-21 degr.C
Population density : Low
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	2	1	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : K18
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 5600

Physiography : Hills, steep (dom)
Valley, steep (inc)
Soil : LPq, shallow (ass)
FR , clay, deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 900-1150 mm
Temperature (mean) : 19-21 degr.C
Population density : Varying
Land use : Mixed farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f/g	3	1	3	Erosion took place several decades ago
R				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : K19
Country 1 : Uganda
Country 2 : Tanzania
Country 3 :
Area(km2) : 5100

Physiography : Swamp, level to undulating

Soil : FL , sandy loam to clay loam, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 1150-1400 mm
Temperature (mean) : 20-22 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation : Swamp and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : K21
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 7900

Physiography : Plain, level

Soil : VR , clay, deep (dom)
CMx, clay loam, mod. deep (ass)

Geology : Alluvial deposits and colluvial deposits
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 23-24 degr.C
Population density : Low to medium
Land use : Pastoralism
Vegetation : Grassland and woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	1	1	3	Eastern part, expansion of Karamoja grazing
SN				5	

GLASOD MATRIX TABLE

Map unit : K22
Country 1 : Uganda
Country 2 : Kenya
Country 3 :
Area(km2) : 12600

Physiography : Plain, undulating (dom)
Mountains, steep (inc)
Soil : LVx, clay loam, mod. deep to deep (ass)
VR , clay, mod. deep to deep (ass)
Geology : Alluvial deposits and metamorphic rock
Precipitation (an.mean) : 500-900 mm
Temperature (mean) : 22-24 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Woodland and grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g	3	2	5	Partly abandoned
Wd	g	3/4	2	3	Partly abandoned
SN				3	Mountain blocks

GLASOD MATRIX TABLE

Map unit : K25
Country 1 : Uganda
Country 2 :
Country 3 :
Area(km2) : 10600

Physiography : Plain, inclined to undulating

Soil : LV , clay, mod. deep to deep (dom)
LPe, sandy loam to clay loam, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-1100 mm
Temperature (mean) : 22-23 degr.C
Population density : Low
Land use : Pastoralism
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	g/e	1	1	2	On poorly covered lands
SN				5	

GLASOD MATRIX TABLE

Map unit : L01
Country 1 : Zambia
Country 2 : Angola
Country 3 :
Area(km2) : 28000

Physiography : Plain, undulating

Soil : ARo, sand, deep (ass)
AC , sand to clay loam, deep (ass)
Geology : Eolian deposits and sandstone
Precipitation (an.mean) : 1100-1500 mm
Temperature (mean) : 21-22 degr.C
Population density : Low to medium
Land use : Shifting cultivation
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	2	3	1	Along roads
Wt	f	1	2	2	Occurring after fires, not in Angola
SN				5	

GLASOD MATRIX TABLE

Map unit : L02
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 60900

Physiography : Plain, level to undulating

Soil : AC , sand to clay loam, deep (ass)
FR , clay loam, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 1200-1400 mm
Temperature (mean) : 21-22 degr.C
Population density : Very low
Land use : Shifting cultivation and permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	2	3	Occurring after fires
SN				5	

GLASOD MATRIX TABLE

Map unit : L03
Country 1 : Zambia
Country 2 : Angola
Country 3 :
Area(km2) : 132700

Physiography : Plain, undulating

Soil : ARo, sand, deep (dom)
PZ , sand, deep (inc)
Geology : Eolian deposits
Precipitation (an.mean) : 1100-1300 mm
Temperature (mean) : 23-24 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks : Very acid soils

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	2	3	1	Along roads
Wt	f	1	2	1	Occurring after fires, not in Angola
SN				5	

GLASOD MATRIX TABLE

Map unit : L04
Country 1 : Zambia
Country 2 : Angola
Country 3 :
Area(km2) : 129000

Physiography : Plain, level

Soil : GLd, sand, deep (ass)
ARg, sand, deep (ass)
Geology : Eolian deposits and alluvial deposits
Precipitation (an.mean) : 700-1000 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low to low
Land use : Permanent subsistence
Vegetation : Grassland and swamp

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : L05
Country 1 : Zambia
Country 2 : Angola
Country 3 :
Area(km2) : 10400

