

4. COUNTRY GUIDES

BOTSWANA

Agriculture With a population of only 700,000 and a land area of 580,000 square kilometres, Botswana is one of the least densely populated Commonwealth countries. However, much of the land is desert or semi-arid, suitable only for pastoralism, and even on the cultivable land the rainfall is not reliable. As the export of beef has become a major industry for Botswana (bringing in over US\$50 million per year), the improvement of livestock farming has as high a priority as the improvement of cropping techniques. The high level of livestock ownership and the need for extensive rather than intensive cropping in the arid climate have stimulated a particular interest in ox-drawn cultivation implements. The Makgonatsotlhe multi-purpose tool-bar has been developed to meet these needs, and is now being tested.

Technology

Botswana has recently established the Botswana Technology Centre, with a full-time director, and a governing board drawn from government ministries and from non-governmental organisations. The Centre will not do R&D itself, but will be a clearing house for information and ideas about appropriate technology.

Existing patterns of trade

Botswana is a member of the South African Customs Union, and most of its imports of agricultural equipment come either from or via South Africa, which also inevitably draws most Botswana exports. The opening of the border with Zimbabwe may change the pattern of trade routes. In 1978-79 a trial shipment of ten ox-drawn ploughs was sent from Dar-es-Salaam to Botswana, but their landed cost made them uncompetitive with the smaller SAFIM plough, imported from South Africa. Local production of equipment faces similar problems.

Transport

Not only relying on transit through South Africa for its own imports and exports, Botswana is also itself a transit country, for the railway from Zimbabwe to the southern ports of South Africa runs through Botswana. Botswana is also, to a small extent, a transit country for Zambian imports from South Africa, via the Kazungula ferry near Livingstone. Until 1976, when the border between Zimbabwe and Mozambique was closed, there was also rail traffic through Botswana to the port of Beira in Mozambique, and with Zimbabwe having attained independence this route should enable Botswana to reduce, to some extent, its present dependence on South African ports. In the longer term, there is the possibility of a railway being constructed to link Botswana with Walvis Bay in Namibia, which would make the exploitation of Botswana's mineral wealth easier. The railway through Botswana remains an important transit route for Zambia, Malawi and Zaire goods en route to or from South African ports.

This railway is currently run by Zimbabwe Railways, on behalf of the Botswana authorities, but control and management is being taken over by Botswana, as skilled manpower becomes available. It is planned to complete the takeover by 1985. The railway links up with the systems of Zimbabwe and South Africa, and carries most imports and exports to

and from Botswana. 65 -70% of freight is transit in normal years. The volume of road transport is small, except for the route from Francistown to Zambia via the Kazungula ferry, which is likely to decline.

In order to support its railways, South Africa restricts the use of road transport within its borders, so that trade between Botswana and Swaziland, and Botswana and Lesotho, is limited in scope and confined largely to the railway; goods to Swaziland go to Breyten, and are then taken into Swaziland by truck.

Some traffic from South Africa to Malawi has been taken via Botswana, the Kazungula ferry and Zambia, but this is unlikely to be repeated. A tarred road from Zimbabwe to South Africa through Botswana is expected to be completed in 1981.

Air Botswana flies scheduled flights to Johannesburg, Lusaka and Maseru. It does not operate a special cargo service, but freight can be carried on passenger flights, for a price.

Botzam Services and Jukes Curtis Transport, both in Francistown, are the only two road carriers of importance.

Agents

Manica Freight Services
P O Box 1372
Gaborone
Tel. 71-293
Telex 2256

Freight Factors Ltd
P O Box 12
Francistown
Tel. 253
Telex 2236

Manica Mann George
P O Box 127
Francistown
Tel. 275
Telex 2211

Transport Companies

Botzam Services
Box 123
Francistown

Zimbabwe Railways
Box 494
Gaborone

Carriers (Botswana)
Box 231
Francistown

Air Botswana
Box 92
Gaborone

Jukes Curtis Transport
Box 436
Francistown

Main features of Customs Regulations

1. With Lesotho and Swaziland, Botswana is a member of the South African Customs Union, with the Republic of South Africa.
2. The basis of valuation for duty is the 'normal price of the goods to the importer'. This is 'calculated on the basis of a sale thereof, at the time of entry for home consumption in the open market ... by any person to any other person both such persons being independent of each other ...'; it is in effect the FOB price.

3. Where both a percentage rate and a specific rate are shown, the higher is the operative rate.
4. A commercial invoice and bills of lading are required for all commercial consignments; the consignee usually stipulates the number of copies. Certificates of origin, the forms for which are available from commercial stationers, are required if preferential duty is to be claimed. No facsimile signatures are permitted.
5. An import surcharge of 7½% (on the normal price) is levied on goods imported, but with the following exceptions - plough shares, plough parts, harvesting machinery, combines, fodder presses and egg-grading machines.
6. Import licenses are required for all goods except those on a 'free-list' - this is signified in the tariffs below.

Customs Tariffs

CODE	ITEMS	TARIFF
82.01	Hand tools for agriculture, horticulture, or forestry	
82.01.10	Axes:+	
.10	Hatchets with steel handles	20%
.90	Others	3%
82.01.20	Grub hoes+	30%
82.01.30	Picks and mattocks	25% or 30¢ each
82.01.40	Forks:	
.10	Forks with 8 or more prongs	15%
.20	Grub forks	Free
.30	Others, with prong length exceeding 150mm	15% or 30¢ each
.90	Others	Free
82.01.90	Others (i.e. other hand tools)	Free
84.24	Agricultural and horticultural machinery for soil preparation or cultivation (for example ploughs, harrows etc)	
84.24.10	Ploughs, mouldboard type (excluding reversible type) with two or more but no more than 4 shares, designed for use with tractors	15%
84.24.15	Ploughs, disc type, with 2 or more but not more than 5 discs, designed for use with tractors	15%
84.24.50	Other ploughs	Free

84.24.55	Plough shares (angle & flat)*	20%
84.24.57	Plough discs	Free
84.24.60	Parts of ploughs (except disc and shares)*	15%
84.24.70	Harrows, offset disc type, of a width not exceeding 2m., designed for use with tractors	15%
84.24.75	Harrows, one-way disc type, of a width not exceeding 2.6m., designed for use with tractors	15%
84.24.80	Other harrows	Free
84.10.40.90	Reciprocating pumps driven by compression engines	20%
	Reciprocating pumps not driven by such engines	Free
84.10.50.10	Centrifugal, submersible, bore less than 200mm.	20%
83.24.87	Fertiliser distributors and manure spreaders	Free
84.24.90	Other agricultural or horticultural machinery for soil preparation or cultivation	Free
84.25	Harvesting and threshing machinery	
84.25.10	Harvesting and threshing machinery*	Free
84.25.15	Combines*	Free
84.25.20.10	Power-operated straw and fodder presses*	Free
.90	Other straw or fodder presses	Free
84.25.40	Hay or grass mowers (excluding lawn mowers)	Free
84.25.50	Winnowing and cleaning machines for seed, grain or leguminous vegetables	Free
84.25.80	Egg-grading machines*	Free

+ No import licence

* No import surcharge

Source:

Customs Schedule, Department of Customs and Excise, Gaborone.

KENYA

Agriculture

Kenya has a population of over 14 million, about 90% of whom live in rural areas, most of them on smallholdings, though there are also large commercial farms and estates. The smallholding sector can be divided roughly into two parts, with smaller farms in high-potential areas growing cash crops such as coffee, tea, pyrethrum as well as subsistence crops, and larger farms on lower-potential land growing mainly subsistence crops. The average size of all small holdings is about 3.5 hectares, but this hides wide variations. Only 15% of Kenya's land area is fit for arable cropping, but there is great potential for irrigation. Much of the non-arable land is fit for pastoral grazing.

During the 1970s the small-holder sector contributed about 50% of marketed agricultural output, in addition to its subsistence production. The main food crop is maize, and the major cash crops coffee and tea, but cash-cropping is increasingly diversified, with fruit such as pineapples and mangoes being exported to Europe. Wheat is mainly grown on large commercial farms, but production is declining as such farms are subdivided. Agricultural produce accounted for about 45% of total export earnings in 1974.

The table below gives details of crop-production in 1976, broken down by 'large farm' and 'smallholder' sectors.

