LAND USE MAP OF ZAMBIA*
With 2 figures and 4 maps (supplements V–VIII)

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Zusammenfassung: Landnutzungskarte von Zambia


Die Verbreitung der folgenden Einheiten wurde erfaßt: Städtische Siedlungen, Gebiete mit hoher ackerbaulicher Nutzungsdichte (Cropland), Waldreservate, Aufforstungen, Nationalparks, Seen, Sumpfe, Überschwemmungsflächen und bergig/hügelige Gebiete.

Nach Ausdehnung und wirtschaftlicher Bedeutung, gemessen an der Zahl der beteiligten Bevölkerung, verdienen die als Cropland kartierten Räume besondere Aufmerksamkeit. Sie werden zunächst nach Art der Nutzung, die (a) traditionell verhaftet, (b) privat-kommerziell oder (c) staatseigen/-gefordert sein kann, gegliedert. Die weitere Unterteilung erfolgt dann für (a) nach Besitzverfassung: Die Kommerzialisierung, Betriebsgröße, Produktionsrichtung (Verhältnis von Pflanzen-, Tier-, oder/und Fischprodukten), Nutzungsintensität, Werkzeug der Bodenbearbeitung, Maßnahmen zur Erhaltung der Bodenfruchtbarkeit und Art der Nutzung und -tiefe. Danach lassen sich 2 Nutzungssysteme unterscheiden, die sich zu 5 Gruppen ordnen lassen: Brandrodungs-Wanderfeldbau, semi-permanenter Ackbau, semi-permanenter Ackbau mit Fischfang, semi-permanenter Hack- und Pflugbau mit Rinderhaltung, semi-kommerzieller Ochsen- und Traktorflugbau. Die privatkommerziellen Betriebe (b) werden nach der vorherrschenden pflanzlichen und tierischen Produktion gegliedert. Die einzelnen traditionell verhafteten Nutzungssysteme und die Gesamtheit der privat-kommerziellen Betriebe (Commercial farming on State Land) besitzen größere und meist zusammenhängende Verbreitungsgebiete, die Farmregionen.

Dies gilt nicht für die staatseigenen/-geforderten Unternehmen (c), die in allen Landesteilen zu finden sind. Die erste Unterteilung richtet sich hier nach der besonderen Zielsetzung, die sich entweder auf die Entwicklung von rückständigen Räumen (settlement schemes) oder auf die Steigerung der nationalen Produktion (direct productions schemes) beziehen. Ebenfalls entstehen sich die sog. emergent farmers der Regionalisierung. Hierbei handelt es sich um einzelne semi-kommerzielle Farmer, die sich außerhalb der semi-kommerziellisierten Farmregionen überall in Zambia in wechselnder, doch immer gering bleibender Dichte finden. Ihre Betriebe gleichen sich, trotz der regional wechselnden ökologischen und historischen Bedingungen, überraschend stark.

Die Nutzungssysteme und ihre Verbreitungsgebiete, die Farmregionen, werden in ihren wesentlichen Merkmalen beschrieben (u. a. Bedeutung nach Fläche und Bevölkerungszahl, Nutzungsdichte, Nutzungsintensität, Marktproduktion). Die Angaben für die einzelnen Farmregionen beziehen die innerhalb ihrer Grenzen gelegenen Entwicklungsideen und emergent farmers mit ein. Eine Trennung ist infolge ungenügender Statistiken vorläufig noch nicht möglich.

The project for land use mapping in Zambia was initiated by the Zambian Government. Work started in 1970 and was supported by the Zambian Government and the University of Zambia. The compilation of the map was completed in early 1972.

The major land categories observed are urban areas, cropland, forest estates (i.e. forest reserves, protected forest areas, afforestatations), National Parks, lakes, areas liable to flood, swamps and hilly areas. The first two of these categories form together the area of major human activity in Zambia where all settlements, cultivations and industries are concentrated. It adds up to roughly 1/4 to 1/5 of the Zambian surface area.

From the rest of Zambia, 16% is reserved for exploitation of timber (8.2% forest estates) or tourism and wildlife (7.9% National Parks). All lakes (1.2%) are used for fishing. This brings the land used in Zambia up to 40%.