Physiography : Valley, level

Soil : GLd, sand to clay loam, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 23-24 degr.C
Population density : Medium
Land use : Permanent subsistence
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : L08
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 17500

Physiography : Plain, level

Soil : LPd, clay, shallow

Geology : Sandstone
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use :
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN		5			

GLASOD MATRIX TABLE

Map unit : L10
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 18200

Physiography : Plain, undulating

Soil : AC , sand to clay loam, deep

Geology : Sandstone
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 22-23 degr.C
Population density : Medium to high
Land use : Commercial farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1	2	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : L11
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 12700

Physiography : Plain, level (dom)
Swamp, level (ass)
Soil : GL , sandy loam to clay, deep (ass)
HS , deep (ass)
Geology : Alluvial deposits
Precipitation (an.mean) : 1100-1200 mm
Temperature (mean) : 23-24 degr.C
Population density : Low to high
Land use : Permanent subsistence
Vegetation : Grassland and swamp

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : L12
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 63000

Physiography : Plain, undulating

Soil : LVf, loam to clay, deep (dom)
AC , sand to clay, deep (ass)
Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 23-24 degr.C
Population density : Low
Land use : Commercial farming and permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pc	o	2/3	3	3	By heavy equipment, Pk and Wt occur in same area
Wd	i	2	3	1	In poorly managed compacted soil
SN				5	

GLASOD MATRIX TABLE

Map unit : L13
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 7300

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : LVx, loam to clay, deep (ass)
LVf, loam to clay, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 800-900 mm
Temperature (mean) : 23-24 degr.C
Population density : Medium to high
Land use : Commercial farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	o	2	3	2	By heavy equipment, pc occurs in same area
SN				5	

GLASOD MATRIX TABLE

Map unit : L14
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 10400

Physiography : Plain, level

Soil : VR , clay, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 800-900 mm
Temperature (mean) : 24-25 degr.C
Population density : Medium to high
Land use : Permanent subsistence and commercial farming
Vegetation : Grassland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cs	i	3	3	1	Poorly managed irrigated rice fields
SN				5	

GLASOD MATRIX TABLE

Map unit : L15
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 11900

Physiography : Plain, undulating

Soil : LVf, loam to clay, deep (ass)
LVx, loam to clay, deep (ass)
Geology : Sandstone and limestone
Precipitation (an.mean) : 800-900 mm
Temperature (mean) : 23-24 degr.C
Population density : High
Land use : Commercial farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	o	2	3	4	By heavy equipment, Pc occurs in same area
Co	i	2	2	2	Acidification by fertilizer
SN				5	

GLASOD MATRIX TABLE

Map unit : L16
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 12300

Physiography : Plain, level

Soil : VR , clay, deep (ass)
SN , clay, deep (ass)
Geology : Alluvial deposits and basic effusive rock
Precipitation (an.mean) : 700-900 mm
Temperature (mean) : 23-24 degr.C
Population density : Low
Land use :
Vegetation : Woodland and forestland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : L17
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 21100

Physiography : Plain, undulating

Soil : LVf, loam to clay, deep

Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 700-900 mm
Temperature (mean) : 22-23 degr.C
Population density : Low
Land use : Permanent subsistence and commercial farming
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pc	o	2	3	2	By heavy equipment, on commercial farms
Co	i	2	2	2	Acidification by fertilizer

GLASOD MATRIX TABLE

Map unit : L18
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 9300

Physiography : Footslope, undulating to rolling (dom)
Swamp, level (inc)
Soil : AC , sand to clay loam, deep (ass)
LPq, shallow (ass)
Geology : Metamorphic rock and sandstone
Precipitation (an.mean) : 1000-1400 mm
Temperature (mean) : 25-26 degr.C
Population density : Medium to high
Land use : Shifting cultivation
Vegetation : Woodland

General remarks : In spite of high population density, there is little agriculture, so little degradation. People live of fishing

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	1	1	1	Near escarpment (eastern part)
R				3	
SN				5	

GLASOD MATRIX TABLE

Map unit : L19
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 10900

Physiography : Mountains, steep

Soil : LPq, shallow

Geology : Metamorphic rock
Precipitation (an.mean) : 1100-1300 mm
Temperature (mean) : 22-23 degr.C
Population density : Low
Land use : Shifting cultivation
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	e	1	2	2	In central valley
R				4	
SN				5	

