Forestry Department
Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT

COUNTRY REPORTS

TANZANIA

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The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2005 (FRA 2005), which is the most comprehensive assessment to date. More than 800 people have been involved, including 172 national correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

The reporting framework for FRA 2005 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes more than 40 variables related to the extent, condition, uses and values of forest resources. More information on the FRA 2005 process and the results - including all the country reports - is available on the FRA 2005 Web site (www.fao.org/forestry/fra2005).

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The report has been prepared in collaboration with the FRA 2005 secretariat in Rome.

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1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2005 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as "Forest", spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as "Forest" or "Other wooded land".
Other land with tree cover (Subordinated to "Other land")	Land classified as "Other land", spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
1.Millington, A., and Towsend, J. (eds.) 1989. Biomass assessment. Woody biomass in the SADC region. Earth scans Publication Ltd. London. UK	H	Definition and Land use cover	1984	
2. Hunting, Technical Services. 1997. national reconnaissance Level Land Use and Natural Resources Mapping	H	Forest Cover	1995	

1.2.2 Classification and definitions

National Classes	Definitions
Wet Miombo Woodland	These have been sub-divided into three main categories: dry, wet seasonal, ad wet mimbo. The larget areas of wet Miombo Woodland are found on the border with Burundi, Rwanda and Zaire, etending from west of Lake Victoria to the Fipa Plateau. They are mainly dry evergreen forests and moist forests are much less common. The forest can be be divided into : i. Moist lowland forest in some of the eastern highlands and also along Lake Tanzania. Here the upper canopy varies in height from 25 to 45m, a middle layer is found between 6 and 15m ii. Dry evergreen forest-can be divided into lowland and Montane variants. Thesee rarely exceed 25m in height and the forest has a

	simple structure. iii. Dry Montane evergreen forest is restricted to the North-East and Central Highland. Pure –satnd forests also occur and the main types are fire-induced *Arundinaria alpine thickets of 4-15 m high* with associated woody species,the partially fire-resistant *Hagenia abyssinica* forest that is 9-15m tall and is found between 1800 and 3400 mail and the *Juniperus* procera forest innareas receiving between 1000 and 1500mm rainfall per year, at altitudes of between 1800 and 2900 masl. It is usually above 15m in height but rarely reaches more than 20m. The woodland is usually slightly open but a shrub layer rarely occurs
Wet Seasonal Miombo Woodland	Wet seasonal Miombo Woodland accounts for most of the eastern third of Tanzania. The class is floristically poorer than the Wet Miombo Woodland and is dominated by *Brachystegia speciformis*, *B. boehmii*, *Julbernardia globiflora* and *J. magnistipulata*. The canopy rarely exceeds 15m in height and is slightly more open than the Wet Miombo Woodland.
Dry Miombo Woodland	Dry Miombo Woodland is restricted to the west of Tanzania. The phenology of this class is similar to that of Wet Seasonal Miombo Woodland. The dominant species is Brachystegia spp. And Julbernardia globiflora. Generally, the woodlands are floristically poor and less than 15m high. In adverse conditions they may be as low as 3m.
Cleared Miombo Woodland	Restricted to South-west Tanzania. The class is dominated by a mosaic of woodlands and cultivation plots. After the first year of cultivation, three succession phases were identified. During the third phase, woody species have gained such a hold on the plots that canopy woodland has formed. Shrubs are absent and only grasses and sedges are found under the trees. The original woodland trees are absent. They are replaced by fire-resistant and fire-tolerant trees of the *Combretum* savannah. The picture is one of declining Miombo woodland species and an invasion of savannah woodland species, especially those related to Combretum savannah. As pressure on the land increases, the recovery time for abandoned plots shortens and the proportion of savannah woodland to miombo woodland trees increases.
Coastal Forest Mosaic	The Coastal Forest Mosaic is most extensive along the coast between Dar-es-Salaam and Samanga. Much of this has now reverted to Miombo woodland but less disturbed evergreen forests can still be found. Nevertheless sm,all patches do occur as outlers in the Wet and Wet seasonal Miombo Woodlands. Inland of Dae-es-Salaam, large areas of moist forets with transitional evergreen bushland and scrub forests are found extending Southwards to the Matandu River. This is generally a floristically rich forest, 15-20m tall, with emergents of 30-35m high. The main canopy species are *Afzelia quanzensis* and *Erythrina sacleuxii.* The coastal forest mosaic contains high woody-biomass growing stocks and have high levels of productivity. Exploitation however, is limited in the case of mangroves by physical accessibility. The inland moist forest is more fragile ecosystem than mangroves and is easily prone to vegetation if over-exploitation.

Semi-Arid Steppe	The vegetation is characteristically dense bushland, 3-7m tall, with few emergent trees of up to 20m high. Evergreen usually form between 2.5% and 10% of the total trees and shrubs. A shrub layer is also found, the main species being C.aculeatum, Grewia spp. And Maerua spp. The bushland also contains succulents and climbers. Within the bushland area, there are also isolated patches of thickets vegetation ranging in size from small patches around old terminalia to large areas of several hundred square kilometres. Five main types can be identified: i. Itigi thickets : This is a dense intertwined deciduous thickets of 3-5m in height, dominated *Baphia burttii, B. massaiensis with emergent evergreen and semi green trees up to 8m* ii. *Cordyla thickets in the east and is dominated by Croton spp* iii. *Commiphora thicket and* iv. *A thicket on the hills dominated by Dalbergia spp. Diospyros spp., and Teclea spp.* In drier upland area, between the Acacia-Commiphora bushland and Montane woodlands and forests, an evergreen to semi evergreen bushland is found. It is generally between 3 and 7m in height. Scrub forest is found locally in areas with slightly higher rainfall. The canopy is irregularly spaced but there is a dense under-storey usually reaching between 3 and 5m in height. Edaphic wooded grassland found in valleys, flood plains and pans is also included in this class. These are prominently grassland with wooded areas, usually dominated by either Acacia spp. or palms.
Semi-Arid Dry Steppe	The vegetation consists of deciduous bushland and thicket with markedly seasonal vegetation growth and extensive grassy plains free from woody vegetation. The deciduous bushland is characterised in its natural state by stunted shrubs (2-6 high) with only occasional emergent trees rising to a maximum of 10m in height. The most extensive, wooded vegetation type is the *Acacia Commiphora* thorn savannah". In the coastal region, lowland forest and woodland has been commonly replaced by secondary scrubby woodland and grassland. The original *Diospyrus cornii* and *Manilkara mochisia* scrub forest that was 9-15m tall has degraded to secondary deciduous bushland.