Crop Areas
In Kenya,
1976

Large Farm ha.	Small- holders ha.	Total ha.
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Food Crops

Cereals, pure stands

Hybrid maize	74,000	258,000	332,000
Local maize	n.a.	225,000	225,000
Finger millet	n.a.	31,000	31,000
Sorghum	n.a.	17,000	17,000
Wheat	89,000	20,000	109,000
Rice	n.a.	12,000	21,000
Other cereals	6,000	15,000	21,000

Cereals, mixed stands

Local maize, beans etc	n.a.	634,000	634,000
Hybrid maize, beans etc	n.a.	243,000	243,000
Sorghum, beans etc	n.a.	98,000	98,000

Other Crops, pure stands

Pulses	n.a.	70,000	70,000
English potatoes	2,000	49,000	51,000
Sweet potatoes	n.a.	11,000	11,000
Cassava	n.a.	41,000	41,000
Temporary crops	116,000	-	116,000
Fodder crops	8,000	n.a.	8,000

Fruits & Vegetables

Vegetables	2,000	4,000	6,000
Bananas	n.a.	20,000	20,000
Other fruits	n.a.	1,000	1,000

Industrial Crops

Oil seeds	4,000	13,000	17,000
Sugar-Cane	30,000	55,000	85,000
Cotton, pure stands	n.a.	26,000	26,000
Cotton, mixed	n.a.	45,000	45,000
Barley	12,000	14,000	26,000
Other industrial crops	n.a.	3,000	3,000

Export Crops

Pure Stands

Coffee	30,000	57,000	87,000
Tea	25,000	41,000	66,000
Pyrethrum	3,000	22,000	25,000
Sisal	77,000	n.a.	77,000
Pineapple	5,000	n.a.	5,000
Wattle	12,000	n.a.	12,000
Coconuts	2,000	2,000	4,000
Cashew	1,000	6,000	7,000
Other	3,000	23,000	26,000

Mixed

Coffee-banana-maize	n.a.	19,000	19,000
Coconut-cassava-maize	n.a.	49,000	49,000
Cashew-cassava-maize	n.a.	48,000	48,000

Total crop area (ha)	801,000	2,372,000	3,173,000
Double cropped area (ha)	n.a.	375,000	375,000
Net crop area (ha)	801,000	1,997,000	2,708,000

Source: Annual Reports, Ministry of Agriculture, Nairobi.

Technology

Most Kenyan farmers use hand tools, the most common being the jembe (hoe) and panga (machete). These are mostly imported from a wide range of countries, but local manufacture is now starting. In 1976 there were an estimated 30,000 ox-drawn ploughs in use in the country, most of them also being imports, but local production of these is now more developed. Ox-ploughs are used for contract ploughing as well as on-farm work, so that in 1976 perhaps 10% of all smallholders had their fields ploughed by oxen. Forage is a problem in high-potential areas, where land is in short supply and dairy cows compete with draught animals. In 1976, there were also an estimated 10,000 ox-carts and 6,000 ox-drawn cultivators, as well as other animal-drawn equipment. Kenya imports about 1,000 tractors per year.

These are used on large farms and estates and also there are some tractor-hiring services operated by co-operatives and by private companies. Mouldboard ploughs are imported but most disc-ploughs are made locally, as are some disc harrows. Trailers are all locally manufactured.

In 1981 Kenya will have spent over 18 million shillings on an Intensive Agricultural Development Programme, part of which is to encourage the local manufacture of ox-drawn equipment and hand tools.

For some years there has been an Ad Hoc Committee on Agricultural Mechanization, and this formed the basis of a National Appropriate Technology Committee, which started work in 1978. Its members have been drawn from the main research organizations and concerned ministries, and it is charged with co-ordination and monitoring of technological developments in the country. It is now called the "Rural Development Technology Committee", and the Chairmanship is vested in the Ministry of Agriculture.

Kenya has a thriving private sector of equipment producers and innovators, and at Nakuru the Agricultural Machinery Testing Unit carries out standardised evaluations of local and imported equipment. For example, it has recently recommended one small tractor for importation, after testing eight similar models. The University's Department of Agricultural Engineering is also involved in R & D of agricultural equipment, as are a number of government and private organizations.

Transport

Kenya's border with Tanzania is closed so its only real trading link with the region is by sea via Mombasa. Mombasa is well served by ships going as far south as Nacala, less well by those going further south to Beira, Maputo and beyond.

Within Kenya the railway and road links are good, the rail connecting Mombasa with Nairobi and then on to Uganda. This line is heavily used. Kenya also acts as an import-and-transit country for Southern Sudan, Rwanda and Burundi, and to a lesser extent the eastern parts of Zaire. Road transport of goods to Sudan goes by the new Eldoret-Lodwar-Juba road.

Long-distance road freight is monopolised by the parastatal corporation, KENATCO.

Agents

Agence Maritime Internationale
Box 18055
Nairobi
Tel. 555967
Cable AGENMARIN
Telex 22452

Kenya Shipping Agency
Box 84331
Mombasa
Tel. 20501
Cable MIZIGO
Telex 21288

United Africa Corporation
Box 47880
Nairobi
Tel. 23173
Cable UNIAFRICA
Telex 2260A/B

Dodwell & Co. E. Africa
Box 30087
Nairobi
Cable DODWEL
Telex (Mombasa) 21278

Leslie & Anderson, E. Africa
Box 41132
Nairobi
Tel. 331722
Cable Leslander

Nakufreight
Box 41423
Nairobi
Tel. 332299
Telex 22191

Kenya Transit & Trading Co.
Box 91092
Mombasa
Telex 21203

Transport
Companies

KENATCO Transport Co.
Box 46991
Nairobi
Telex 22100

Schenker & Co. (EA)
Box 46757
Nairobi
Tel. 25372
Cable SCHENKERCO
Telex 22277

Main features
of customs
regulations

1. No preferences.
2. Duty is assessed on the cost and freight value of the goods.
3. A Sales Tax is levied on the duty and tax-paid value of most goods. With the exceptions of hand tools, equipment listed in this guide carries a 15% sales tax.
4. All goods imported into Kenya must be insured by Kenya insurers.
5. Certain goods may only be imported on behalf of a government monopoly, the National Trading Corporation. This applies to hoes, jembes, machetes, pangas, axes, all types of fork, spades and shovels.
6. Foreign Exchange Allocation Licenses are required for all goods, except where CIF value does not exceed Kshg. 4,000, and except for certain capital goods foreign exchange is restricted, and only given according to certain quotas and for certain items.
7. Import licenses are required for certain goods, others may be imported under Open General Licence. Hand tools require a specific import licence, but foreign exchange will be granted automatically for their import. Other equipment in this guide may be restricted.
8. All goods imported into Kenya must be inspected before shipment, except:
 - (a) where value is less than Kshg. 20,000, unless in part shipments,
 - (b) goods purchased by the Kenya government,
 - (c) and other categories, not of interest to this guide.

9. Since December 1978 all imports have required a 100% refundable deposit with the Central Bank, except
- (a) raw materials and spare parts for agricultural and industrial machinery, for which the Bank requires only details of quantity and value within three months of import,
 - (b) certain goods, especially machinery, financed by foreign credits of 18 months or more.
10. 2 copies of an ordinary commercial invoice will normally be accepted in support of entry declarations, provided the invoice has an original signature; but import licence applications must be accompanied by at least 4 copies of pro forma invoices, and they must be accompanied by the appropriate form indicating that insurance is to be paid through a Kenyan company. Importers of machinery for production and manufacturing must also first clear their application with the New Projects Committee of the Ministry of Commerce & Industry.