GLASOD MATRIX TABLE

Map unit : L24
Country 1 : Zambia
Country 2 : Malawi
Country 3 :
Area(km2) : 114300

Physiography : Plain, undulating (dom)
Hills, steep (inc)
Soil : AC , sand to clay loam, deep (dom)
LPq, shallow (inc)
Geology : Sandstone and metamorphic rock
Precipitation (an.mean) : 1000-1300 mm
Temperature (mean) : 22-23 degr.C
Population density : Low
Land use : Shifting cultivation and commercial farming
Vegetation : Woodland

General remarks : Soils recover very slowly from slash and burn

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pc	o	2	3	3	By heavy equipment, on commercial farms
Cn	f	1	3	1	Abandoned plots
SN				5	

GLASOD MATRIX TABLE

Map unit : L25
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 10300

Physiography : Swamp, level

Soil : HS , deep (ass)
GLu, deep (ass)
Geology : Alluvial deposits and organic deposits
Precipitation (an.mean) : 1200-1300 mm
Temperature (mean) : 23-24 degr.C
Population density : Very low
Land use :
Vegetation : Grassland and swamp

General remarks : No agriculture, people live of fishing

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : L26
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 8100

Physiography : Plain, level

Soil : GLu, sand, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 1200-1300 mm
Temperature (mean) : 23-24 degr.C
Population density : Medium to high
Land use : Permanent subsistence
Vegetation : Grassland

General remarks : Organic topsoil is copmletely removed after burning, recoverage is very slow

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	o	4	3	1	Burning of organic topsoil
SN				5	

GLASOD MATRIX TABLE

Map unit : L27
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 6500

Physiography : Valley, level

Soil : GLu, sand, deep

Geology : Alluvial deposits
Precipitation (an.mean) : 900-1100 mm
Temperature (mean) : 22-23 degr.C
Population density : Low to medium
Land use : Shifting cultivation
Vegetation : Grassland and exposed soil surface

General remarks : Organic topsoil is completely removed after burning, recoverage is very slow

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	o	4	3	3	Burning of organic topsoil
SN				5	

GLASOD MATRIX TABLE

Map unit : L28
Country 1 : Zambia
Country 2 : Malawi
Country 3 : Zimbabwe
Area(km2) : 74200

Physiography : Hills, steep (dom)
Mountains, steep (ass)
Soil : LPq, shallow (dom)
LPe, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 700-1100 mm
Temperature (mean) : 23-24 degr.C
Population density : Low
Land use : Permanent subsistence
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	3	1	On slopes near densely populated valleys
SN				5	

GLASOD MATRIX TABLE

Map unit : L29
Country 1 : Zambia
Country 2 :
Country 3 :
Area(km2) : 42200

Physiography : Plain, inclined

Soil : VR , clay, deep (ass)
SN , deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 700-900 mm
Temperature (mean) : 27-28 degr.C
Population density : Very low
Land use : Reserve
Vegetation : Woodland

General remarks :

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : L30
Country 1 : Zambia
Country 2 : Malawi
Country 3 : Mozambique
Area(km2) : 10000

Physiography : Upland, undulating to rolling

Soil : NT , clay, mod. deep to deep

Geology : Metamorphic rock and acid cristalline rock
Precipitation (an.mean) : 900-1100 mm
Temperature (mean) : 24-25 degr.C
Population density : Medium to high
Land use : Commercial farming
Vegetation :

General remarks : Original vegetation completely removed; in Mozambique: uninhabited, no degradation

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	f	1/2	1	3	
Wd	f	1	1	1	
SN				5	

GLASOD MATRIX TABLE

Map unit : M01
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 22100

Physiography : Plain, level

Soil : ARc, sand, deep

Geology : Eolian deposits
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 20-22 degr.C
Population density : Medium
Land use : Pastoralism
Vegetation :

General remarks : Communal land

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Cn	i	2	2	3	
SN				5	

GLASOD MATRIX TABLE

Map unit : M02
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 8600

Physiography : Hills, rolling to steep

Soil : LPq, shallow (dom)
VR , clay, deep (ass)

Geology : Basic effusive rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 22-25 degr.C
Population density : Low
Land use : Reserve
Vegetation :

General remarks : Unit is game park

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				5	
SN				5	

GLASOD MATRIX TABLE

Map unit : M03
Country 1 : Zimbabwe
Country 2 : Zambia
Country 3 :
Area(km2) : 32600