Assuming that some parts of the areas liable to flood, of the hilly areas and of the "unused woodland" are used as pastures for livestock, the estimate might be justified that approximately half of Zambia is used in some form (cf. fig. 1).

The category "cropland" will be given priority in this study. This is justified by its wide distribution as well as by its overwhelming contribution to the economy with respect to the number of persons involved.

Cropland as defined in this study includes (1) land occupied by all crops, (2) land used for fallow, (3) formerly cropped land until regeneration of tree growth and (4) rural settlements and even unused land in between the fields (the areal measurements of cropland have been taken from the Land Use Map; this source does not permit more accurate figures due to the generalisation in the process of mapping).

The fact that the figures for cropland include an unknown portion of non-cultivated land has to be taken into consideration, but it does not affect their general usefulness. It can be assumed that much of the area between the present or former fields has never been cropped for economic or social reasons, i.e. there is not much space within the farmed areas as they are mapped for expansion, at least not as long as the predominant type of farming is maintained. This allows the conclusion that the figures for cropland as defined here offer more reliable information on the actual land requirements and carrying capacity than those for the field and fallow acreages.

Cropland has been divided into three main sectors, i.e. the basically traditional, the private commercial and the state-controlled (Government development projects). Each of these sectors is subdivided.

Basically traditional land use includes those systems...
in which agricultural practices are largely based on local traditions and in which traditional (tribal or communal) rights to land still exist (although changes towards individual rights to land — at least as far as arable land is concerned — are visible everywhere). For a general survey of the traditional land use, the profound and still valid work of Trapnell and Clothier during the 30’s is recommended (Trapnell 1953, Trapnell and Clothier 1957).

Most of the figures given in this article are derived either from the Land Use Map, the map on population distribution (Jackman and Davies 1971) or material supplied by the Agricultural Census of Zambia 1970/71. For the purpose of this study a reduced sample was made from the latter source, totalling some 1,100 farm households.

The subdivisions of the basically traditional land use systems, as used in this study, are defined by a limited number of diagnostic variables which are (a) land tenure, (b) degree of commercialisation, (c) size of holding, (d) orientation of production (= proportion between crop, livestock and or fish products), (e) intensity of cultivation, (f) implements of cultivation, (g) maintenance of soil fertility and (h) main crops and livestock (Schultz 1975a).

The application of these criteria is aimed at defining and demarcating regions with a high homogeneity, or a distinctly recurring pattern in farming, rather than at classifying of single farms. Such regions, the “farming regions” (cf. fig. 2), fit in the general ecological context, thus representing the main natural regions of the country.

The systems/regions of basically traditional land use, totalling 20 plus 8 subdivisions, have been grouped under 5 headings as described below. Commercial farming, Government development projects and the so-called “emergent farmers” are dealt with in separate paragraphs which follow on these.

**Shifting axe and hoe cultivation**

This type of farming is the most common in the north-eastern and north-western part of the country, where annual rainfall exceeds on average 1000 mm and where the soils are frequently leached heavily. Its area of distribution covers nearly two fifths of the country, with 20 per cent of total and 28 per cent of rural population.


All systems of this group belong to an “intensive” type of shifting cultivation, called chitemene. Trees are lopped or cut, and the wood is piled up on smaller patches within the clearing for burning. Cultivation is mostly confined to these burnt patches where the ash layer helps to overcome the inherent low soil fertility and the heat to control weed growth. These ash gardens are supplemented by “village gardens” which are used more permanently corresponding to the higher intensity of husbandry applied to them.

The cut and burn technique of chitemene, as well as the mound cultivation with grass naturally composted inside (see below) that is practised in the village gardens and in some other farming regions, e.g. those with higher population density along the Tanzanian border, are adaptations which make these systems relatively independent of soil fertility. The same advantage is gained in other systems by the cultivation of cassava, which promises reasonable yields even in those areas where most other crops would fail. It is this advantage that backs the strong preference for cassava in the densely populated areas of Luapula Province and the spreading of cassava cultivation to the east.