Customs Tariffs

CODE	ITEM	TARIFF
82.01.000	Spades, shovels, picks, hoes, forks, rakes, axes, billhooks and similar hewing tools, scythes, sickles, hay knives, grass shears, timber wedges, and other tools of a kind used in agriculture, horticulture or forestry	20%
82.03	Saws, non-mechanical, and saw blades	30%
84.10.010	Pumps	Free
84.24	Agricultural and horticultural machinery for soil preparation or cultivation, including ploughs, seeders, planters, transplanters, fertiliser distributors, manure spreaders, scarifiers, cultivators, weeders, hoes and harrows (other than hand tools), and other such machinery and its parts (except for 84.24.049 below)	Free
84.24.049 - 84.24.059	Lawn and sports ground rollers and parts	10%
84.25	Harvesting and threshing machinery, straw and fodder presses, hay or grass mowers, winnowing and similar cleaning machines for seed, grain or leguminous vegetables, egg-grading and other grading machines for agricultural produce (other than those of a kind used in bread grain milling industry), including combine harvester-threshers, and parts for the above	Free
84.26	Dairy machinery, including milking machines and parts	Free

84.27	Presses, crushers and like machinery used in cider-making, wine-making, fruit juice preparation, and parts thereof	10%
84.28	Other agricultural and horticultural, poultry-keeping, and beekeeping machinery, germination plant fitted with mechanical or thermal equipment, poultry incubators and brooders	Free
84.28.011	Plate mills and hammer mills	15%
84.29	Machinery of a kind used in the bread grain milling industry, and other machinery (other than farm-type machinery) for the working of cereals or dried leguminous vegetables, and parts thereof	10%
84.30	Other machinery, e.g. tea and sugar processing	10%

Source: Kenya Dept. of Customs and Excise, Nairobi.

LESOTHO

Agriculture Lesotho has a population of about 1.2 million, which makes it one of the most densely populated countries in the region, as its area is only 30,000 square miles. 50% of the male work force is absent at any one time, working in South Africa; Lesotho is completely surrounded by South Africa, and is a member of a common customs union with South Africa, Botswana and Swaziland.

The average size of holding is about 2 hectares. Much of the land is unsuitable for farming, being mountainous; soil erosion on slopes is a particular problem. Only 13% of the land area is cultivated, mostly on the 200,000 smallholdings. The great majority of these farmers use draught animals for ploughing, this type of mechanisation being well advanced in Lesotho.

1977-78, Area & Production of Major Crops

Crops	Area planted (hectares) in		Production (tons)
	Summer	Winter	
Fallow	63,161	271,583	-
Wheat	26,552	16,054	57,906
Peas	4,498	1,213	4,427
Maize	111,530	none	143,168
Sorghum	62,033	none	85,775
Beans	14,271	none	10,783
Others	4,154	97	Not available

Source: Annual Report, Ministry of Agriculture

No. of farm households reporting use and ownership of sources of agricultural power, Lesotho, 1970

Holding size (acres)	No. of households	Draught animals			Tractors		
		Owned	Borrowed	Hired	Owned	Borrowed	Hired
No land	2,345	-	-	-	-	-	-
Under 2.0	36,792	7,367	8,181	16,724	126	41	1,399
2.0 - 3.9	55,689	15,438	10,305	25,370	35	-	2,168
4.0 - 5.9	40,849	14,025	6,193	16,010	225	55	1,725
6.0 - 7.9	22,282	9,633	3,143	6,832	-	-	1,531
8.0 - 9.9	13,277	6,172	2,068	4,311	229	-	405
10.0 - 14.9	11,584	5,571	1,086	4,010	55	-	1,046
15.0 & over	4,603	3,009	386	655	66	-	480

Source: 'Agricultural Equipment in Lesotho' T.E. Cobbold, ITDG, London 1976.

to be claimed. No facsimile signatures are permitted.

5. An import surcharge of 7½% (on normal price) is levied on goods imported, but with the following exceptions - plough shares, plough parts, harvesting machinery, combines, fodder presses and egg-grading machines. The tariff rate on these is shown in the table below.
6. Import licenses are required for all goods except those on a 'free-list' - this is signified in the tariffs below.

Customs Tariffs

CODE	ITEM	TARIFF
82.01	Hand tools for agriculture, horticulture, or forestry	
82.01.10	Axes:+	
.10	Hatchets with steel handles	20%
.90	Others	3%
82.01.20	Grub hoes+	30%
82.01.30	Picks and mattocks	25% or 30¢ each
82.01.40	Forks:	
.10	Forks with 8 or more prongs	15%
.20	Grub forks	Free
.30	Others, with prong length exceeding 150mm	15% or 30¢ each
.90	Others	Free
82.01.90	Others (i.e. other hand tools)	Free
84.24	Agricultural and horticultural machinery for soil preparation or cultivation (for example ploughs, harrows etc):	
84.24.10	Ploughs, mouldboard type (excluding reversible type) with two or more but no more than 4 shares, designed for use with tractors	15%
84.24.15	Ploughs, disc type, with 2 or more but not more than 5 discs, designed for use with tractors	15%
84.24.50	Other ploughs	Free
84.24.55	Ploughs shares (angle & flat)*	20%
84.24.57	Plough discs	Free
84.24.60	Parts of ploughs (except disc and shares)*	15%
84.24.70	Harrows, offset disc type, of a width not exceeding 2m., designed for use with tractors	15%
84.24.75	Harrows, one-way disc type, of a width not exceeding 2.6m., designed for use with tractors	15%

CODE	ITEM	TARIFF
84.24.80	Other harrows	Free
84.10.40.90	Reciprocating pumps driven by compression engines Reciprocating pumps not driven by such engines	15% Free
84.10.50.10	Centrifugal, submersible pumps bore less than 200mm	20%
84.24.87	Fertiliser distributors and manure spreaders	Free
84.24.90	Other agricultural or horticultural machinery for soil preparation or cultivation	Free
84.25	Harvesting and threshing machinery:	
84.25.10	Harvesting and threshing machinery*	Free
84.25.15	Combine harvesters*	Free
84.25.20.10	Power-operated straw and fodder presses*	Free
.90	Other straw or fodder presses	Free
84.25.40	Hay or grass mowers (excluding lawn mowers)	Free
84.25.50	Winnowing and cleaning machines for seed, grain or leguminous vegetables	Free
84.25.80	Egg-grading machines*	Free

+ No import licence

* No import surcharge

Source: Customs and Excise Department, Maseru.

MALAWI

Agriculture Malawi has a population of about 5.2 million, and around 4 million acres under cultivation; perhaps 1 million acres of good cultivable land remains uncultivated at present. About 5% of the land cultivated is under estates, of which there are about 400. Maize is the main crop, occupying 78% of the acreage under cultivation. Up-to-date figures are not available, but the distribution of principal crops in 1968/69 is shown in the table below.

Area under principal crops, and share of output by sector, Malawi, 1968/69. (Includes mixed cropping)

Crops	Acres '000	% of output grown on farms of less than 25 acres
Maize	2,643	87
Sorghum & Millets	1,226)
Pulses	1,188)
Groundnuts	1,100	) Not) Available
Cassava	738)
Potatoes	446)
Tobacco	152	38
Cotton	91	100
Tea	43	6
Rice	41	100
Sugarcane	24	0

Source: National Sample Survey of Agriculture, 1968/9, Malawi Government.

Technology Most cultivation is still done by hand, using a tanged hoe, and most crops are grown on ridges. Ox-drawn implements were first introduced in the 1950s, and by 1969 there were 15,000 ox-drawn ploughs in the country, as well as 11,500 ox-drawn carts. Since then, there has been a considerable increase in the use of ox-drawn equipment. One constraint is a general shortage of draught animals.

The government considers that use of ox-drawn equipment is only viable on holdings of 8 acres or more. These make up about 120,000 of the 1 million smallholdings in the country. Another widely-used item of equipment is the knapsack sprayer; cotton and tobacco are both grown extensively by smallholders, and these crops require regular spraying. In 1969 there were 11,000 sprayers, most of them individually owned. Apart from some limited tractor-hire schemes, government policy is against pooling or communal use of equipment.

Mechanization policy is aimed particularly at four bottlenecks:- land preparation, when yield can be greatly increased by early planting; maize-shelling; groundnut shelling; and rice-threshing. Over 100 ox-training centres now operate, and evaluation and local manufacture of equipment to meet these bottlenecks is a priority.

Malawi imports relatively few hand-tools and little ox-drawn equipment. Agrimal (Malawi) Ltd., 80% locally-owned, manufactures enough of the following to meet local demand: hoes, ploughs, single-row planters with fertiliser attachment, cultivators, groundnut lifters, groundnut shellers and harrows. As can be seen from the table below, Agrimal also exports large quantities of equipment, mainly to Zambia. Other manufacturers in Malawi produce trailers, bore-hole pumps, maize-shellers and ox-carts. All tractors and tractor-drawn implements are imported, mainly from South Africa, the United Kingdom, Italy and Australia.