Physiography : Upland, undulating to rolling (dom)
Hills, rolling to steep (ass)
Soil : LVx, loam, mod. deep (ass)
LPq, shallow (ass)
Geology : Sandstone and shale
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 22-25 degr.C
Population density : Low
Land use : Pastoralism
Vegetation :

General remarks : Communal land

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
R				4	
SN				4	
Wt	g	2	2	3	
Cn	i	2	2	2	

GLASOD MATRIX TABLE

Map unit : M04
Country 1 : Zimbabwe
Country 2 : Zambia
Country 3 : Mozambique
Area(km2) : 21800

Physiography : Plain, undulating

Soil : LVx, loam, deep (dom)
SN , loam, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 24-28 degr.C
Population density : Low
Land use : Pastoralism
Vegetation :

General remarks : Large areas occupied by game parks (Zimbabwe). Degradation takes place on communal land outside this area

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	3	3	2	Very susceptible soils (silty)
SN				5	

GLASOD MATRIX TABLE

Map unit : M05
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 23100

Physiography : Hills, steep (dom)
Mountains, steep (ass)
Soil : LPq, shallow (ass)
CMe, loam, shallow to mod. deep (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 20-25 degr.C
Population density : Varying
Land use : Mixed farming
Vegetation :

General remarks : Communal land

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f	2	3	2	
Wt	g	2	2	3	
U				5	
Cn	i	2	2	2	

GLASOD MATRIX TABLE

Map unit : M06
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 30900

Physiography : Upland, undulating to rolling (dom)
Hills, steep (inc)
Soil : LVf, loam to clay loam, deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 20-25 degr.C
Population density : Varying
Land use : Commercial farming
Vegetation :

General remarks : Former colonial land

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	4	
SN				5	

GLASOD MATRIX TABLE

Map unit : M08
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 21800

Physiography : Upland, undulating to rolling (dom)
Hills, steep (inc)
Soil : LVf, sandy loam to clay loam, mod. deep to deep (dom)
LPq, shallow (inc)
Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 600-1000 mm
Temperature (mean) : 17-22 degr.C
Population density : Varying
Land use : Mixed farming
Vegetation :

General remarks : Communal land

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/g	3	3	3	With mod. Cn and slight Pc
Wr					
U	i/g	1	1	4	Slight Wt
SN				4	

GLASOD MATRIX TABLE

Map unit : M13
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 21900

Physiography : Upland, rolling

Soil : LVf, sandy loam to clay loam, mod. deep to deep (ass)
FR , clay loam, mod. deep to deep (ass)
Geology : Acid cristalline rock
Precipitation (an.mean) : 800-1000 mm
Temperature (mean) : 17-20 degr.C
Population density : Very low to low
Land use : Commercial farming
Vegetation :

General remarks : Former colonial land

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Pk	i	1	1	3	With slight Wt
SN				5	

GLASOD MATRIX TABLE

Map unit : M15
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 19600

Physiography : Upland, undulating to rolling

Soil : LV , loam to clay, shallow to mod. deep

Geology : Acid effusive rock
Precipitation (an.mean) : 400-800 mm
Temperature (mean) : 17-20 degr.C
Population density : Low
Land use : Mixed farming
Vegetation :

General remarks : Former colonial lands

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : M16
Country 1 : Zimbabwe
Country 2 : Botswana
Country 3 :
Area(km2) : 53700

Physiography : Upland, undulating

Soil : LVf, sandy loam to clay loam, mod. deep to deep

Geology : Acid cristalline rock and metamorphic rock
Precipitation (an.mean) : 600-800 mm
Temperature (mean) : 20-25 degr.C
Population density : Low
Land use : Commercial farming and pastoralism
Vegetation :

General remarks : Former colonial lands

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i	1	1	3	With slight Pk
SN				5	

GLASOD MATRIX TABLE

Map unit : M18
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 44600

Physiography : Upland, undulating

Soil : LVf, sandy loam to clay loam, mod. deep

Geology : Acid cristalline rock
Precipitation (an.mean) : 500-800 mm
Temperature (mean) : 17-20 degr.C
Population density : Medium to high
Land use : Pastoralism
Vegetation :