The relative independence of soil fertility that is found in all systems of the wetter parts of Zambia is clearly revealed in the distribution pattern of cultivated land. No general order is easily detectable; the distribution seems “arbitrary” in respect of natural conditions. This contrasts with the valley related pattern in the drier parts of Zambia where the careful
selection of most suitable sites (for a given land use system) predominates over adaptations (of these systems).

Five shifting cultivation systems are to be distinguished. Two of these differ greatly from the three others, known as chitemene systems, either by the predominance of a semi-permanent hoe cultivation (Mwinilunga system), or by the raising of cattle (Isoka system).

The three chitemene systems are distinguished by
- ratio of cleared area to that of the field: It is approximately $\frac{1}{10}-\frac{1}{20}$ in Small circle chitemene, $\frac{1}{5}-\frac{1}{10}$ in Large circle chitemene and even less in Block chitemene.
- shape and size of cleared land and field: The shape of the fields – large circle, small circle or slightly right-angled blocks – is the most evident feature and has been used for naming of the three systems. The size of the fields is increasing in the order Small, Large and Block chitemene while the size of the clearing decreases in this order.
- period of cultivation and its relation to the fallow period: The continuous cultivation of a certain field hardly exceeds three years in Small circle and

Fig. 2: Farming regions
Block chitemene, and may reach five or six years at the most in Large circle chitemene. The fallow period depends on the time required for arboreal regrowth, which is shorter in the clearing (outside the fields only) of Large circle chitemene where only the branches are lopped. At present the increasing population density has begun to reduce this minimum length of fallow period in several areas which results in a breakdown of the shifting cultivation methods.

- staple crops and rotation of crops: The main crops by frequency and area under cultivation are cassava and maize in most regions of shifting cultivation. The dominance of cassava over maize continuously reverts from the border with Zaire towards the drier eastern and southern parts of the country. The traditionally important species finger millet and sorghum have remained co-dominant in their former main distribution areas, Large circle chitemene and Block chitemene respectively. Groundnuts and beans are frequently grown in Large and Small circle chitemene systems.

Various rotations have arisen which tend to comprise more different crops in Large circle chitemene than in the two other systems. The average number of crops per farm household is 3.8 in Large circle, 3.4 in Small circle and 2.9 (which equals the Zambian mean) in Block chitemene.

The Mwinilunga system and the Isoka system do not only contrast with the three chitemene systems but also with each other. Their grouping together with the chitemene systems is not fully justifiable, however, no more satisfactory solution seems possible.

The Mwinilunga system is characterised by an advanced transitional stage towards semi-permanent hoe cultivation. The process of transition is closely related to the overwhelming preference, which is now given to cassava. More than 90 per cent of all holdings grow this crop, on average on 5.7 acres. In contrast, maize and finger millet are grown only by 50 and 25 per cent respectively, both on less than half an acre per holding. The extreme preference for cassava is also expressed by the fact that two-thirds of all holdings cultivate only one or two major field crops (average for all farms 2.1). Many characteristics of the chitemene systems have been preserved, e.g. the transformation of woodlands into arable land is done according to small circle chitemene methods.

The Isoka system is concerned with large circle chitemene cultivation and with cattle-raising. Corresponding to the fact that it is located east of the Large circle chitemene, cassava is fairly unimportant. Roughly half the holdings grow this crop. Much higher frequencies (80–100 per cent) are found for maize, finger millet, groundnuts and beans. The number of major crops per holding approaches five, and therefore is the highest of all land use systems in Zambia. Half the farmers keep cattle, on average 20 animals each.

All shifting cultivation systems have high land requirements. There are, however, significant differences which are explained by the varying ratios of field/clearing, cultivation/fallow and size of holding/persons. The highest land requirements are found in Small circle chitemene, Large circle chitemene and Isoka system (in this order decreasing), whereas those for Block chitemene and Mwinilunga system are much lower.