1.2.3 Original data

Data for reference year 1984

National Classes	**Area in km^2**
Wet Miombo Woodland	71 941
Wet Seasonal Miombo Woodland	273 936
Dry Miombo Woodland	116 671
Cleared Miombo Woodland	70 028
Coastal Forest Mosaic	15 102
Semi-Arid Steppe	185 368
Semi-Arid Dry Steppe	107 051
Others	104 993
Total country area	**945 090**

Data for reference year: 1995

National Classes	Area in hectares
Airport	114
Airstrip	31
B(et) Bushland with emergent trees	5 355 977
Bd Dense Bushland	597 581
Bo Open Bushland	944 082
BSc Bushland with scattered cultivation	9 234 805
BSL Bare Soil	126 178
Bt Thicket	524 827
Bt(et) Thicket with emergent trees	659 001
Cbc Cultivation with Bushy Crops	89 234
Cultivation with Herbaceous Crops	2 187 337
Cm Mixed cropping	6 322 958
Ctc Cultivation with Tree cropping	1 433 224
Cultivation & Tree Cropping (shade trees)	110 755
Fm Mangrove	156 878
Fn Natural forest	2 431 315
Fp Plantation	134 914
Gb Bushed grassland	1 962 818
Gbs Bushed grassland (seasonally Inundated)	2 923 033
Go Open Grassland	1 859 897
Gos Open grassland 9seasonally Inundated)	1 782 196
GSc Grassland with scattered cropland	4 703 634
GW Wooded grassland	4 072 640
Gws Wooded grassland (seasonally inundated)	2 056 166
Ice	1 552
RO rock outcrops	9 281
S/M Swamp /March (permanent)	981 260
SC Salt crusts	1 987
Urban	64 585
Wc Closed woodland	5 719 223
Wo Open woodland	24 721 670
WSc Woodland with scattered Cropland	6 994 674
TOTAL Land Area	**88 163 827**
IW inland water	6 344 789
Ocean	26 068
TOTAL Country Area	**94 534 685**

1.3 Analysis and processing of national data

1.3.1 Calibration

Not necessary for the 1984 data. The 1995 data have been calibrated to the FAOSTAT land area as follows:

National land area in ha	88 163 827
FAOSTAT land area in ha	88 359 000
Calibrating factor	1.002213754

National Classes	Calibrated area in hectares
Airport	114
Airstrip	31
B(et) Bushland with emergent trees	5 367 834
Bd Dense Bushland	598 904
Bo Open Bushland	946 172
BSc Bushland with scattered cultivation	9 255 249
BSL Bare Soil	126 457
Bt Thicket	525 989
Bt(et) Thicket with emergent trees	660 460
Cbc Cultivation with Bushy Crops	89 432
Cultivation with Herbaceous Crops	2 192 179
Cm Mixed cropping	6 336 955
Ctc Cultivation with Tree cropping	1 436 397
Cultivation & Tree Cropping (shade trees)	111 000
Fm Mangrove	157 225
Fn Natural forest	2 436 697
Fp Plantation	135 213
Gb Bushed grassland	1 967 163
Gbs Bushed grassland (seasonally Inundated)	2 929 504
Go Open Grassland	1 864 014
Gos Open grassland 9seasonally Inundated)	1 786 141
GSc Grassland with scattered cropland	4 714 047
GW Wooded grassland	4 081 656
Gws Wooded grassland (seasonally inundated)	2 060 718
Ice	1 555
RO rock outcrops	9 302
S/M Swamp /March (permanent)	983 432
SC Salt crusts	1 991
Urban	64 728
Wc Closed woodland	5 731 884
Wo Open woodland	24 776 398
WSc Woodland with scattered Cropland	7 010 158
TOTAL Land area	**88 359 000**

1.4 Reclassification into FRA 2005 classes

The 1984 data set was reclassified using the following matrix:

National Classes	Forests	OWL	OL
Wet Miombo Woodland	100%		
Wet Seasonal Miombo Woodland	100%		
Dry Miombo Woodland	67%	33%	
Cleared Miombo Woodland		50%	50%
Coastal Forest Mosaic	100%		
Semi-Arid Steppe		100%	
Semi-Arid Dry Steppe		33%	67%
Others			100%

1984 data after reclassification

	Area in km^2		
	Forests	**OWL**	**OL**
Wet Miombo Woodland	71 941	0	0
Wet Seasonal Miombo Woodland	273 936	0	0
Dry Miombo Woodland	78 170	38 501	0
Cleared Miombo Woodland	0	35 014	35 014
Coastal Forest Mosaic	15 102	0	0
Semi-Arid Steppe	0	185 368	0
Semi-Arid Dry Steppe	0	35 327	71 724
Others			104 993
Total	**439 149**	**294 210**	**211 731**

The 1995 data set was reclassified using the following matrix:

National Classes	**Forest**	**OWL**	**OL**	**OLWTC**
Airport			100%	
Airstrip			100%	
B(et) Bushland with emergent trees		100%		
Bd Dense Bushland		100%		
Bo Open Bushland		100%		
BSc Bushland with scattered cultivation			100%	100%
BSL Bare Soil			100%	
Bt Thicket		100%		
Bt(et) Thicket with emergent trees		100%		
Cbc Cultivation with Bushy Crops			100%	
Cultivation with Herbaceous Crops			100%	
Cm Mixed cropping			100%	
Ctc Cultivation with Tree cropping			100%	
Cultivation & Tree Cropping (shade trees)			100%	
Fm Mangrove	100%			
Fn Natural forest	100%			
Fp Plantation	100%			
Gb Bushed grassland		100%		
Gbs Bushed grassland (seasonally Inundated)		100%		
Go Open Grassland			100%	
Gos Open grassland 9seasonally Inundated)			100%	
GSc Grassland with scattered cropland			100%	
GW Wooded grassland	100%			
Gws Wooded grassland (seasonally inundated)	100%			
Ice			100%	
RO rock outcrops			100%	
S/M Swamp /March (permanent)			100%	
SC Salt crusts			100%	
Urban			100%	
Wc Closed woodland	100%			
Wo Open woodland	100%			
WSc Woodland with scattered Cropland		50%	50%	

Results after reclassifying 1995 data

National Classes	Area in hectares			
	Forest	**OWL**	**OL**	**OLWTC**
Airport	0	0	114	0
Airstrip	0	0	31	0
B(et) Bushland with emergent trees	0	5 367 834	0	0
Bd Dense Bushland	0	598 904	0	0
Bo Open Bushland	0	946 172	0	0
BSc Bushland with scattered cultivation	0		9 255 249	9 255 249
BSL Bare Soil	0	0	126 457	0
Bt Thicket	0	525 989	0	0
Bt(et) Thicket with emergent trees	0	660 460	0	0
Cbc Cultivation with Bushy Crops	0	0	89 432	0
Cultivation with Herbaceous Crops	0	0	2 192 179	0
Cm Mixed cropping	0	0	6 336 955	0
Ctc Cultivation with Tree cropping	0	0	1 436 397	0
Cultivation & Tree Cropping (shade trees)	0	0	111 000	0
Fm Mangrove	157 225	0	0	0
Fn Natural forest	2 436 697	0	0	0
Fp Plantation	135 213	0	0	0
Gb Bushed grassland	0	1 967 163	0	0
Gbs Bushed grassland (seasonally Inundated)	0	2 929 504	0	0
Go Open Grassland	0	0	1 864 014	0
Gos Open grassland 9seasonally Inundated)	0	0	1 786 141	0
GSc Grassland with scattered cropland	0	0	4 714 047	0
GW Wooded grassland	4 081 656	0	0	0
Gws Wooded grassland (seasonally inundated)	2 060 718	0	0	0
Ice	0	0	1 555	0
RO rock outcrops	0	0	9 302	0
S/M Swamp /March (permanent)	0	0	983 432	0
SC Salt crusts	0	0	1 991	0
Urban	0	0	64 728	0
Wc Closed woodland	5 731 884	0	0	0
Wo Open woodland	24 776 398	0	0	0
WSc Woodland with scattered Cropland	0	3 505 079	3 505 079	0
TOTAL	**39 379 791**	**16 501 105**	**32 478 105**	**9 255 249**

Notes: According to National Forestry Programme in Tanzania, there is an estimated 150 000 ha of plantations in Tanzania. Of these, 80 000 ha is under forest reserves and the rest in unreserved areas.