General remarks : Communal lands

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	i/g	3	3	3	Near rivers and watering places
Wt	i	2	2	4	With patches of severe Wt
Wr		3			
SN				4	

GLASOD MATRIX TABLE

Map unit : M19
Country 1 : Zimbabwe
Country 2 : Mozambique
Country 3 :
Area(km2) : 11200

Physiography : Mountains, rolling to steep

Soil : FR , loam to clay loam, mod. deep to deep (dom)
LPq, shallow (ass)
Geology : Limestone and metamorphic rock
Precipitation (an.mean) : 900-1000 mm
Temperature (mean) : 15-17 degr.C
Population density : Low
Land use : Commercial farming
Vegetation :

General remarks : Former colonial lands in Zimbabwe. Little degradation on Mozambique side of mountains

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wd	f/i	3	3	2	In spite of good management
Wt	f/i	3	3	3	In spite of good management
U				5	

GLASOD MATRIX TABLE

Map unit : M20
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 34600

Physiography : Upland, undulating to rolling

Soil : LV , sandy loam to clay loam, mod. deep (dom)
LPq, shallow (ass)
Geology : Metamorphic rock
Precipitation (an.mean) : 400-600 mm
Temperature (mean) : 20-22 degr.C
Population density : Low
Land use : Pastoralism
Vegetation :

General remarks : Former colonial lands

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

GLASOD MATRIX TABLE

Map unit : M21
Country 1 : Zimbabwe
Country 2 : Botswana
Country 3 :
Area(km2) : 8700

Physiography : Hills, steep (dom)
Plain, undulating (ass)
Soil : LPq, shallow (ass)
LPe, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 20-25 degr.C
Population density : Medium
Land use : Mixed farming
Vegetation :

General remarks : Communal lands

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/f	3	2	2	Partly natural process
U				4	
SN				4	

GLASOD MATRIX TABLE

Map unit : M22
Country 1 : Zimbabwe
Country 2 :
Country 3 :
Area(km2) : 6300

Physiography : Plain, undulating (dom)
Hills, rolling to steep (ass)
Soil : VR , clay, deep (ass)
LPq, shallow (ass)
Geology : Basic effusive rock
Precipitation (an.mean) : 300-600 mm
Temperature (mean) : 22-25 degr.C
Population density : Low
Land use : Pastoralism
Vegetation :

General remarks : Communal lands

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
Wt	i/f	2	2	2	
SN				5	

GLASOD MATRIX TABLE

Map unit : M23
Country 1 : Zimbabwe
Country 2 : Mozambique
Country 3 :
Area(km2) : 7800

Physiography : Plain, undulating

Soil : LV , sand to loam, deep (dom)
AR , sand, deep (ass)
Geology : Sandstone
Precipitation (an.mean) : 200-400 mm
Temperature (mean) : 22-25 degr.C
Population density : Varying
Land use : Reserve
Vegetation :

General remarks : Unit is largely covered by national park

DEGRADATION CHARACTERISTICS

Type	Caus	Degr	Rate	Ext	Remarks
SN				5	

SOIL DEGRADATION MAP

EASTERN AND SOUTHERN AFRICA

SCALE 1 : 7.5 MILLION (APPR.)

For mapping unit descriptions, see accompanying report:
GLOBAL ASSESSMENT OF SOIL DEGRADATION –
EASTERN AND SOUTHERN AFRICA. REPORT NR. 2082,
SOIL SURVEY INSTITUTE, P.O.Box 98, WAGENINGEN, THE NETHERLANDS

Map compilation: R.T.A. Hakkeling

Sudan
Khartoum
Ethiopia
Djibouti
Somalia
Mogadishu
Kenya
Uganda
Kampala
Nairobi
Rwanda
Kigali
Burundi
Bujumbura
Tanzania
Addis Abeba
Dar es Salaam
Angola
Luanda
Zambia
Lusaka
Malawi
Lilongwe
Mozambique
Harare
Zimbabwe
Botswana
Gaborone
Namibia
Swaziland
Maputo
Madagascar
Antananarivo
Comores
Mauritius
Reunion

Map and report are prepared in the context of the Global Assessment of Soil Degradation (GLASOD) project, which is carried out by the International Soil Reference and Information Centre (ISRIC), Wageningen, The Netherlands, at the request of the United Nations Environmental Programme (UNEP), Nairobi, Kenya.