



**Forestry Department**

Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES  
ASSESSMENT

COUNTRY REPORTS

SOMALIA

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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](http://www.fao.org/forestry/fra2005)).

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The Global Forest Resources Assessment 2005 Country Report Series is designed to document and make available the information forming the basis for the FRA 2005 reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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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 <i>in situ</i> . 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 <i>in situ</i> ; 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
FAO. 1988. Interim Report. FAO	M	Forestry Cover	1980	

#### 1.2.2 Classification and definitions

National class	Definition
Closed Forest	Closed Forest defined by FAO FRA 1980 ( Formation where trees in the various storeys and the undergrowth cover a high proportion (> 40%) of the ground and do not have a continuous dense grass layer (cf. following the definition). They are either managed or unmanaged forests , primary or in advanced state of reconstitution and may have been logged-over one or more times, having kept their characteristics of forest stands, possibly with modified structure and composition. Typical examples of tropical closed forest formations include tropical rain forest and mangrove forest.
Open Forests	Formations with discontinuous tree layer but with a coverage of at least 10% and less than 40%. Generally there is a continuous grass layer allowing grazing and spreading of fires. (example are various forms of cerrado, and chaco in Latin America, wooded savannahs and woodlands in Africa

### 1.2.3 Original data

1980

National Class	Area in 1000 ha
Closed Forest	1 537
Open Forests	7 510
Plantations	3
Total Forests	9 050
Other land	54 716
<b>Total Country Area</b>	<b>63 766</b>

## 1.3 Analysis and processing of national data

### 1.3.1 Estimation and forecasting

The annual deforestation rate of 76 922 ha used for FRA 2000 has been used to estimate the forest cover for 1990 and 2000. Figures for 2005 were extrapolated.

FRA 2005 Categories	Area in hectares			
	1980	1990	2000	2005
Forest	9 050 000	8 282 429	7 514 858	7 131 073
Other land	54 716 000	55 483 571	56 251 142	56 634 928
Total	63 766 000	63 766 000	63 766 000	63 766 000

## 1.4 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Forest	8 282	7 515	7 131
Other wooded land			
Other land	54 452	55 219	55 603
...of which with tree cover <sup>1)</sup>			
Inland water bodies	1 032	1 032	1 032
<b>TOTAL</b>	<b>63 766</b>	<b>63 766</b>	<b>63 766</b>

- 1) Area of "Other land with tree cover" is included in the area reported under "Other land" and should therefore be excluded when calculating the total area for the country.

## 1.5 Comments to National reporting table T1

- There has been no forest inventory in Somalia since the 1980s. The records that were kept by the forestry department have been destroyed during the civil war.
- From 2000 to 2005, the annual area loss resulting from deforestation and other factors have been estimated at 1%, with the expectation of continuous charcoal exports. It is noteworthy that charcoal exports started in 1997.
- According to a study on charcoal production conducted in some northern regions showed that 50% of the trees used for charcoal production in these areas are live trees. These areas are known for low and highly fluctuated rainfall, what may cause a delay in regeneration and the recovering process of the forest resources.

## 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 Original data

All forest areas are publicly owned. T1 is used as input:

### 2.3 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership				
Public ownership	8 282	7 515		
Other ownership				
<b>TOTAL</b>	<b>8 282</b>	<b>7 515</b>		

### 2.4 Comments to National reporting table T2

In southern regions where deforestation and charcoal burning is, highly practiced, frequent clashes that link with competition for the resources erupt between interest groups; and a new type of ownership “guided by militia forces” has emerged. No data is available on the extent of this “ownership”.

### 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 Original data

T1 is used as an input. The plantation area in 1980 (3 300 ha) is considered to have remained constant.