It is to be noted in connection with the largely varying land requirements that the first three farming regions make use of 60 per cent and more of land suitable for cropping, whereas the other two use less than 20 per cent of their suitable areas. Correspondingly, the population density per cropland (persons/sq.km) is lowest in the first group (5.6 in Small circle chitemene, 8.8 and 8.6 in the Large circle chitemene and the Isoka system respectively) and only second lowest (on a country-wide scale) in the two other shifting cultivation systems (17.6 and 18.7 in Block chitemene and Mwinilunga system respectively).

These relations show that the regions of Block chitemene and Mwinilunga system are significantly underused compared with the regions of shifting cultivation in north-eastern Zambia.

The marketed production per cropland and per capita is the lowest in the country for all shifting cultivation systems except for the mixed Isoka system. The same applies to the total crop production, i.e. home-consumed plus marketed production.

Semi-permanent hoe cultivation

Two systems are included under this heading. One is the Subsidiary garden system of urban employees which is practised beyond the outskirts of the larger towns and which serves as a secondary source of food and – sometimes – of cash. No statistical data are available.

The other is the Luangwa system which comprises the whole Luangwa Valley. The large extent of this valley – roughly 10 per cent of the Zambian surface area if the escarpments on both sides are included – contrasts with a share of only 2 per cent of the total and 3 per cent of the rural population. Marketed production has not been established but it can be expected to be low. Correspondingly, the density of cultivation is among the lowest in the country.

The dry climatic conditions (less than 800 mm annual rainfall in most parts and comparatively high temperatures) and mostly poor soil types derived from Karroo sandstone (lithsols, solonetzic soils) offer little potential for cropping. More fertile soils are restricted to the alluvial fringes of the water courses. The medium high population density (35–50 persons
per sq.km of cropland) found here indicates the higher intensity of cropping, but also suggests that not much attractive land is left for expansion of cultivation.

The main crop by frequency and acreage is maize. Finger millet and the traditionally most important sorghum become co-dominant in the northern and central part respectively. The diversity of cropping per household is on average below the Zambian mean.

**Fishing and semi-permanent hoe cultivation**

The potential for fishing offered by the large lakes and swamps of Tanganyika, Mweru, Mweru Wantipa, Lower Luapula, Bangweulu, Lukanga and Kafue have given rise to the development of rather uniform cassava/fishing systems. The total area used by these systems accounts for some 7 per cent and the population living here makes up 8 per cent of total and 12 per cent of rural population.

There are two major anthropological studies, one of Bangweulu Swamp by BRELSFORD 1946 and the other of Lower Luapula Valley by CUNNISON 1967 (2nd ed.). Both contain valuable information on agriculture and fishing.

In all systems fishing is the dominant activity and is carried on mainly for the cash market. The fish is generally sold sundried and/or smoked except at Lakes Mweru and Tanganyika where ice-making plants have been established.

Cassava predominates among the staple crops, except in Lukanga Swamp and on Kafue Flats (the latter area has been omitted from this study due to unpredictable changes to be expected after the Kafue Hydro-electric Scheme has come into full operation). Maize follows cassava with respect to frequency and area under cultivation. Groundnuts are co-dominant at Lake Bangweulu and in Lower Luapula Valley. Crop diversity is close to the Zambian mean except for Lake Tanganyika where a lower diversity corresponds to a larger degree in commercialisation of fishing.

The cropland follows the edges of swamps and lakes as closely as possible in order to reduce the distances to the fishing grounds. The population density which has developed here is the highest of the country's rural areas. It amounts to over 80 persons/sq.km of cropland at the Lakes Mweru, Mweru Wantipa and Tanganyika and drops to 57 and 40 at Lake Bangweulu and Lower Luapula Valley respectively, where land extensive chitemene practices are maintained in addition to the semi-permanent hoe cultivation.

The value of marketed production, i.e. almost exclusively fish, is the second highest among the five groups of basically traditional land use systems regardless whether calculated per total area, per cropland plus fishing grounds or per farming household. Corresponding to the high population density, the total crop and fish production (marketed plus home-consumed production) even equals that of some of the semi-commercial farming regions when calculated per area.

**Semi-permanent hoe and ox-plough cultivation**

This type of farming covers one quarter of Zambia, which is the second largest portion of the country next to shifting cultivation. The population amounts to 17 per cent of the total and 25 per cent of the rural.