Summary of 1984 and 1995 reference years

FRA 2005 Categories	Area in hectares	
	1984	**1995**
Forest	43 914 857	39 379 791
OWL	29 421 026	16 501 105
OL	15 023 117	32 478 105
Total land Area	**88 359 000**	**88 359 000**

1.4.1 Estimation and forecasting

FRA 2005 Categories	Area in hectares		
	1990	**2000**	**2005**
Forest	41 441 184	37 318 397	35 257 003
OWL	22 373 796	10 628 413	4 755 722
OL	24 544 019	40 412 190	48 346 275
Inland Water	6 150 000	6 150 000	6 150 000
Total Country Area	**94 509 000**	**94 509 000**	**94 509 000**

1.5 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	**2000**	**2005**
Forest	41 441	37 318	35 257
Other wooded land	22 374	10 629	4 756
Other land	24 544	40 412	48 346
...of which with tree cover [1)]			
Inland water bodies	6 150	6 150	6 150
TOTAL	**94 509**	**94 509**	**94 509**

1.6 Comments to National reporting table T1

According to a report by the Centre for Energy, Environment, Science and Technology (1999), 24.4% of original tropical closed forests cover was transferred to other classes during the period of 1976 through 1990 as follows:

1. 115 000 ha converted to permanent agricultural land and pasture
2. 38 000 ha to secondary forests (i.e. 8000 ha to thickets and 30000 ha to bushland /thickets)
3. 202 000 ha converted to wooded grassland or fragmented forests, which in turn changed to other land cover as an intermediate stage towards permanent agriculture and pasture.
4. Unreserved forests in public lands are the most affected forests types by human activities. Table 1.5 estimates deforestation of 421 156 ha. The National Forest programme in Tanzania (2001-2010) also, estimates a deforestation rate between 130 000 ha and 500 000 ha. The main reason for deforestation are reported as agriculture, overgrazing, charcoal burning, woodfuel harvesting, bush fires for various reasons and harvesting for industrial wood. In many other areas, land is extensively burned for eradication of tse-tse flies

2 Table T2 – Ownership of Forest and Other wooded land

2.1 FRA 2005 Categories and definitions

Category	Definition
Private ownership	Land owned by individuals, families, private co-operatives, corporations, industries, religious and educational institutions, pension or investment funds, and other private institutions.
Public ownership	Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies including cities, municipalities, villages and communes.
Other ownership	Land that is not classified either as "Public ownership" or as "Private ownership".

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Kihiyo V.B.M.S 1998, Forest Policy changes in Tanzania: Towards Community Participation in Forest Management	M	Ownership	1990, 2000	

2.2.2 Classification and definitions

2.2.3 Original data

No original data exist. Kihiyo (1998) states that the central government owns most of the forest resource in Tanzania. It owns the gazetted forests, the woodlands in national parks, the plantations and the public lands (or non-reserved forest land)

Local governments own some forest reserves which are mainly protective in function. The current exact area is not known due to encroachment on many of these forests.

The small area of private forests is owned by corporations, e.g. TANWATT Co. Ltd., largely owned by the Commonwealth Development Corporation in Njombe, private individuals and NGOs. It is estimated to be nearly 70,000 hectares only (MNRT, 1989). It consists of mainly plantations established for specific productive functions. TANWATT, for example, established black wattle plantations (*Acacia mearnsii* De Wild) to produce tannin from wattle barks, mainly for export. Other private areas are established under the village afforestation programme and farm forestry for the market (Kihiyo, 1998).

2.3 Analysis and processing of national data

2.3.1 Calibration

2.3.2 Estimation and forecasting

2.4 Reclassification into FRA 2005 classes

Due to lack of other information the area of privately owned forests for 1998 has been used for both reporting years. The remaining forests area has been classified as under public ownership.

2.5 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership	70	70		
Public ownership	41 371	37 248	22 374	10 628
Other ownership				
TOTAL	**41 441**	**37 318**	**22 374**	10 628

2.6 Comments to National reporting table T2

Management of forest resources in Tanzania is done mainly by the government. The main problem is that there is fragmentation of authority and resources are thinly spread to the extent that management of the resource suffer.

There are three types of forest management regimes, namely:

- Central government manage forest reserves and forests on public lands and forest plantations, which are directly controlled by the Forest and Beekeeping Division (FBD)

- Forests on public lands - for which responsibility is supposed to be under both central government

- Local Authority forest reserves controlled by District Councils

The small area of private forests is managed by the owners themselves and the central government provide technical advice only.

3 Table T3 – Designated function of Forest and Other wooded land

3.1 FRA 2005 Categories and definitions

Types of designation

Category	Definition
Primary function	A designated function is considered to be primary when it is significantly more important than other functions. This includes areas that are legally or voluntarily set aside for specific purposes.
Total area with function	Total area where a specific function has been designated, regardless whether it is primary or not.

Designation categories

Category / Designated function	Definition
Production	Forest / Other wooded land designated for production and extraction of forest goods, including both wood and non-wood forest products.
Protection of soil and water	Forest / Other wooded land designated for protection of soil and water.
Conservation of biodiversity	Forest / Other wooded land designated for conservation of biological diversity.
Social services	Forest / Other wooded land designated for the provision of social services.
Multiple purpose	Forest / Other wooded land designated to any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone can be considered as being significantly more important than the others.
No or unknown function	Forest / Other wooded land for which a specific function has not been designated or where designated function is unknown.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
1. Shand M.C: Digital Cartography. Department of Geography and Topographic Science. University of Glasgow. Glasgow, Scotland U.K 1996-1997	H	National parks, Game Reserves and Conservation areas		
2.**Kihiyo V.B.M.S** 1998,. Forest Policy changes in Tanzania: Towards Community Participation in Forest Management	H	Production and Protection Forest		

3.2.2 Classification and definitions

No definitions exists

3.2.3 Original data

There two primary functions of forests in Tanzania, production and protective. According to Kihiyo, 1998, production forests are estimated at 71% of the total forests area as opposed to 29% protective forests.

Reference year=1997

Use of forest land	**Area in hectares**
Production forest	23 810
Protection (including water catchments)	9 745
Total	**33 555**
Legal status	
Forest reserve	12 517
Forest/woodland within national parks etc	2 000
Non-reserved forest land	19 038
Total	**33 555**

Source: 2

3.3 Analysis and processing of national data

3.3.1 Calibration

3.4 Reclassification into FRA 2005 classes

FRA 2005 Categories	**Production**	**Protection of soil and water**	**Conservation of biodiversity**	**Social**	**Multipurpose**
Production	100%				
Protection			21%		79%
Non-reserved forest land					100%

Results after reclassification:

FRA 2005 Categories	**1997**	**%**
Production	23 810	71%
Conservation of soil and water	2 000	6%
Multipurpose	7 745	23%
Total Forest Area	**33 555**	100%

All OWL has been classified as no/unknown designation.