In 1978 a National Appropriate Technology Committee was established, under the umbrella of the National Research Council, the Secretary of which is the Co-ordinator of the NATC. Membership is drawn from the government, statutory bodies and from the private sector. Malawi has not set up a specialist AT Centre, feeling that there is enough productive work to be done in simply co-ordinating the existing R & D, manufacturing and extension services. The Chitedze Investigation and Testing Unit, which evaluates local and imported equipment, also develops equipment itself. Evaluation of sprayers is done by the Makola Research Station, and Bunda College of Agriculture evaluates machinery in the Agricultural Engineering Department.

Ownership of selected items, Malawi, 1969

Hoes	2,473,000	Pangas (machetes)	430,700
Axes	882,100	Ox-carts	11,500
Ox-ploughs	14,900	Sprayers	10,600
Work oxen	41,200		

Source: ibid.

Production & Exports of Agricultural Equipment, Malawi, 1977

Item	Production	Export
Hoes	711,000	74,000
Mouldboard ploughs	2,200	227 (1979, 2,665)
Ridging ploughs	2,000	1,000 (1979, 400)
Cultivators	350	239 (1979, 420)
Harrows	920	675 (1979, 100)
Planters	40)
Maize mills	500)
Borehole pumps	900)
Ox-carts	480	) Not Available
Tobacco pressers	600)
Maize sheller	1,000)
Trailers	230)

Source: Malawi country paper, Rural Technology Meeting, Arusha, 1977.

Transport

Malawi is land-locked, but has a direct rail link to the Mozambique ports of Nacala and Beira; the former carried 259,000 tons of Malawi traffic and the latter 581,000 tons in 1977. Both ports have container services. The railhead inside Malawi used to be at Salima, near Lake Malawi, but the line is now extended to the capital Lilongwe, and by 1981 a further extension through Mchinji to the Zambian border should also be completed. Malawi carries on extensive trade with countries to north and south, exporting the Agrimal implements to Zambia and Kenya among other countries.

There is a road link with Tanzania, via Katumbi and Tunduma through northern Zambia. Goods from Malawi to Zambia go by road via Chipata and Mchinji; there is also road traffic through Zambia to and from Botswana and South Africa.

Malawi has recently acquired the first container terminal of any land-locked country in Africa, at Blantyre, where containers arriving by rail from the ports can be re-routed by road to their final destinations.

Agents

Agence Maritime International
P O Box 838
Blantyre

Tel. 636066
Telex 4232

Manica Mann George
P O Box 460
Blantyre

Tel. 634533
Cable MANICA
Telex 4134

Rennie Press (Malawi)
P O Box 477
Blantyre

Tel. 634755

Transport Companies

Malawi Railways
P O Box 5144
Limbe

Clan Transport
P O Box 364
Blantyre

Press Transport
P O Box 51141
Limbe

United Transport
P O Box 176
Blantyre

Tel. 631005
Cable UNITED
Telex 4152

Air Malawi
P O Box 84
Blantyre

Kamata Transport
P O Box 856
Blantyre

Roadmarc
P O Box 5195
Limbe

Main
Features
of Customs
Regulations

1. Basis of value for duty is the cif price of the goods at the Malawi border.
2. Surtax of 20% on top of the duty-paid value is charged on certain goods, on which customs duty paid is more than 5%. However, surtax is not charged on hoes and on single-furrow mouldboard ploughs of a weight not exceeding 55kg. each.
3. Import licences are not required for agricultural tools or machinery, if imported from ACP, EEC, GATT & Commonwealth countries.
4. A cash deposit of 20% of the cif value of all imported goods must be lodged at the same time as the application for foreign exchange is made by the Malawi importer.
5. Combined forms of invoices and certificates of origin are required and are obtainable from most stationers.

Customs Tariff

CODE	ITEMS	TARIFFS	
		EEC, ACP, GATT and Commonwealth Origin	Others' origin
82.01.01	Hoes other than hoe blanks*	20%	30%
82.01.02 - 82.01.99	Hand tools, the following: spades, shovels, picks, hoes, forks, rakes, axes, billhooks and similar hewing tools, scythes, sickles, hay knives, grass shears, timber wedges and other tools of a kind used in agriculture, horticulture or forestry ...	5%	10%
84.10.02	Pumps, industrial or specialised for water supply, sewerage, drainage or irrigation	5%	10%
84.24.02	Single-furrow mouldboard ploughs of weight not exceeding 55kgs.	20%	25%
84.24.03 - 84.29	Agricultural, horticultural and forestry machinery for soil preparation or cultivation, harvesting and threshing machinery, fodder presses, mowers, winnowers, grading machinery, dairy machinery; parts for ploughs 84.24.02	5%	10%

* and in addition to duty, a charge of K5.00 per 100

Source: Department of Customs & Excise, Blantyre

SWAZILAND

Agriculture Swaziland has a population of about half a million, most of them living in rural areas, the only two significant towns being Mbabane and Manzini. Land is divided into two categories, a division dating from colonial times. 56% is owned by the king and this 'Swazi Nation Land' is allocated by the chiefs to each family wanting land for subsistence use. Individual freehold (title deed) land occupies the other 44% of the country, and is divided into about 450 large farms, many owned by companies or non-residents.

Thus some 35,000 smallholdings on Swazi Nation Land, most of them less than 5 hectares, coexist alongside large commercial farms, some of which are ranches of over 10,000 hectares. The table below shows area and production of principal crops in 1975.

Area and production of crops, by sector, Swaziland, 1975

Crop	Swazi Nation Land		Title Deed Land	
	Hectares	Tonnes	Hectares	Tonnes
Maize	60,999	87,961	4,948	5,950
Sugarcane	131	13,970	18,080	1,227,499
Cotton	11,336	9,903	6,247	6,820
Groundnuts	5,808	2,503	none	none
Sorghum	3,447	2,316	7	4
Beans	1,682	1,209	210	189
Tobacco	260	254	35	21
Citrus	none	none	2,349	53,983
Rice	none	none	1,613	4,418

Land Use, Swaziland, 1976/77 (hectares)

Category	Total	Swazi Nation Land	Title Deed Land
Cropland	153,015	97,323	55,692
Grazing	1,239,669	829,128	410,541
Forestry (Commercial)	97,009	-	97,009
Other	237,423	72,082	165,341
Total	1,727,116	998,533	728,583

Source: (Both tables) Rural Technology Meeting, Arusha - 1977
Swaziland Country Paper, Unpublished.

Technology

It is difficult to identify the numbers of implements in use or imported or exported, as separate figures are not available. However, in 1977 Swaziland imported £1.8 million worth of agricultural machinery, of which about £0.5m was for tractors. Around 200 tractors are imported each year, mainly for the large commercial farms, but there is some tractor-hiring by better-off smallholders. Most imports come from South Africa, by which Swaziland is almost completely surrounded.

Swaziland has a growing manufacturing sector, exporting televisions to South Africa and recently to Nigeria also. A parastatal corporation manufactures the 'Tinkabi' tractor, a small 16HP machine of which some 500 have now been made in Swaziland, and in which several African countries have expressed an interest.

Swaziland does not have a separate government body dealing with Appropriate Technology, but discussions have been held on establishing such a committee as part of the National Research Council.

Transport

Swaziland has a railway to the port of Maputo in Mozambique, a distance of about 140 miles. A new rail link is currently under construction to join up with the South African Railway at Golel, to the south-east of Swaziland; this will connect Swaziland to the port of Richards Bay. The existing railway was built to handle the export of iron ore, which is now declining, though traffic in pulpwood, fruit and sugar has replaced it to some extent. Traffic to Swaziland through South Africa has to be transhipped from rail to road at Piet Retief or Barberton. Despite this, much of Swaziland's imports comes through Durban, as logistical problems at Maputo can cause delays. Also, few ships from Maputo call at East African ports, most of them going to or coming from the south. The quickest export route is road/rail to Johannesburg, then containerisation and by rail to Cape Town. Because of legislation to protect South African Railways, permits are required for road transport from Swaziland through South Africa, and these permits are only issued 'one-off'.