The distribution is confined to areas with less than 1000 mm annual rainfall. The three systems of Mambwe, Ikumbi and Nyika close to the border with Tanzania are the only major exceptions to this rule. They form a subdivision also according to further aspects. Among the other systems, those on Barotse Sand (Luvale, Kaoma, Barotse and Sesheke systems) can be separated from the Gwembe and Zambezi Escarpment systems for various reasons.

Barotse and Gwembe systems have proved most attractive to research. Major publications for Barotse-land are those by GLUCKMAN 1968 (2nd ed.), LÜTKE-ENTRUP 1969 and 1971, MACLEAN 1965, PETERS 1966, VERBOOM and BRUNT 1970; the Gwembe Valley has been studied thoroughly by COLSON 1960, 1971 and SCUDDER 1962, 1971. In addition there are two grater studies of Mambwe by ALDER 1960 and WATSON 1964 (2nd ed.) and one of Luvale by WHITE 1968 (2nd ed.).

The Mambwe, Ikumbi and Nyika systems of the first subdivision practise a distinct method of soil improvement by incorporating grass and herbs into mounds, where these plants decompose to form compost. The mounds are then used either directly for planting or are spread previous to planting. The preparation of chitemene fields which were common in the past is now being abandoned due to devastation of suitable woodland. The percentage of land that is cropped is among the highest in the country. The density of rural population per cropland is significantly higher than in the adjacent Large circle chitemene region. It corresponds more closely to the semi-permanent hoe cultivation as described. The main crops are maize, finger millet, groundnuts and beans; cassava is important in the two westernmost systems. The mean crop diversity per household is extremely high (3.8–4.8). The value of marketed production per area and farm household is slightly higher than in the Large circle chitemene which mainly results from the fact that cattle are available for sale.

The second subdivision, the farming on Barotse Sand, has a distinct distribution pattern of cropland: The poor soils developed on Barotse (Kalahari) Sands limit the potential for cropping probably more than any other factor does in the rest of the country; the denser zones of cultivation follow the floors and terraces of river valleys and the edges of flood plains, where mineral and organic content, as well as soil moisture are more favourable. But cassava and bul-
Neither density regions, sorghum cropland become declining is of infertile commercialisation on the land, farming the semi-permanent sands. In (Barotse region) and cassava and millet are the same cultivation systems. Both these regions also have the “linear” distribution pattern of cropland in common with the western systems, explained here, however, by the generally hilly instead of sandy interfluves. The main crop is sorghum throughout the valley area. The second crop is either maize (in the north) or bulrush millet (in the drier south). Maize dominates also on the escarpment. Neither the cropped portion of land nor population density per cropland differ much from the foregoing subdivision. Both relationships are only slightly higher. The same applies to the - low - marketed production.

Semi-commercial ox and tractor plough cultivation

Semi-commercial farmers are found in all parts of Zambia (see below: emergent farmers). The only regions, however, with a high percentage of farmers who give priority to growing for the cash market are the systems of this farming category. Their distribution is confined to the plateau with an average annual precipitation between 800 and 1000 mm. Under these rainfall conditions more fertile ferrisols frequently replace the leached ferallitic soils of the wetter northern parts of the country. In addition, the high demand for foodstuff of the Copperbelt and the rail link which exists to this market (with the exception of Eastern Plateau) have favoured the agricultural development of these regions since many years.

The total distribution of semi-commercialised cultivation comprises 10 per cent of the country. The rural population living here, amounts to 20 per cent of the total and 28 per cent of the rural population. This relation clearly demonstrates the attraction which this part of the country possesses for farming.


Common characteristics of all land use systems of the semi-commercial type are as follows: the early and widespread adoption of the tractor for ploughing; the comparatively large, rectangular fields in block or strip formation, which are linked closely together in places and exhibit a schematic pattern; the permanent cultivation made possible by the application of industrial fertilisers and cattle manure; the specialisation on one or a few crops.