3.4.1 Estimation and forecasting

Table 1 final Table will be used as inputs and applying the above percentages gives:

FRA 2005 Categories	Area in hectares		
	1990	2000	2005
Production	29 424 363	26 497 072	25033426.38
Conservation of biodiversity	2 133 386	2 133 386	2 133 386
Multipurpose	9 883 436	8 687 939	8 090 191
Total Forest	41 441 184	37 318 397	35 257 003

FRA 2005 Categories	Area in hectares		
	1990	2000	2005
OWL from T1	22 373 796	10 628 413	4 755 722

3.5 Data for National reporting table T3

Applying the percentages above to the total forest area from T1 gives

FRA 2005 Categories / Designated function	Area (1000 hectares)					
	Primary function			Total area with function		
	1990	2000	2005	1990	2000	2005
Production	29 424	26 497	25 034			
Protection of soil and water						
Conservation of biodiversity	2 133	2 133	2 133			
Social services						
Multiple purpose	9 884	8 688	8 090	not appl.	not appl.	not appl.
No or unknown function				not appl.	not appl.	not appl.
Total - Forest	**41 441**	**37 318**	**35 257**	**not appl.**	**not appl.**	**not appl.**
Other wooded land						
Production						
Protection of soil and water						
Conservation of biodiversity						
Social services						
Multiple purpose				not appl.	not appl.	not appl.
No or unknown function	22 374	10 628	4 756	not appl.	not appl.	not appl.
Total – Other wooded land	**22 374**	**10 628**	**4 756**	**not appl.**	**not appl.**	**not appl.**

3.6 Comments to National reporting table T3

The following tables were obtained from source 1 table 3.2.1 above:

National Parks

Name of a park	Area in km2	Vegetation type	Designated year
Arusha	137	Dense forest	1967
Gombe Stream	52	Miombo Forests woodland	1968
Katavi	2 253	Miombo woodland	1974
lake Manyara	325	Forests grassland	1960
Mahale Mountain	1 613	Miombo Woodland	1985
Mikumi	3 230	Miombo , acacia	1964
Mount Kilimanjaro	755	Forest, moor land	1973
Ruaha	12 950	Grassland, swamp, miombo	1964
Rubondo Island	457	Evergreen Forest	1977
Serengeti	14 760	Grassland	1951
Tarangire	2 600	Mixed zones	1970
Udzungwa Mountain	1 000	Mixed Forest	1992
Total	40 132		

Game Reserves

Name of a Reserve	Area in km2	Vegetation type	Designated year
Biharamulo	1 300	Miombo woodland	1959
Burigi	2 200	Swamp Forests	1980
Ibanda	200	Forest	1974
Kigosi	5 500	Wooded Grassland, Swamp	1983
Kisigo	4 000	Bushland, thickets	1974
Maswa	2 200	Wooded Savanna, plains	1969
Mkomazi	1 000	Open plain. Thorn bush	1951
Mt. Meru	20	Forest moor land	1974
Moyowoe	6 000	Miombo , swamp	1982
Rumanyika	800	Forest, grassland	1974
Uwanda	5 000	Grassland, Swamp	1971
Rungwa	9 000	Miombo, savannah	1951
Saadani	300	Savannah grassland	1968
Selous	50 000	Wooded grassland, miombo	1922
Ugalla River	5 000	Flood plain, woodland	1964
Umba River	1 500	Scrub, savannah	1974
Uwanda	5 000	Flood plain	1971
Total	99 020		

Conservation area

Name of a Conservation area	Area in km2	Vegetation type	Designated year
Ngorongoro	8 288	Forest, savannah	1959

3.7 Comments to National reporting table T2

Although the main vegetation type for each of these protected areas is listed, there is no information about the percentage of the total area which is forested.

4 Table T4 – Characteristics of Forest and Other wooded land

4.1 FRA 2005 Categories and definitions

Category	Definition
Primary	Forest / Other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Modified natural	Forest / Other wooded land of naturally regenerated native species where there are clearly visible indications of human activities.
Semi-natural	Forest / Other wooded land of native species, established through planting, seeding or assisted natural regeneration.
Productive plantation	Forest / Other wooded land of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods.
Protective plantation	Forest / Other wooded land of native or introduced species, established through planting or seeding mainly for provision of services.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Programme in Tanzania 2001-2010: Ministry of Natural Resources and Tourism, Forestry and Beekeeping Division	M	Plantation areas		

4.2.2 Classification and definitions

4.2.3 Original data

According to Tanzania Forestry Action Plan (1990/91-2007/08), area under plantation is estimated at 150 000 ha. Of theses 80 000 ha is under forests reserves.

4.3 Analysis and processing of national data

4.3.1 Calibration

4.3.2 Estimation and forecasting

4.4 Reclassification into FRA 2005 classes

All forest except plantations is considered modified forests.

4.5 Data for National reporting table T4

FRA 2005 Categories	Area (1000 hectares)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Primary						
Modified natural	41 291	37 168	35 107	22 374	10 628	4 756
Semi-natural						
Productive plantation	150	150	150			
Protective plantation						
TOTAL	**41 441**	**37 318**	**35 257**	22 374	10 628	4 756

5 Table T5 – Growing stock

5.1 FRA 2005 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Commercial growing stock	The part of the growing stock of species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.

5.2 National data

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
1.**The Centre for Energy, Environment, Science and Technology**, 1999: Climate Change Mitigation in Southern Africa: Tanzania Country Study. Ministry of Energyy and Minerals, Tanzania	M	Vol/ha by vegetation classes		

5.2.2 Classification and definitions

Note: If different national data sources use different classes and definitions, a table such as above is needed for each relevant data source.

5.2.3 Original data

	Area in hectares			
National Classes	**1947**	**1956**	**1976**	**1990**
Tropical closed forests	7 727	1 885	1 455	1 100
Mangrove forests	93	80	80	80
Miombo woodlands	35 392	38 706	26 702	25 616
Wooded Grassland	19 746	20 037	14 205	16 662
Total	62 958	60 708	42 442	43 458

Volume per ha as given by source 1

National Categories (1)	Area 1000 ha	Avg m3/ha
Miombo woodlands	35 414	32
Closed Forest	1 100	185
Mangrove	120	120
Total Forest	**36 634**	**37**
Shrubs and thickets	525	10

Notes: Figures in this table do not coincide with the 1990 figures provided above as source 1 above got them from a different source

5.3 Analysis and processing of national data

5.3.1 Estimation and forecasting

Estimating and forecasting the above table and calibrating to align the area of forests in T5 with T1 gives:

Source:1

National classes	Area in hectares		
	1990	2000	2005
Tropical closed forests	1 048 951	941 163	837 376
Mangrove forests	76 287	85 420	87 393
Miombo woodlands	24 427 203	21 299 113	19 607 506
Wooded Grassland	15 888 743	14 992 701	14 724 728
Total forests	**41 441 184**	**37 318 397**	**35 257 003**
OWL	22 374	10 628	4 756