Manzini airport is not large enough to take large cargo planes; airfreight therefore requires a truck to take the goods from Swaziland to Jan Smuts airport in Johannesburg. Nonetheless, it sometimes comes out cheaper to airfreight even quite heavy consignments to certain places, when account is made of the various logistical problems and other factors. For example, sea-freight of a Tinkabi tractor to Nigeria costs more than twice as much as it does to India.

Agents

Kuhne & Nagel
PO Box A180
Mbabane
Tel. 4-3011 & 4-2091
Telex 2046 WD

Freight Services (Swaziland) Ltd
PO Box 31
Manzini
Tel. 52137
Cable 'FREIGHTS'
Telex 2065 WD

Rennies Consolidated
Box 109
Manzini

Main
Features
of Customs
Regulations

1. With Botswana and Lesotho, Swaziland is a member of the South African Customs Union, with the Republic of South Africa.
2. The basis of valuation for duty is the 'normal price of the goods to the importer'. This is 'calculated on the basis of a sale thereof, at the time of entry for home consumption in the open market ... by any person to any other person both such persons being independent of each other ...'; it is in effect the f.o.b. price.
3. Where both a percentage rate and a specific rate are shown, the higher is the operative rate.
4. A commercial invoice and bills of lading are required for all commercial consignments; the consignee usually stipulates the number of copies. Certificates of origin, the forms for which are available from commercial stationers, are required if preferential duty is to be claimed. No facsimile signatures are permitted.
5. An import surcharge of 7½% (on the normal price) is levied on goods imported, but with the following exceptions - plough shares, plough parts, harvesting machinery, combines, fodder presses and egg-grading machines.
6. Import licences are required for all goods except those on a 'free-list' - this is signified in the tariffs below.

Customs Tariffs

CODE	ITEM	TARIFF
82.01	Hand tools for agriculture, horticulture, or forestry	
82.01.10	Axes:+	
.10	Hatchets with steel handles	20%
.90	Others	3%
82.01.20	Grub hoes+	30%
82.01.30	Picks and mattocks	25% or 30¢ each
82.01.40	Forks:	
.10	Forks with 8 or more prongs	15%
.20	Grub forks	Free
.30	Others, with prong length exceeding 150mm	15% or 30¢ each
.90	Others	Free
82.01.90	Others (i.e. other hand tools)	Free
84.24	Agricultural and horticultural machinery for soil preparation or cultivation (for example ploughs, harrows etc):	

84.24.10	Ploughs, mouldboard type (excluding reversible type) with two or more but no more than 4 shares, designed for use with tractors	15%
84.24.15	Ploughs, disc type, with 2 or more but not more than 5 discs, designed for use with tractors	15%
84.24.50	Other ploughs	Free
84.24.55	Plough shares (angle & flat)*	20%
84.24.57	Plough discs	Free
84.24.60	Parts of ploughs (except disc and shares)*	15%
84.24.70	Harrows, offset disc type, of a width not exceeding 2m., designed for use with tractors	15%
84.24.75	Harrows, one-way disc type, of a width not exceeding 2.6m., designed for use with tractors	15%
84.24.80	Other harrows	Free
84.10.40.90	Reciprocating pumps driven by compression engines	15%
	Reciprocating pumps not driven by such engines.	Free
84.10.50.10	Centrifugal and submersible pumps, bore less than 200 mm.	20%
84.24.87	Fertiliser distributors and manure spreaders	Free
84.24.90	Other agricultural or horticultural machinery for soil preparation or cultivation	Free
84.25	Harvesting and threshing machinery:	
84.25.10	Harvesting and threshing machinery*	Free
84.25.15	Combines*	Free
84.25.20.10	Power-operated straw and fodder presses*	Free
.90	Other straw or fodder presses	Free
84.25.40	Hay or grass mowers (excluding lawn mowers)	Free
84.25.50	Winnowing and cleaning machines for seed, grain or leguminous vegetables	Free
84.25.80	Egg-grading machines*	Free

+ No import license

* No import surcharge

Source: Department of Customs and Excise, Mbabane.

TANZANIA

Agriculture Tanzania has a population of about 15 million, of whom 13 million live in rural areas, the great majority of them in farming households. The land area of Tanzania totals 884,000 square kilometres, utilised as follows:

Smallholder cultivation	39,000 sq.kms.
Large scale agriculture	6,000
Grazing land	442,000
Woodlands, light forests	377,000
High altitude forests	4,000
Urban, rocky & swampy areas	<u>16,000</u>
	884,000 sq.kms.
	=====

Thus most cultivated land is worked by smallholders. In 1976, only about 10% of smallholding households possessed an ox-plough, most of the rest relying on hand-tools for cultivation. A few areas have tractor-hire services, but otherwise mechanisation is restricted to the large-scale farms, growing mainly export crops such as sisal, coffee, tobacco and tea, as well as crops such as wheat and sugar-cane for home consumption. The table below gives details of crop production for 1975/76.

Crop production, exports and share of output, Tanzania, 1975/76

Crop	Hectares grown	Production (metric ton)	Export (metric ton)	% output grown by smallholders (10has or less)
Cotton	)	41,998	47,693	100
Coffee	) Not avail-	53,359	61,395	75
Tobacco	) able	18,700	2,693	75
Sisal	207,513	116,174	96,232	3
Cashew	NA	97,328	97,328	100
Maize	1,200,000	1,100,000	none	90
Paddy rice	240,000	64,000	none	80
Millet	500,000	30,000	none	100
Wheat	32,000	20,000	none	15

Source: Rural Technology Meeting, Arusha, 1977 - Tanzania Country Paper. Unpublished.

The government's 'villagisation' policy has resulted in the concentration of most of the rural population in new villages over the past decade; accurate country-wide figures on the distribution of landholdings are not available, but variations in the size of holding are not large.

Technology Tanzania produces large quantities of agricultural equipment, but also imports it. Its general policy towards mechanisation is that selective tractorisation is needed, but that

it must be backed up by maintenance, spare parts and effective utilisation - in 1977 it was estimated that 30-40% of the tractors in the country were not working due to mechanical problems. But the main focus is on animal-power, and to this end plans are well-advanced for the construction of two new factories, at Mbeya and at Mwanza, to supplement the production from Ubungo Farm Implements at Dar-es-Salaam. This corporation started in 1969. Most of the production recorded in the table below is by UFI.

Production, Imports and Stock of Agricultural Equipment, Tanzania
1976 and 1978

Implement	1976		1978		1975 No. in use (estimate)
	Local Production	Imports	Local Production	Imports	
Ox-plough (1 furrow)	10,000	NA	7,000	NA	116,000
Ox-plough (2 furrow)	80	NA	3	NA	none
Ox-harrow	10	200	NA	NA	1,576
Ox-planter	40	NA	6	NA	128
Ox-cultivator	40	350	8	400	204
Ox-ridger	20	300	NA	NA	344
Ox-carts	1,000	none	300	none	989
Plough chains	233,952	none	81,000	none	119,000
Maize sheller	NA	1,700	NA	NA	360
Maize Mill	224	NA	603	NA	NA
Winnower	NA	NA	NA	NA	130
Groundnut sheller	84	none	3	none	187
Hoes	350,000	1,256,000	500,000	1,662,000	5,200,000
Panga	300,000	750,000	NA	345,000	2,440,000
Axe	80,000	3,000	NA	355,000	1,800,000
Grass Slasher	41,500	NA	77,000	NA	NA
Tractors	none	331	none	275(1977)	5,000
Tractor equipment	none	787	none	357(1977)	NA

(NA = not available)

- Sources: (a) Ubungo Farm Implements, Dar-es-Salaam.
(b) 'Promotion of Rural Implements Manufacture' - J. Mueller, Copenhagen, 1977.

We should also note that, as in all the countries in the region, large numbers of implements, especially hoes, pangas and axes, are made by village artisans from scrap steel. A programme for the development of Rural Craft Workshops, of which there are currently six, is now under way, and it is planned that these will also supplement the factory production of equipment, especially that which requires an assembly operation, such as ox-carts. A major producer of such carts at present is the Tanzania Agricultural Machinery Testing Unit (TAMTU), near Arusha, where new equipment is developed and imports are tested. Tractors and tractor equipment are imported by private

dealers and by a corporation, AISCO, under conditions laid down by AISCO. Animal-drawn implements and hand-tools are imported solely by UFI.

Also shown in the table above is an estimate of the numbers of implements actually in use in 1976; however this is a very broadly based estimate.