Maize is dominant everywhere. Groundnuts are a subsidiary crop on Southern and Eastern Plateau, where roughly two thirds of all farmers grow this crop on 10 per cent and 30 per cent of their holdings respectively. A lower but still significant portion of farmers grow this crop in the Namwala region. Cotton is a major cash crop on the Central Plateau. Some 90 per cent of the Zambian production of 1971 was produced by semi-commercial farmers on this plateau.

The utilised portion of land is high, the population density per cropland is placed at a medium level. This relation resembles that of shifting cultivation systems but is explained quite differently. In the semi-commercial mixed farming systems, the land requirements per household are high due to a cash orientated expansion of cropping and the need of pastures for the cattle - not to extensive land use methods as in shifting cultivation. The results of this profound difference become evident from the marketing statistics, which put the semi-commercial farming regions at the top by a wide margin of all basically traditional farming systems.
There are distinct differences in commercialisation between the semi-commercial systems. The sequence according to increasing marketed production is: Eastern Plateau, Namwala Region, Southern Plateau and Central Plateau.

Commercial farming on State Land

State Land is held under grants on statutory tenure. The distribution of farmed State Land follows the line of rail. In addition, a few smaller areas on the Eastern Plateau belong to this category. The total area comprises approximately 15,000 sq.km, of which some 10 per cent have been cleared and stumped, and an even smaller portion, i.e. 800 sq.km, is under cultivation.

Originally the land had been alienated to expatriate farmers who run their farms on strictly commercial lines. After Independence, some 50 per cent of these expatriates have left the country.

The decline has resulted in larger farm sizes, but part of the land which became available after the departure of farmers has been allocated to small and medium scale settlement schemes, direct production schemes and parastatal farming enterprises. The total number of registered farm units on State Land amounted to approximately 1,200 in 1972. Estimated employment is around 20,000.

The main cash crop by acreage and value is maize. Next in value are Virginia flue-cured tobacco, sugar cane, beef and milk. The outstanding position of the State Land farming becomes evident from all marketing figures. More than half of the value of total fish and agricultural marketed production is derived from this part of Zambia, which covers only 2 per cent of Zambia’s surface area. The market contribution of commercial farmers becomes even more remarkable when related to cropland and the number of farming households; both comprise less than 1 per cent of the corresponding Zambian totals (Schultz 1975b).

Some types of agriculture evade the regionalisation of farming as described. These are the various Government development projects and the emergent farmers. Of these, the distribution of the emergent farmers could not be shown on the Land Use Map.

Government development projects

They are either settlement schemes which aim primarily at rural development or direct production schemes which primarily aim at increasing national production. Both types are found in most parts of the country although a higher concentration - especially of the commercialised subtypes - is found along the line of rail within the semi-commercialised and commercialised farming regions. Their marketed production could not be separated from that of the farming regions, in which they are located.

The settlement schemes are characterised by the active participation of independant farmers in the production. The farmers receive advice or are supervised and controlled by a scheme “manager”, but remain responsible for their plot. The Government contributes - in addition to the special extension services - in providing the infrastructure.

Production schemes are developed and operated as direct production units. It is expected they will eventually reach a level which is comparable by scale and management to the commercial farms on State Land. Some of them are devoted to special crops (e.g. coffee, tea, kenaf) to try out production on commercial lines.

It is argued that both types of schemes can function as nodes for the development of larger areas. Not much evidence is given that this is likely to arise.

Emergent farmers

The term “emergent farmer” refers to semi-commercial farmers outside the semi-commercial ox and tractor plough farming region. Their number, although varying in different parts of the country, never gains majority or even a minority of regional significance, nor do their holdings reach mappable size. Nevertheless, most of the agricultural produce bought by the marketing agencies in the outlying regions originates from these emergent farmers and not from the surplus production of the bulk of subsistence farmers.

The earlier regional interdependence between land use, ecology and tribal distribution has declined. It remains most pronounced in areas where agricultural utilisation has undergone least change. In such cases, natural environment, tribal relation and agricultural usage still coincide to a large extent. In contrast, the advanced forms of usage do not show a pronounced spatial differentiation corresponding to that of the ecology and tribe. All emergent farmers are rather uniform in their characteristic features irrespective of their location.