Applying average volume per ha to the table above to obtain growing stock gives:

Estimation of total growing stock

	Grow. stock	Growing stock (million m3)		
National Classes	m3/ha	1990	2000	2005
Tropical closed forests	185	194.06	174.12	154.91
Mangrove forests	120	9.15	10.25	10.49
Miombo woodlands	32	781.67	681.57	627.44
Wooded Grassland	32	508.44	479.77	471.19
Total Forest		**1 493**	**1 346**	**1 264**
Shrubs and thickets	10	223.74	106.28	47.56

Estimation of commercial growing stock

Source: Table T3

	Area in hectares		
	1990	**2000**	**2005**
Area design. for production	29 424 363	26 497 072	25 033 426

	Grow.stock	Growing stock (million m3)		
	m3/ha	**1990**	**2000**	**2005**
Total Forest	37	1 089	980	926

5.4 Data for National reporting table T5

FRA 2005 Categories	Volume (million cubic meters over bark)					
	Forest			Other wooded land		
	1990	**2000**	**2005**	**1990**	**2000**	**2005**
Growing stock	1 493	1 346	1 264	223.74	106.28	47.56
Commercial growing stock	1 089	980	926			

Specification of country threshold values	Unit	Value	Complementary information
1. Minimum diameter at breast height of trees included in Growing stock (X)	cm		
2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock	cm		
3. Minimum diameter of branches included in Growing stock (W)	cm		
4. Minimum diameter at breast height of trees in Commercial growing stock (Z)	cm		
5. Volume refers to “Above ground” (AG) or “Above stump” (AS)	AG / AS		
6. Have any of the above thresholds (points 1 to 4) changed since 1990	Yes/No		
7. If yes, then attach a separate note giving details of the change	Attachment		

6 Table T6 – Biomass stock

6.1 FRA 2005 Categories and definitions

Category	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All living biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood biomass	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.

6.2 National data

6.2.1 Data sources

T5 is used as an input

6.2.2 Classification and definitions

6.2.3 Original data

National classes	Area in hectares		
	1990	2000	2005
Tropical closed forests	1 048 951	941 163	837 376
Mangrove forests	76 287	85 420	87 393
Miombo woodlands	24 427 203	21 299 113	19 607 506
Wooded Grassland	15 888 743	14 992 701	14 724 728
Total forests	**41 441 184**	**37 318 397**	**35 257 003**
OWL	22 374	10 628	4 756

Source: Table T5

6.3 Analysis and processing of national data

Conversion factors used

FRA 2005 Categories	Stem vol.	Density	BEF	R/S ratio	D/L ratio
	m3/ha	ton/m3			
Tropical closed forests	185	0.58	2.33	0.24	0.14
Mangrove forests	120	0.58	2.90	0.24	0.14
Miombo woodlands	32	0.58	5.67	0.24	0.14
Wooded Grassland	32	0.58	5.67	0.24	0.14
Shrubs and thickets (OWL)	10	0.58	9.00	0.48	0.14

Calculation of above-ground biomass

National Classes	Biomass (million tonnes)		
	1990	**2000**	**2005**
Tropical closed forests	275	227	198
Mangrove forests	16	17	17
Miombo woodlands	2,696	2,158	1,954
Wooded Grassland	1,753	1,519	1,467
Total Forest	**4,740**	**3,920**	**3,636**
Shrubs and thickets (OWL)	1 168	555	248

Calculation of below-ground biomass

National Classes	Biomass (million tonnes)		
	1990	**2000**	**2005**
Tropical closed forests	66.00	54.36	47.57
Mangrove forests	3.88	3.98	4.01
Miombo woodlands	646.97	517.85	468.86
Wooded Grassland	420.82	364.52	352.10
Total Forest	**1 138**	**940.72**	**872.54**
Shrubs and thickets (OWL)	560.60	266.31	119.16

Calculation of dead wood biomass

National Classes	Biomass (million tonnes)		
	1990	**2000**	**2005**
Forest	822.91	680.45	631.13
Shrubs and thickets (OWL)	241.99	114.96	51.44

6.4 Data for National reporting table T6

FRA 2005 Categories	Biomass (million metric tonnes oven-dry weight)					
	Forest			Other wooded land		
	1990	**2000**	**2005**	**1990**	**2000**	**2005**
Above-ground biomass	4 740	3 920	3 636	1,168	555	248
Below-ground biomass	1 138	940.72	872.54	561	266	119
Dead wood biomass	822.91	680.45	631.13	242	115	51
TOTAL	**6 701**	**5 541**	**5 139**	**1 971**	**936**	**419**

Thresholds used by the country are the following:

7 Table T7 – Carbon stock

7.1 FRA 2005 Categories and definitions

Category	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all living biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood biomass	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than a minimum diameter chose by the country for lying dead (for example 10 cm), in various states of decomposition above the mineral or organic soil. This includes the litter, fumic, and humic layers.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

7.2 National data

7.2.1 Data sources

7.3 Analysis and processing of national data

7.4 Data for National reporting table T7

FRA 2005 Categories	Carbon (Million metric tonnes)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Carbon in above-ground biomass	2,370	1,960	1,818	584	277	124
Carbon in below-ground biomass	569	470	436	280	133	60
Sub-total: Carbon in living biomass	**2,939**	**2,430**	**2,254**	**864**	**411**	**184**
Carbon in dead wood	411	340	316	121	57	26
Carbon in litter						
Sub-total: Carbon in dead wood and litter						
Soil carbon to a depth of _____ cm						
TOTAL CARBON	**3 350**	**2 770**	**2 570**	**985**	**468**	**209**

8 Table T8 – Disturbances affecting health and vitality

8.1 FRA 2005 Categories and definitions

Category	Definition
Disturbance by fire	Disturbance caused by wildfire, independently whether it broke out inside or outside the forest/OWL.
Disturbance by insects	Disturbance caused by insect pests that are detrimental to tree health.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as a bacteria, fungi, phytoplasma or virus.
Other disturbance	Disturbance caused by other factors than fire, insects or diseases.