Transport

Tanzania borders seven countries, shares a mid-lake border with an eighth and also has access to the sea. It is thus well-placed for regional trade, and to act as a transit corridor for other countries.

The new TAZARA railway links the port of Dar es Salaam with the Zambian railway at Kapiri M'poshi (though trans-shipment is necessary as the gauges are different). Tanzania's older railway system links Dar es Salaam with Kigoma on Lake Tanganyika, whence goods can be ferried to Burundi and Zaire, and with Mwanza on Lake Victoria, from where goods can be ferried to parts of Uganda. The railway link from Moshi into Kenya is at present closed, as are the road links with Kenya.

Both rail and road are used for the heavy traffic between Zambia and Dar es Salaam, and for traffic to and from Burundi and Rwanda. In 1978, 850,000 tons of goods were carried between Zambia and Tanzania on the railway, and a further 226,000 tons by road.

Transit goods through Tanzania must be covered by a bond equivalent to the customs value of the goods in Tanzania, but this bond security is waived for the main authorised agents/carriers.

There is a road link between Tanzania and Malawi, via Katumbi and Tunduma in Zambia.

The port of Dar es Salaam is linked more with the northern ports on the east African coast than it is with the southern ports such as Maputo, but there are boats to Mozambique ports.

Agents

East African Transport Ltd
Box 991
Dar es Salaam
Tel. 21170
Cable EATRACO

Maritime Forwarders
Box 4537
Dar es Salaam
Tel. 258715
Cable FORWARDERS
Telex 41020

Express Tanzania Ltd
Box 884
Dar es Salaam
Tel. 22401
Cable EXPRESS
Telex 41041

AMI Tanzania
Box 9041
Dar es Salaam
Tel. 31011
Cable AGENMAREST
Telex 41008

Freight Express
Box 3510
Dar es Salaam
Tel. 29224
Cable FECO

Transport Companies	Karibafreight Box 4367 Dar es Salaam Tel. 26031 Cable KARIBA Telex 41073	Zambia-Tanzania Road Services Box 2512 Dar es Salaam
	Jashbhai Patel & Co Box 252 Dar Es Salaam Tel. 22066	National Shipping Agencies Box 9082 Dar es Salaam Tel. 27241 Cable NASACO Telex 41235

Main
Features
of Customs
Regulations

1. No preferences.
2. The value for duty purposes is the c.i.f. price of the goods. For goods imported by air, only 50% of the air freight element is counted towards the dutiable value.
3. A sales tax is levied on the duty-paid value of many goods, but most articles listed in this guide are free of sales tax.
4. All goods imported into Tanzania must be insured with the National Insurance Corporation of Tanzania.
5. Most of the goods listed in this guide can only be imported through specified parastatal organisations such as the National Development Corporation, the Agricultural and Industrial Supplies Co Ltd., or Ubungo Farm Implements Ltd.
6. All imports into Tanzania are subject to quantity, quality and price inspection before shipment, except for goods with a value in pro-forma invoice of less than Tshg.20,000 unless in part shipments, or goods produced by international tender or through the Crown Agents.

Customs Tariffs

CODE	ITEM	TARIFF
82.01	Hand tools, the following: spades, shovels, picks hoes, forks and rakes; axes, bill hooks and similar hewing tools; scythes, sickles, hay knives, grass shears, timber wedges, and other tools of a kind used in agriculture	Free
	of a kind used in horticulture or forestry	10%
82.02	Saws (non-mechanical) and blades for hand or machine saws, other than butchers saws	10%
	Butchers saws	30%
84.24 - 84.27	Agricultural and horticultural machinery for soil preparation or cultivation (for example, ploughs, harrows, cultivators, seed and fertiliser distributors; agricultural and horticultural machinery	

	for harvesting and threshing and sorting and cleaning; dairy machinery; presses and crushes	10%
84.28 A	Plates mills and hammer mills	15%
84.28 B	Other agricultural machinery, and horticultural, beekeeping, poultry-keeping machinery etc	10%
84.29	Machinery of a kind used in the bread grain milling industry and other machinery (other than farm type machinery) for the working of cereals or dried leguminous vegetables	10%
84.30	Other food processing machinery (excluding domestic)	10%
	Other food processing machinery	30%
84.10	Pumps	NA

Source: Customs and Excise Department - Dar-es-Salaam.

UGANDA

Agriculture According to a team of Commonwealth experts, which reviewed the state of Uganda's economy after the Liberation War, between 1970 and 1978 production of tea was halved, production of cotton fell from 76,000 to 11,000 tons, and production of sugar dropped from 144,000 tons to 12,000 tons. During the war, the only factory for farm implements was almost destroyed and then looted, and the production of this factory was anyway far below that needed to substitute for imports.

Reliable figures on the value of agricultural production are not available. The table below gives rough estimates of the shares of agricultural output in 1976, for selected crops.

Value of crop production by large and small farmers, Uganda, 1976

Production	Value in Shs. Million	Small-Scale Farmers %	Large-Scale Farmers %
Coffee	2,510	95	5
Cotton	200	100	0
Tea	89	40	60
Sugar & Jaggery	27	55	45
Tobacco	15	100	0
Grade beef cattle	250	0	100
Grade dairy cattle	105	25	75
Traditional cattle			
- beef	900	90	10
- dairy	595	90	10

Source: 'The Rehabilitation of the Economy of Uganda,' report by a team of Commonwealth Experts, Commonwealth Secretariat, 1979.

Figures on land ownership are not available, but it is clear that illegal sales or gifts of public land to private individuals were common in the past decade; these large estates are often now abandoned or their ownership is in dispute. But on the whole Uganda remains, as it has always been, a country of smallholders, with the large-farm sector playing a smaller role than, for example, in neighbouring Kenya.

Technology The Commonwealth team estimated that 5 million hoes were required immediately, in mid-1979. The EEC provided a grant to purchase 1 million, and if the steel is available the 1980-81 Ugandan manufacturing capacity is about 1 million/year. The UNIDO low-cost farm equipment project, which before the war was producing limited quantities of ox-ploughs, ox-carts and hammer mills, required 6 million shillings for its rehabilitation. The main producer of hand-tools is Uganda Hoes Ltd, where production of 1.5 million hoes in 1970 had fallen to 332,000 in 1978; in

that year, an estimated 400,000 hoes were imported. Capacity at that factory is 1.5 million hoes per annum, about the same as estimated national demand.

In 1977 UNICEF and the Ministry of Agriculture & Forestry agreed to set up a Village Technology Resource Centre, to be constructed near Kampala as a demonstration and training centre which would also do R&D work on village technologies.

Transport

Uganda is land-locked, but it has potentially good road, rail, lake and river transport infrastructure with all its five neighbours: Kenya, Tanzania, Rwanda, Zaire and Sudan. In recent years there has been a restriction in the use of these routes, first in the border conflict with Tanzania, and later in the Liberation War.

Presently the Sudan border is not open, and the land border with Tanzania has a limited capacity for freight, as the road connections between Mwanza and Masaka through Bukoba are difficult. A lake steamer service connects Tanzania with Uganda via Mwanza - Port Bell and there are also air services; Road transport between Rwanda and eastern Zaire and Uganda has operated regularly throughout, and at Kampala these routes join Uganda's main route to the coast - the Kampala/Nairobi/Mombasa road.

This latter route is also served by the main railway line of Uganda/Kenya Railways between Kampala and Mombasa, and this road and rail link is probably the most reliable for trade between Uganda and other countries of the region except Tanzania.

Agents

Agence Maritime Internationale
Box 7043
Kampala
Tel. 42116

Samtanus International Freight Forwarders
Box 5914
Kampala
Tel. 58674
Cable SAMTANUS
Telex 61133 UG

Transport Companies

Comet Freight and Travel
c/o T A Bhatt
Box 5138
Kampala
Tel. 3303

Express Transport
PO Box 7194
Kampala
Tel. 41210
Telex 61026

Kenatco Transport
PO Box 687
Kampala
Tel. 57186

Main features of customs regulations

1. No details are available of tariff rates and as foreign exchange control is a more important factor, considering the highly acute shortage faced by Uganda, information

about this is probably more useful.