The major courses taken by the dispersion of modern economic forms are determined by other factors, notably by the development of communications and markets. For this reason, the current situation clearly shows a transitional character in the development of agricultural usage. It first requires the development of roads and markets etc., and thereby the possibility for the different regions to again achieve equal opportunity before a renewed productive adaptation to the natural environment can take place on a higher economic plane. It is questionable, however, whether future developments will proceed in this direction. There are tendencies indicating that there is no desire for supra-regional equal opportunity. Such tendencies are particularly noticeable in a sparsely populated and under-utilised country such as Zambia. Political rather than economic reasons are used by the opponents to such a development.
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This map was initiated by the Land Use Services Division, Ministry of Rural Development, Lusaka, Zambia.

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BASICALLY TRADITIONAL LAND USE SYSTEMS

SHIFTING AXE AND HOE CULTIVATION

1. Large circle chitemene system
   Shifting cultivation/semi-permanent hoe cultivation in "Extended village gardens". Cassava, maize, finger millet, groundnuts, beans

2. Small circle chitemene system
   Shifting cultivation/semi-permanent hoe cultivation in "Extended village gardens". Maize, finger millet, cassava, beans, sorghum, groundnuts
CULTURE AND FISHING

AGRICULTURE AND USE

13 Seseke system. Maize, sorghum, cattle

14 Gwembe system. Sorghum, bulrush millet, maize, cattle, goats

15 Mambwe system. Maize, beans, groundnuts, finger millet, cassava (cattle)
Peri-urban farms. Specialised on local market supply, e.g. vegetables, citrus, dairy, layers, etc.

Settlement schemes, primarily aimed at rural development

Scheme with a defined area of land, with or without re-settlement

Urban area

Forest Reserve
AGRICULTURAL LAND

FOREST ESTATES AND AFFORESTATIONS
BASE MAP REFERENCE

Main territorial road, tarred
Main territorial road, not tarred
District road, not tarred
Railway

POPULATION OF URBAN SETTLEMENTS INCLUDING PERI-URBAN AREAS. Denoted by name size

A population of more than 100,000

A population of 25,000–100,000

A population of 5,000–25,000

Service centres with a population of under 5,000

Villages with a population mostly under 1,000

ADMINISTRATIVE FUNCTIONS

LUSAKA Capital
NDOLA Provincial Headquarters denoted by solid underlining of the name
MBALA District Headquarters denoted by broken underlining of the name

Provincial boundary
District boundary
Shifting cultivation/semi-permanent hoe cultivation in "Extended village gardens". Cassava, maize, finger millet, groundnuts, beans

Small circle chitemene system
Shifting cultivation/semi-permanent hoe cultivation in "Extended village gardens". Maize, finger millet, cassava, beans, sorghum, groundnuts

Block chitemene system. Maize, sorghum (cassava)

Mwinilunga intermediate shifting/semi-permanent cultivation system. Cassava (maize)

Isoka mixed large circle chitemene/cattle system
Shifting cultivation/semi-permanent hoe cultivation in "Extended village gardens". Maize, finger millet, beans, groundnuts, cassava, cattle

SEMI-PERMANENT HOE CULTIVATION

Luangwa system. Maize (finger millet, sorghum)

Subsidiary garden system of urban employees. Cassava, maize, vegetables

FISHING AND SEMI-PERMANENT HOE CULTIVATION

Fishing/cassava lake and swamp system. Cassava, maize (groundnuts), fishing

Bangweulu system

Lower Luapula system

Lake Mweru system

Mweru Wantipa system

Lake Tanganyika system

Lukanga Swamp system. Various crops, fishing

SEMI-PERMANENT HOE AND OX PLOUGH CULTIVATION

Luvale system. Cassava, maize (cattle)

Kaoma system. Maize, cassava, groundnuts, millet (cattle)

Barotse system. Maize, cassava, millet, cattle
Extended

Mambwe system. Maize, beans, groundnuts, finger millet, cassava (cattle)