8.2 National data

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
department of Forestry and Beekeeping (FBD), 2001	H	Fire	1990-2000	

8.2.2 Original data

Over a 10 year period from 1990/91 to 1999/2000 in plantation forests:

Year	Fire Incidences	Affected area in ha
1990/91	22	1002
1991/92	28	964
1992/93	17	1934
1993/94	19	6735
1994/95	12	2614
5 year average (1993)		**2649.8**
1995/96	23	3042
1996/97	45	2076
1997/98	17	632
1998/99	40	4637
1999/00	33	35237
5 year average (1998)		**9124.8**

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

8.4 Reclassification into FRA 2005 classes

	Area in hectares	
	1990	**2000**
Plantation Fire	2649.8	9124.8

Notes: The average for 1993 has been used for 1990 and the average for 1998 for 2000

8.5 Data for National reporting table T8

FRA-2005 Categories	**Average annual area affected (1000 hectares)**			
	Forests		**Other wooded land**	
	1990	**2000**	**1990**	**2000**
Disturbance by fire	3	9	ID	ID
Disturbance by insects	ID	ID	ID	ID
Disturbance by diseases	ID	ID	ID	ID
Other disturbance	3	9	ID	ID

8.6 Comments to National reporting table T8

9 Table T9 – Diversity of tree species

9.1 FRA 2005 Categories and definitions

Category	Definition
Number of native tree species	The total number of native tree species that have been identified within the country.
Number of critically endangered tree species	The number of native tree species that are classified as "Critically endangered" in the IUCN red list.
Number of endangered tree species	The number of native tree species that are classified as "Endangered" in the IUCN red list.
Number of vulnerable tree species	The number of native tree species that are classified as "Vulnerable" in the IUCN red list.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
www.iucn.org IUCN 2004. *2004 IUCN Red List of Threatened Species*	H	vulnerable, Critically endangered and threatened species	2000	

9.2.2 Classification and definitions

9.2.3 Original data

FRA 2005 Categories	Number of species (year 2000)
Native tree species	ID
Critically endangered tree species	8
Endangered tree species	35
Vulnerable tree species	49

9.3 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	ID
Critically endangered tree species	8
Endangered tree species	35
Vulnerable tree species	49

9.4 Comments to National reporting table T9

Endangered

1 Aerisilvaea sylvestris
2 Baikiaea ghesquiereana
3 Baphia pauloi
4 Baphia puguensis
5 Bussea eggelingii
6 Canthium rondoense
7 Cladolejeunea aberrans
8 Cola lukei
9 Cuviera schliebenii
10 Cynometra lukei
11 Cynometra ulugurensis
12 Diospyros magogoana
13 Diospyros shimbaensis
14 Ehretia glandulosissima
15 Euphorbia wakefieldii
16 Fernandoa lutea
17 Garcinia bifasciculata
18 Gigasiphon macrosiphon
19 Isolona heinsenii
20 Leptactina papyrophloea
21 Lovoa swynnertonii
22 Mimusops penduliflora
23 Monotes lutambensis
24 Renauldia lycopodioides
25 Rhus brenanii
26 Rytigynia longipedicellata
27 Synsepalum subverticillata
28 Tapiphyllum schliebenii
29 Tessmannia densiflora
30 Turraea kimbozensis
31 Uvariodendron pycnophyllum
32 Vismia pauciflora
33 Warburgia elongata
34 Xylopia latipetala
35 Ziziphus robertsoniana

Vulnerable

1 Adenopodia rotundifolia
2 Allanblackia stuhlmannii
3 Allanblackia ulugurensis
4 Allophylus zimmermannianus
5 Aloe ballyi
6 Alsodeiopsis schumannii
7 Angylocalyx braunii
8 Aoranthe penduliflora
9 Aristogeitonia monophylla
10 Baphia kirkii
11 Baphia macrocalyx
12 Baphia semseiana
13 Bauhinia loeseneriana
14 Beilschmiedia kweo
15 Beilschmiedia ugandensis
16 Berlinia orientalis
17 Bersama rosea
18 Bertiera pauloi
19 Buxus obtusifolia
20 Camptolepis ramiflora
21 Campylospermum scheffleri
22 Canthium impressinervium
23 Canthium robynsianum
24 Canthium shabanii
25 Canthium siebenlistii
26 Canthium vollensenii
27 Casearia engleri
28 Cephalosphaera usambarensis
29 Chassalia albiflora
30 Chytranthus obliquinervis
31 Coffea costatifructa
32 Coffea mongensis
33 Coffea pocsii
34 Coffea pseudozanguebariae
35 Coffea zanguebariae
36 Cola scheffleri
37 Colpodium chionogeiton
38 Craterispermum longipedunculatum
39 Croton dictyophlebodes
40 Croton jatrophoides
41 Cuviera migeodii
42 Cuviera tomentosa
43 Cynometra brachyrrhachis
44 Cynometra engleri
45 Cynometra longipedicellata
46 Cynometra suaheliensis
47 Cynometra webberi
48 Dalbergia acariiantha
49 Dalbergia vacciniifolia

Critically endangered

1 Calodendrum eickii
2 Combretum tenuipetiolatum
3 Cynometra filifera
4 Cynometra gillmanii
5 Ficus faulkneriana
6 Holmskioldia gigas
7 Platypterocarpus tanganyikensis
8 Sorindeia calantha

10 Table T10 – Growing stock composition

10.1 FRA 2005 Categories and definitions

List of species names (scientific and common names) of the ten most common species.

10.2 National data

10.2.1 Data sources

Insufficient data

10.2.2 Original data

10.3 Analysis and processing of national data

10.3.1 Calibration

10.3.2 Estimation and forecasting

10.4 Data for National reporting table T10

11 Table T11 – Wood removal

11.1 FRA 2005 Categories and definitions

Category	Definition
Industrial wood removal	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removal	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
FAO year book	M	Industrial wood, Fuelwood	1990 2000	

11.2.2 Classification and definitions

11.2.3 Original data

Year	Industrial Wood	Fuel Wood
1988	1 868 000	18 359 400
1989	1 905 000	18 424 256
1990	1 946 000	18 567 195
1991	1 988 000	18 921 098
1992	2 269 000	19 432 612
5 year Avg	**1 995 200**	**18 740 912**
1998	2 280 000	20 678 131
1999	2 314 000	20 737 167
2000	2 314 000	20 786 647
2001	2 314 000	20 950 514
2002	2 314 000	21 124 758
5 year Avg	**2 307 200**	**20 855 443**

Converting to over bark by multiplying by 1.15 gives:

Year	Industrial Wood	Fuel Wood
1988	2 148 200	21 113 310
1989	2 190 750	21 187 894
1990	2 237 900	21 352 274
1991	2 286 200	21 759 262
1992	2 609 350	22 347 503
5 year Avg (1990)	**2 294 480**	**21 552 049**
1998	2 622 000	23 779 850
1999	2 661 100	23 847 742
2000	2 661 100	23 904 644
2001	2 661 100	24 093 091
2002	2 661 100	24 293 472
5 year AVG (2000)	2 653 280	23 983 760

11.3 Analysis and processing of national data

11.3.1 Estimation and forecasting

FRA 2005 Categories	Wood removal in cubic meters		
	1990	2000	2005
Industrial Wood	2 294 480	2 653 280	2 832 680
Fuel Wood	21 552 049	23 983,760	25 199 615
Total	**23 846 529**	**26 637 040**	**28 032 295**

11.4 Reclassification into FRA 2005 classes

11.5 Data for National reporting table T11

FRA 2005 Categories	Volume in 1000 cubic meters of roundwood over bark					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	2 294	2 653	2 833			
Woodfuel	21 552	23 984	25 200			
TOTAL for Country	**23 847**	**26 637**	**28 032**			

11.6 Comments to National reporting table T11

12 Table T12 – Value of wood removal

12.1 FRA 2005 Categories and definitions

Category	Definition
Value of industrial wood removal	Value of the wood removed for production of goods and services other than energy production (woodfuel).
Value of woodfuel removal	Value of the wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