2. The current (1980) ration of foreign exchange for all private sector imports is £10 million per month. All intending importers must apply for a foreign exchange allocation with a pro-forma invoice from the supplier.
3. Import licences are also required. The Ministry of Commerce will issue import licences through a Committee. They will be valid for one year and be issued only for the following categories of goods:
 - (i) Raw materials, spares, agricultural items, passenger and industrial vehicles, pharmaceuticals, consumer goods, educational materials.
 - (ii) Imports on behalf of parastatals, industries, oil-companies and suppliers of the consumer market in rural areas.
4. All import business will be conducted by documentary letters of credit.

ZAMBIA

Agriculture

With more than two million of its five million population living in towns, Zambia is the most urbanised of the Commonwealth countries in the region. The economy is dominated by the copper industry, and the lines of communication reflect this dominance, with rail links from the copperbelt to ports in the east, south and west but less effective communication with the agricultural areas. In 1978, 717,000 tonnes of exports were complemented by 654,000 tonnes of imports. The general position of Zambia as regards imports and exports will be greatly affected by developments in Zimbabwe.

About 70% of Zambia's rural population farm smallholdings of less than 2 hectares, and a further 20% have farms of between 2 and 5 hectares. There is also a large-farm sector, with 4,700 farms over 20 hectares, and it is on these that most of the tractors in the country are to be found.

The principal crop is maize, with an average annual production of around 1.2 million tons, of which about 750,000 tons are marketed. An estimated 415,000 hectares of maize were planted in 1976, compared to 67,000 hectares of groundnuts, the next largest crop. Figures are given below:

Crop	Area (1976) hectares	Production (1976) tons
Maize	415,000	1,260,000
Groundnuts	57,000	46,000
Sunflower	19,300	20,000
Tobacco	8,314	6,478
Sugarcane	7,156	779,611 (cane)
Cotton	6,000	3,000 (seed)
Rice	2,200	2,200

Source: Rural Technology Meeting, Arusha - 1977. Zambia country paper unpublished.

Technology

There are no precise figures on the amount or type of agricultural equipment now in use, but about 800 tractors are imported each year, and until recently about 15,000 ox-drawn ploughs were being imported also, along with a variety of ox-drawn equipment, and about 200,000 hoes for hand cultivation. Until recently very little equipment was produced locally, but now an order for 5,000 ox-drawn ploughs has been completed by a local firm for NAMBOARD, which is the major importer and distributor of non-tractor equipment. The importation of ox-drawn ploughs has recently been banned. Maize mills, trailers and water bowsers have

been locally manufactured for some time. One encouragement to local manufacture is the AGMAC award for the best local agricultural machinery, and for the most promising prototype.

Zambia has a National Appropriate Technology Committee, which is chaired by the Permanent Secretary of the National Commission for Development Planning; it has subcommittees on agriculture, industry, research and on community development, chaired by officers appointed by the respective Permanent Secretaries.

At Magoye there is a Farm Machinery Research Unit, which tests equipment for its suitability for use in Zambia; it cooperates closely with Zambian manufacturers, suggesting improvements in design or fabrication of local equipment. There is also currently a UNDP/FAO project to set up Village Workshops with trained artisans, for in Zambia as elsewhere local blacksmiths provide many tools which go unrecorded in the official statistics.

Production & imports of equipment, Zambia, 1976

Equipment	No, manufactured	No. imported
Tractors	none	848
Tractor implements	none	1,600
Ox-ploughs	none	15,000
Ox-harrows	none	3,000
Ox-planter	none	1,000
Hoes	50,000	200,000
Other hand tools	none	50,000
Sprayers	none	1,700
Ox-cultivators	100	300
Planters & seeders	none	300
Trailers	100	156
Harrows	2,000	none
Bowsers	100	none

Source: Rural Technology Meeting, Arusha, 1977 - Zambia Country Paper Unpublished.

Transport

Zambia is land-locked, but it also has, at least potentially, a number of alternative routes to the sea and to other countries. Before UDI its main port was Beira, using Zimbabwe as a transit route; traffic on this route declined and finally stopped in 1973, and Zambian exports via the Benguela Railway to Lobito in Angola jumped from 170,000 tons in 1972 to 438,000 tons in 1973. But in August 1975 this route was severed by the war in Angola; in August 1976 the TAZARA railway to Dar es Salaam was opened, and by late 1977 80% of Zambia's exports and 85% of its imports were coming through Tanzania. But because of the restricted capacity of the Tazara route, at the end of 1978 the railway line through Zimbabwe was re-opened to allow urgent imports

of fertiliser from South Africa, and now, in 1980, Zimbabwe's independence will change the pattern again.

Note should also be made of Zambia's road links, existing and potential. In 1978 over 200,000 tons of goods were carried by road between Zambia and Tanzania, and in the early 1980s there was also heavy road traffic between Zambia and Kenya via Tanzania. Some traffic goes to and from Mozambique via Malawi, being trucked between Zambia and Lilongwe via Mchinji, or to the railhead at Moatize in Mozambique itself. The railway is being extended from Lilongwe to the Zambian border, and Zambia has plans to extend its railway from Lusaka to Chipata.

One deleterious effect on Zambia of Zimbabwe's independence may be that Beira will be swamped by Zimbabwean goods, forcing Zambia (and Malawi) to rely more on the northern Mozambique port of Nacala.

Zambia is itself a transit country for traffic between Tanzania and Botswana; between Malawi and Botswana and other countries to the south; and for traffic between Zaire and South African ports. The route to Botswana via Livingstone and the Kazungula ferry is not likely to return to its previous status now that Zimbabwe is independent. Transit goods through Zambia require a permit which can be obtained at the border.

Agents	Agence Maritime Internationale Box 964 Lusaka Tel. 74851	J J Lowe Ltd Box 420 Livingstone Tel. 2488
	Trans-Botswana Agencies Ltd Box 420 Livingstone	Manica Freight Services PO Box Lusaka
Transport Companies	Leopold Walford (Zambia) Ltd Box 1280 Lusaka Tel. 75041	Jukes Curtis Transport Ltd PO Box 695 Lusaka Tel. 73009
	Zambia-Tanzania Road Services Box 2581 Lusaka Tel. 74861	Contract Haulage Ltd Box 105 Lusaka Tel. 74251
	Livingstone Customs & Transport Co Ltd Box 178 Livingstone	
	Kariba Freight Box 1820 Ndola Tel. 3139	
Main Features of Customs Regulations	<ol style="list-style-type: none">1. Basis of value for duty is the f.o.b. price to the importer.2. A tax of 2% is levied on all import licenses.3. A sales tax of 10% is levied on all dutiable goods;	

however, the taxable amount on which this 10% is calculated is not the value for duty purposes, but the value for duty purposes plus 20% of that value, plus the import duty itself, plus 25% of the sum. Roughly speaking, the 10% sales tax works out at a 15-20% tax on FOB value.

4. Foreign exchange is issued on a quota basis, and import licences are required for all imports. In the case of agricultural tools and ox-drawn implements, NAMBOARD are the sole importers.
5. A prescribed form of invoice and certificate of origin and of value is required for all imports. It is obtainable from stationers. The original form plus 4 copies should be sufficient.
6. Certain goods imported into Zambia must be inspected before shipment.
7. Goods trans-shipped at Dar es Salaam should include on their invoice the Customs Cooperation Council Nomenclature tariff numbers for the goods in question.

Customs Tariffs

CODE	ITEM	TARIFF
82.01.00	Hand tools, the following: spades, shovels, picks, hoes, forks, rakes, axes, billhooks, scythes, sickles, hay knives, grass shears, timber wedges, other tools of a kind used in agriculture, horticulture or in forestry	Free
84.10.00	Liquid elevators of the bucket, chain, screw, band and similar kind	7½%
84.10.22	Pumps for stationary engines	7½%
84.24.00 - 84.25.99	Agricultural, horticultural or forestry machinery of all kinds, (i.e. harrows, cultivators, ploughs, threshers etc) and parts thereof, with the exception of lawn mowers and rollers and motorised scythes	Free
84.26.00 - 84.29.10	Dairy machinery, milking machines, churns; presses, crushes and other such machinery for wine-making, cider-making, fruit juice preparation etc; other agricultural, horticultural, poultry-keeping and bee-keeping machinery, germination plant fitted with mechanical or thermal equipment, poultry incubators and brooders	Free
84.29.90	Machinery (other than maize grinders) of a kind used in the bread grain milling industry, and other machinery (other than farm type machinery) for the working of cereals or dried leguminous vegetables	10%
84.30.00	Machinery not falling within the above headings, of a kind used in bakery, confectionery, etc.	7½%

Source: Department of Customs & Excise - Lusaka

ZIMBABWE

Agriculture

The population of Zimbabwe is about 7.5 million, 80% of which lives in rural areas. A large proportion of the land of Zimbabwe is suitable for arable agriculture and livestock grazing, and there are several distinct zones related to altitude and rainfall which are suitable to different types and different intensities of agriculture.