Ikumbi system. Maize, beans, finger millet, groundnuts, cassava (cattle)

Nyika system. Maize, finger millet, beans, groundnuts (cattle)

Zambezi Escarpment system. Maize, sorghum, groundnuts, cattle

SEMI-COMMERCIAL OX AND TRACTOR PLOUGH CULTIVATION

Maize/cattle mixed farming system. Maize, groundnuts, (cotton), cattle

Southern Plateau system

Central Plateau system

Eastern Plateau system

Namwala mixed farming system. Maize, groundnuts, (cassava), cattle

COMMODITIES IN BRACKETS ARE OF MINOR OR LOCAL IMPORTANCE ONLY

COMMERCIAL LAND USE SYSTEMS AND GOVERNMENT DEVELOPMENT PROJECTS

PRIVATE COMMERCIAL FARMS AND RANCHES

Cattle ranches

Beef cattle/maize farms

D………with dairy cattle V………with vegetables P………..with poultry layers

Beef cattle/maize/virginia tobacco farms

Maize farms

V………with vegetables

Maize/virginia tobacco farms

V………with vegetables
Scheme with a defined area of land, with or without re-settlement

Outgrowers' scheme (confined to a special crop, e.g. pineapples, tobacco, cotton) and one-acre tobacco schemes with unsurveyed boundaries

UNITS 27 & 28 ARE SUBDIVIDED INTO GROUPS (i), (ii), (iii)

(i) MAIN COMMODITIES
- B: Bananas
- C: Cotton
- M: Maize, indicated only when irrigated
- P: Pineapples
- R: Rice
- V: Vegetables
- Ca: Cattle
- Sg: Sheep and goats
- Bt: Burley tobacco
- Vt: Virginia tobacco (Vta: Assisted tenant tobacco scheme)

(ii) UNDER IRRIGATION
- R: Crop letter underlined if irrigated
- ...: When crop is not noted

(iii) SPECIAL SCHEMES
- Refugee settlement scheme
- Zambia National Service scheme
- Co-operative scheme

DIRECT PRODUCTION SCHEMES. PRIMARILY AIMED AT INCREASED NATIONAL PRODUCTION

Tobacco tenant scheme

Farming scheme
- B: Bananas
- Cl: Coffee
- K: Kenaf
- M: Maize
- S: Sugar
- Tea
- Tea
- Mf: Mixed farming
- V: Vegetables

Ranches and dairy farms
- Sr: State ranch
- Sg: Sheep and goats
- Pg: Pigs
- Df: Dairy farm
- Cr: Collective or assisted tenant ranch
- Td: Tenant dairy scheme

Research Station

Training farm, agricultural college

Proposed scheme area

Forest Reserve
- Protected Forest Area
- Communal forest of Western Province due to partly unsurveyed boundaries
- Afreestimation
- Eg: Eucalyptus grandis

National Park

Hills and escarpments with no permanent water

LAKES, SWAMPS AND MARGINAL AREAS IMPEDED DRAINAGE
- Lake
- Swamp and sudd

Area liable to flood or with irrigation plains, etc. The Barotse swamps; these locations for winter grazing are indicated on the map

Woody area, not cropped with crops

Copies of this map obtainable from Maps and Surveys, Natural Resources and Tourism, Mulungushi House

K4 per set of four

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REST ESTATES AND AFFORESTATIONS

Forest Area

Forest of Western Province (incomplete for Sesheke District
unsurveyed boundaries)

Eucalyptus grandis  Pk……Pinus khasya

Maps are not available from Map Sales, Survey Department, Ministry of Lands,
Tourism, Mulungushi House, P.O. Box R.W. 397, Lusaka.

Government by the Ordnance Survey 1975.

SWAMPS AND AREAS WITH SEASONALLY
DRAINAGE. POTENTIAL FOR CROPPING:
MARGINAL OR SUBJECT TO SPECIAL
TECHNIQUES

The Barotse system (12) of Western Province makes wide use of
floodplains, dambos, watershed
areas for winter gardens and “early plantings”, which could not be
shown on the map.

not cropped within the last 10–20 years, other than 36–41