12.2 National data

12.2.1 Data sources

12.2.2 Classification and definitions

12.2.3 Original data

12.3 Analysis and processing of national data

12.4 Data for National reporting table T12

FRA 2005 Categories	Value of roundwood removal (1000 USD)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	ID	ID	ID	ID	ID	ID
Woodfuel	ID	ID	ID	ID	ID	ID
TOTAL for Country	ID	ID	ID	ID	ID	ID

12.5 Comments to National reporting table T12

13 Table T13 – Non-wood forest product removal

13.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
Plant products / raw material
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
Animal products / raw material
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

13.2 National data

13.2.1 Data sources

References to sources of information	**Quality (H/M/L)**	**Variable(s)**	**Year(s)**	**Additional comments**
Pilot country study – Tanzania:Proceedings of Non-Wood Forest Products - A Regional Expert Consultation for English-Speaking African Countries:Arusha, Tanzania 17-22 October 1993 Series Number CSC(94)AGR-21 Technical Paper 306	M	NWFP	1988-1992	

13.2.2 Classification and definitions

13.2.3 Original data

Species	Product	Year	Unit	Quantity	Value in US$	Importing countries (Where known)
7. Exudates						
A. mearnsii	Wattle Mimosa extract	1985	T	5 026.00	-	-
		1985	T	3 889.00	153 706	-
A. mearnsii	Wattle mimosa extract	1986	T	2 902.90	-	-
			T	2 439.00	65 325	-
Acacia spp.	Gum arabic	1986	T	383.8	255 000	-
A. mearnsii	Wattle mimosa extract	1987	T	3 497.00	-	-
		1987	T	4 985.00	61 138	-
Acacia spp.	Gum arabic	1987	T	283.9	312 138	-
A. mearnsii	Wattle mimosa extract	1988	T	3 350.00	-	-

7.Exudates

SPECIES	Product	Year	Unit	Quantity	Value in US$	Importing countries (Where known)
Acacia seyal, A. Senegal, A spirocarpa	Gum arabic	1989	T	503.3	262 646	Australia, GFR, India, Sri Lanka
A. Mearnsii	Wattle mimosa extract	1989	T	4 305.00	-	-
				1 648.40	4 370 988	Thailand, USA Zambia, Canada
Acacia mearnsii	Wattle mimosa extract	1990	T	5 538.15	-	-
Acacia spp.	Gum arabic	1990	T	740.20	370 100	India, GFR, Austria
Acacia senegal, A. spirocarpa etc.	Gum arabic	1991	T	385.54	904 110	Austria, GFR, India
Acacia mollissima (A. mearnsii)	Wattle mimosa extract	1991	T	5 466.51	-	-
			T	4 282.67	2 854 260	Italy, Egypt, Pakistan, Kenya, Thailand, USA, Canada, Zambia, Bangladesh
Acacia mearnsii	Wattle mimosa extract	Jan/June 1992	T	1 114.50	1 787 330	Thailand, USA, Cuba, Pakistan, India
Acacia seyal. A. senegal, A. spirocarpa	Gum arabic	Jan/June 1992	T	311.85	99 150	GFR, India, Austria

Species	**Product**	**Year**	**Unit**	**Quantity**	**Value in US$**	**Importing Countries (Where Known)**
11. Wild honey and bee-wax						
Miombo woodland tree species	Honey	1985	T	1	750	U A E
	Bees wax	1985	T	66.7	168 084	GFR, Japan
Julbernadia, Acacia,	Honey	1986	T	3	2 250	Kuwait
Combretum, Brachystegia spp.	Bees wax	1986	T	21.7	58 590	-
Miombo woodland spp	Honey	1988	T	20.5	23 475	Kuwait, UAE, Saudi Arabia
Coffee plantations	Bees wax	1988	T	324	792 514	GFR, Japan, UK
Julbernadia, Brachystegia,	Honey	1989	T	62.00	14 565	UAE, UK, Sweden
Isoberlinia Acacia, Combretum etc.	Bees wax	1989	T	221.10	510 231	GFR, France, UK, Japan
Miombo woodland spp.	Honey	1990	T	36.0	78 100	UAE, UK
	Bees wax	1990	T	234.0	565 540	UK, GFR, Japan
Brachystegia, Julbernadia, Isoberlinia, Acacia, Terminalia, Dombeya and Parinari spp.	Honey	1991	T	140.60	116 790	UAE, Saudi Arabia
Dombeya, Parinari and other Miombo spp.	Beeswax	1991	T	473.87	2 450 450	GFR, Japan, UK,
Julbernadia, Brachystegia,	Honey	Jan/June 1992	T	262.26	-	UAE, Kuwait, Saudi Arabia, UK, Sweden
Combretum,	Beeswax		T	265.00	719 490	UK, GFR, Japan

Animal Trophies

Species	Product	Year	Unit	Quantity	Value in US$	Importing Countries (Where Known)
- Elephants	Ivory	1988	T	2.54373	254 373	Belgium, GFR, USA, UK
- Crocodiles	Crocodile skins	1988	No.	1.00	500	UK
- Zebras	Zebra skins	1988	No.	3.00	3 000	Canada
- Elephants	Ivory	1989	T	1.6095	160 950	Australia, Belgium
- Crocodiles	Crocodile skins	1989	Nos.	142.00	131 928	France, UK, USA
- Zebras	Zebra skins	1989	Nos.	7.00	7 000	Canada, GFR, Spain
- Hippopotamus	Hippo teeth	1989	T	65.86	34 983	Belgium, Spain, France
- Ostriches, parrots	Birds skins and Feathers	1989	T	400.00	963	Norway, UK, Australia
- Tortoise	Tortoise shells	1989	T	0.022	1 219	UK, Italy, Pakistan
- Colubus & vervet monkeys otter	Fur skins	1989	T	3 912.00	57 474	Hong Kong, India, Pakistan
- Elephants	Ivory	1990	T	4.92925	492 925	Belgium, GFR, India
- Zebras	Zebra skins	1990	Nos.	10.00	10 000	Canada, Spain
- Elephants, Zebras, Lions, Leopards, Pythons, Cheetah	Ivory and skins	1991	T	255.67	1 012 770	Australia, Belgium, GFR, Japan
Animal Trophies:	Various	Jan/June 1992	T	222.30	1 337 710	Japan, GFR, Belgium, Norway

Notes: 1.Sum of quantities in tons only
2. Value include all products

Live Animals

Species	Product	Year	Unit	Quantity	Value in US$	Importing Countries (Where Known)
- Ostriches	Birds	1988	Nos.	92 000.00	794 465	Belgium, UK, Portugal
- Vervet monkeys, Gazelles, Impalas etc.	Mammals (small)	1988	Nos.	353.00	18 470	USA, GFR, UK
- Crocodiles, snakes	Reptiles	1988	Nos.	1 036.00	42 350	Soviet Union, Saudi Arabia, Japan
- Termites, grasshoppers, millipedes	Insects and Anthropads	1988	Nos.	380.00	390	Netherlands, Italy
- Frogs	Frogs (Amphibians)	1988	Nos.	90.00	90	Japan, Hong-Kong
- Ostriches, Love birds, parrots	Birds	1989	Nos.	9 000.00	983 865	Japan, Netherlands
- Vervet Monkeys, Serval cat, Impala	Mammals	1989	Nos.	1 361.00	33 540	USA, Belgium, UK
Crocodiles, snakes	Reptiles	1989	Nos.	2 084.00	39 165	UK, France, USA
- Termites, grasshoppers etc.	Insects	1989	Nos.	200.00	200	Portugal, Saudi Arabia
- Ostrich, Flamingo, Love birds, Guinea fowl, Parrots	Birds	1990	Nos.	91 200.00	3 803 475	UK, Australia