Administratively, at Independence in 1980, the agricultural land of Zimbabwe was divided into three tenure systems:

- (1) European land - (mostly large commercial holdings)
- (2) Tribal Trust land (peasant farming areas)
- (3) African Purchase Land (available to selected African farmers)

Of these categories the European Land and Tribal Trust Land occupy most of the agricultural land, and until independence access to them was controlled on racial grounds. The African Purchase Land was available only to 'emergent' African farmers who could verify their farming ability and access to a sufficient sum of capital.

Consequently, the rural population, and the size of holding is unequally divided between these three categories of land-tenure system. The large farming area, previously designated European land, occupies 15.5m hectares of farmland and grazing, and contains only 7000 holdings. The Tribal Trust lands (TTL's) occupy 16.2m hectares of farmland and grazing and are settled by 4.64 million people, 62% of the population. Thus, including grazing land, this represents a land availability of 3.5 ha. per resident in the TTL's. The African Purchase Land consists of 8,500 holdings, but only 8% of the total APL area is cropped - most is used for livestock production.

In both the large farming areas and the TTL's also, a large proportion of the land is used for grazing livestock. About 14.0m. hectares of land in each tenure area are used for grazing, leaving the following amounts of arable land:

Large Farming area	-	1.5m. hectares
Tribal Trust Lands	-	2.2m. hectares

According to ecological classification this accords with the total amount of land naturally suited to arable agriculture, any expansion of which will require irrigation of land presently only suitable for pasture. The present Five-year Development Plan contains a provision to irrigate about 75,000 hectares of Tribal Trust Land.

The principal crops grown in Zimbabwe are: maize, wheat, tobacco, sugar-cane, millets and sorghums, groundnuts, cotton and soya beans, with tea and coffee in the highlands of the East. In the TTL's the main food crops are maize, sorghum/millet, and pulses whilst the main cash crops are maize, groundnuts and cotton.

Technology

From this it can be seen that there is a clear divide in Zimbabwe in the demand for different types of agricultural machinery. In the Tribal Trust Lands there are 800,000 households of whom up to 700,000 have agricultural plots. As the total area of TTL arable land is only 2.2m ha., then the average size of arable holding is 3.1 ha. In the large farming sector the average size of arable holding on the other hand is 100 ha. These latter holdings are farmed with a high capital/labour ratio and there is a large domestic demand for tractors over 50 HP and tractor -drawn implements. In the Tribal Trust Lands, the majority of households farm with hand implements and these are manufactured within Zimbabwe. Normally there is also a significant use of ox-draught, although this use had temporarily fallen during the emergency; three companies manufacture a range of ox-drawn implements. Any significant increase in demand for ox-drawn machinery would depend on both increased irrigation within the TTL area, and upon any future measures of land redistribution.

There is also a small potential demand for small tractors under 30 HP in the TTLs and in the smaller tenure area of freehold in the 'African Purchase Areas.' Cultivation machinery is not the only type of machinery manufactured in Zimbabwe, and the output of the country's relatively large manufacturing sector includes a high value of agricultural machinery of all types, although this is largely for the large farming sector.

The importation of agricultural machinery and all goods into Zimbabwe is strictly controlled in order to keep a tight control over the use of scarce foreign exchange reserves. Import applications are subject to an evaluation by the Ministry of Agriculture which recommends according to the availability of alternative locally produced implements and according to the productive potential of the item to be imported.

The Institute of Agricultural Engineering, 18 km. north-west of Salisbury, tests agricultural machinery as well as conducting engineering and agronomy trials. It has recently formed an Intermediate Technology Section which gives special attention to the machinery requirements of the small farming sector. In its programme of testing of locally produced ox-drawn machinery it has developed some improved designs and it has produced a list of all low-cost tools available in Zimbabwe, with the aim of making a complete collection to which can be added appropriate additions from outside the country. The IAR also has a programme to develop alternative power sources and is working on windmills and biogas.

Transport

Zimbabwe borders Mozambique, South Africa, Botswana and Zambia and lies across potentially important regional transport routes between Southern and Central Africa.

The Zimbabwe Railway System forms a link in a continuous line of rail between Botswana and Zambia, via Plumtree, Bulawayo and Victoria Falls. The railway also links the South African railway system at Beit Bridge, and southward to Lesotho and Swaziland.

Road transport is well developed and is served by a country-wide network of metalled roads, which also cross the Zambian border at Victoria Falls and Chirundu, the Mozambique border at Umtali and the Botswana border at Plumtree. Freight between Salisbury and Zambia and Southern Africa can now equally easily be carried by road transport or by rail transport and there are several freight companies which specialise in this.

Since independence, Zimbabwe now has direct air-links, which can be used for air-freight, with Kenya, Zambia, Malawi and Tanzania.

Goods imported and exported to and from Zimbabwe by sea freight presently use Beira, Maputo and the South African ports.

Agents	Allen Wack and Shepherd P. O. Box 586 Salisbury Tel. 794311 Cable: THAINE	Manica Freight Services Ltd. Salisbury Tel- 760761 Cable: MANFREIGHT
	Mitchell Cotts Seafreight Ltd P O Pox 264 Salisbury Tel. 792666 Cable: MCTRAVEL Telex 2169	Freight International P O Box US372 Salisbury Tel. 708877 Cable: STEAMSHIP Telex 4348 RH
Transport Companies	National Railways of Zimbabwe P O Rox 582 Salisbury Tel. (Rail) 700020 (Road) 700029	Beattle & Dore 3 Upton Road Ardbennie Salisbury Tel: 64403
	Freight Forwarders of Zimbabwe Ltd. P O Box 4099 Salisbury Tel. 700891	Air Zimbabwe P. O. Box API Salisbury Airport Salisbury Tel. 52601 Cable: AIRZIMBABWE
	Clan Transport Co. Ltd P O Box 2253 Salisbury Tel. 64651 Cable: CLAN	Swift Transport Services P O Box 772 Salisbury Tel: 64777

- Main features of custom regulations
1. Duty is assessed according to the 'Brussels Definition of Value' (BDV). All goods are dutiable to the BDV value as it is assessed at the point and time of entry into Zimbabwe.
 2. The BDV is valued as the normal price on FOB basis, and allowances are made for discounts operative on quantity supplied. Theoretically the BDV should be assessed as the open market value of an item is released for sale on the Zimbabwe market at the time of entry. In practice, as long as there is no business association between the supplier and the importer, the original invoice of the supplier is acceptable as proof of value. Customs needs to retain one copy therefore of commercial invoices.

3. Where the importer is associated in business with the supplier, then the Customs Department will, in consultation with the importer, determine the price that would have been charged if the transaction had occurred on the open market.
4. Preferential rates of duty are applicable to goods originating in the Republic of South Africa, Lesotho, Swaziland, Mozambique, Angola and Portugal. These rates vary according to item and should be ascertained from the Department of Customs.
5. Imports made from these sources should be accompanied by a 'Certificate of Origin', which should be completed and signed by the manufacturer/supplier. One copy only is required.
6. Strict foreign exchange controls operate in Zimbabwe and all prospective importers are required to apply for a foreign exchange allocation. In the case of a new item of agricultural machinery this may involve the need for the item to be tested by a government department to accord it a priority.
7. Several items of agricultural machinery are not permitted against these allocations, amongst which: groundnut shellers and pickers, hammermills, ploughs, ridgers (although in the case of ox-drawn machinery it should be ascertained whether a particular item is exempt according to its technical specifications).

Customs Tariffs

CODE		
118 (a) (i)	Agricultural Machinery	Free
	<u>Except</u>	
118 (a) (ii)	Single furrow mouldboard ploughs having a mass not exceeding 55kg.	15%

Source: Department of Customs and Excise, Salisbury.