- Vervet monkeys, Impala, Gazelle	Mammals	1990	Nos.	779.00	104 495	UK, France, USA, Japan
- Crocodiles snakes,	Reptiles	1990	Nos.	1 272.00	49 715	UK, France, USA
- Termites, grasshoppers	Insects and Anthropad	1990	Nos.	904.00	5 504	-
- Ostrich, Parrots, Love birds	Birds	1991	Nos.	135 159.00	346 810	Hong-Kong, Japan
- Ostrich, Guinea-fowl, Parrots, Flamingo, lovebird	Birds	Jan/June 1992	Nos.	22 108.00	47 550	Hong-Kong, Japan
- Vervet monkeys Gorillas, Impala, Gazelles	Mammals	Jan/June 1992	Nos.	112.00	32 170	Japan, USA, GFR, UK

13.3 Analysis and processing of national data

Exudates

Product	**Quantity (T)**				
	1989	**1990**	**1991**	**1992**	**Average**
Wattle Mimosa extract	5953	5538	9749	1115	5589
Gum Arabic	503	740	386	312	485
Average 1990					**6074**

Wild honey and beeswax

Product	**Quantity (T)**				
	1989	**1990**	**1991**	**1992**	**Average**
Honey	62	36	141	262	125
Beeswax	221	234	474	265	298
Average 1990					**424**

Skins, hides and trophies

Product	Quantity					
	1988	**1989**	**1990**	**1991**	**1992**	**Average**
Ivory (T)	2.54373	1.610	4.929			3
Crocodile skins (Nos)	1	142				
Zebra skins (Nos)	3	7	10.000			7
Other (T)		4377.882		255.67	222.3	1619
Average 1990						**ID**

It is not possible to generate a reliable average for skins, hides and trophies.

Living animals

Product		Quantity					
		1988	**1989**	**1990**	**1991**	**1992**	**Average**
Birds	Nos.	92 000	9 000	91 200	135 159	22 108	69 893
Mammals	Nos.	353	1 361	779		112	521
Reptiles	Nos.	1 036	2 084	1272			878.4
Insects	Nos.	380	200				
Insects and Arthropods	Nos.					904	180.8
Average 1990							**71 474**

13.4 Data for National reporting table T13

FRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	**2000**	**2005**
Plant products / raw material			ID	ID	ID
1. Food			ID	ID	ID
2. Fodder			ID	ID	ID
3. Raw material for medicine and aromatic products			ID	ID	ID
4. Raw material for colorants and dyes			ID	ID	ID
5. Raw material for utensils, handicrafts & construction			ID	ID	ID
6. Ornamental plants				ID	ID
7. Exudates	1000	tons	**6**	ID	ID
8. Other plant products			ID	ID	ID
			ID	ID	ID
Animal products / raw material			ID	ID	ID
9. Living animals	1000	No.	**71**	ID	ID
10. Hides, skins and trophies			ID	ID	ID
11. Wild honey and bee-wax	1000	T	**0.424**	ID	ID
12. Bush meat			ID	ID	ID
13. Raw material for medicine			ID	ID	ID
14. Raw material for colorants			ID	ID	ID
15. Other edible animal products			ID	ID	ID
16. Other non-edible animal products			ID	ID	ID

It is not possible to generate a reliable average for skins, hides and trophies.

14 Table T14 – Value of non-wood forest product removal

14.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
Plant products / raw material
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
Animal products / raw material
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

14.2 National data

14.2.1 Data sources

Same as T13

14.2.2 Original data

From T13

14.3 Analysis and processing of national data

Exudates

Product	**Value (US$)**			
	1985	**1986**	**1987**	**Average**
Wattle Mimosa extract	153 706	65 325	61 138	93 390
Gum Arabic		255 000	312138	283 569
Average 1986	**153 706**	**320 325**	**373 276**	**376 959**

Wild honey and beeswax

Product	**Value (US$)**				
	1989	**1990**	**1991**	**1992**	**Average**
Honey	14 565	78 100	116 790		1 245 225
Beeswax	510 231	565 540	2 450 450	719 490	1 061 428
Total					**2 306 653**

]

Hides, skins and trophies

Product	Value (US$)					
	1988	**1989**	**1990**	**1991**	**1992**	**Average**
Ivory (T)						0
Crocodile skins (Nos)						
Zebra skins (Nos)						
Other (T)						
Average 1990	**257873**	**394517**	**502925**	**1012770**	**1337710**	**701159**

Living animals

	Value (US$)					
Products	**1988**	**1989**	**1990**	**1991**	**1992**	**Average**
Birds	794 465	983 865	3 803 475			1 116 361
Mammals	18 470		104 495		32 170	31 027
Insects and Arthropods	390	200	5504			1 100.8
Total	**812 935**	**983 865**	**3 913 474**		**32 170**	**1 148 488.8**

14.4 Reclassification into FRA 2005 classes

14.5 Data for National reporting table T14

FRA 2005 Categories	Value of the of NWFP removed (1000 USD)		
	1990	**2000**	**2005**
Plant products / raw material 1. Food			
2. Fodder			
3. Raw material for medicine and aromatic products			
4. Raw material for colorants and dyes			
5. Raw material for utensils, handicrafts & construction			
6. Ornamental plants			
7. Exudates	377		
8. Other plant products			
Animal products / raw material 9. Living animals	1 148		
10. Hides, skins and trophies	701		
11. Wild honey and bee-wax	2 307		
12. Bush meat			
13. Raw material for medicine			
14. Raw material for colorants			
15. Other edible animal products			
16. Other non-edible animal products			
TOTAL	**4 533**		

15 Table T15 – Employment in forestry

15.1 FRA 2005 Categories and definitions

Category	Definition
Primary production of goods	Employment in activities related to primary production of goods, like industrial roundwood, woodfuel and non-wood forest products.
Provision of services	Employment in activities directly related to services from forests and woodlands.
Unspecified forestry activities	Employment in unspecified forestry activities.

15.2 National data

15.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Trends and current status of the contribution of the forest sector to national economies"(FAO, 2003),		Employment in forestry, logging and related services		

15.2.2 Classification and definitions

15.2.3 Original data

15.3 Analysis and processing of national data

15.4 Reclassification into FRA 2005 classes

15.5 Data for National reporting table T15

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods	3.7	3.6
Provision of services	ID	ID
Unspecified forestry activities	ID	ID
TOTAL	3.7	3.6

15.6 Comments to National reporting table T15

16 Thematic reporting tables

If countries would like to submit additional reporting tables, these should be included here. (See the chapter on thematic reporting in the Guidelines for Country Reporting).