#### 3.3 Reclassification into FRA 2005 classes

Plantations are assumed to be for production purpose and any other forests area multipurpose, giving the following results:

	Area in hectares		
	1990	2000	2005
Productive plantations	3 300	3 300	3 300
Multipurpose	8 279 129	7 511 558	7 127 773
<b>Total</b>	<b>8 282 429</b>	<b>7 514 858</b>	<b>7 131 073</b>

### 3.4 Data for National reporting table T3

FRA 2005 Categories / Designated function	Area (1000 hectares)					
	Primary function			Total area with function		
	1990	2000	2005	1990	2000	2005
<b>Forest</b>						
Production	3	3	3			
Protection of soil and water						
Conservation of biodiversity						
Social services						
Multiple purpose	8 279	7 512	7 128	not appl.	not appl.	not appl.
No or unknown function				not appl.	not appl.	not appl.
<b>Total - Forest</b>	<b>8 282</b>	<b>7 515</b>	<b>7 131</b>	<b>not appl.</b>	<b>not appl.</b>	<b>not appl.</b>
<b>Other wooded land</b>						
Production						
Protection of soil and water						
Conservation of biodiversity						
Social services						
Multiple purpose				not appl.	not appl.	not appl.
No or unknown function				not appl.	not appl.	not appl.
<b>Total – Other wooded land</b>				<b>not appl.</b>	<b>not appl.</b>	<b>not appl.</b>

## 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 Original data

T3 is used as input

### 4.3 Reclassification into FRA 2005 classes

All plantations are classified as productive plantation and all other forests as modified natural forests.

### 4.4 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	8 279	7 512	7 128			
Semi-natural						
Productive plantation	3	3	3			
Protective plantation						
<b>TOTAL</b>	<b>8 282</b>	<b>7 515</b>	<b>7 131</b>			

## 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
Herzog M., Photo report on forestry. <a href="http://www.brainworker.ch/reports/Somaliland/Somali%20background.htm">http://www.brainworker.ch/reports/Somaliland/Somali%20background.htm</a>	M	Average Vol/ha	1980	

#### 5.2.2 Original data

National Classes	Area in km <sup>2</sup>	Growing stock in million cubic meters
Forest	512	5.7
woodland	74116	115.3
bushed woodland	19400	38.2
wooded bushland	170300	426
<b>Total</b>	<b>264328</b>	<b>585.2</b>
<b>Vol/ha</b>		<b>22</b>

Table 3 will be used as an input to this table

FRA 2005 Categories	Area in 1000 hectares			vol/ha
	1990	2000	2005	22
Modified Forest	8 279	7 512	7 128	
Productive Forest	3.3	3.3	3.3	
<b>Total</b>	<b>8 282</b>	<b>7 515</b>	<b>7 131</b>	

### 5.3 Analysis and processing of national data

### 5.3.1 Estimation and forecasting

Total area of forests for 1990, 2000 and 2005 was multiplied by vol/ha to obtain growing stock for each respective year.

FRA 2005 Categories	Growing stock in 1000 cubic meters			Vol/ha
	1990	2000	2005	
Forest	182 204	165 330	156 882	22
Commercial (1)	72.6	72.6	72.6	

Notes:

1. Assumption: Area under productive forests = Commercial Forests

### 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	182	165	157	0	0	0
Commercial growing stock	0.073	0.073	0.073	0	0	0

## 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 Original data

Growing stock data from T5 are used as input.

### 6.3 Analysis and processing of national data

The following conversion factors were used and applied directly to the growing stock data in table T5:

Density (ton/m <sup>3</sup> )	BEF	Root/Shoot ratio	Dead/Live ratio
0.58	6.9	0.24	0.14

- (1) Wood density: Average for Africa (FAO Forestry Paper 134)
- (2) BEF calculated using formula from FAO Forestry Paper 134
- (3) R/S ratio: Appendix 5 of Guidelines
- (4) D/L ratio: Appendix 5 of Guidelines

### 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	724	657	623			
Below-ground biomass	174	158	150			
Dead wood biomass	126	114	108			
<b>TOTAL</b>	<b>1024</b>	<b>929</b>	<b>881</b>			

## 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, fomic, 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

T6 was used as an input and a conversion factor of 50% was used.

### 7.3 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	362.1	328.5	311.8			
Carbon in below-ground biomass	86.9	78.9	74.8			
<b>Sub-total: Carbon in living biomass</b>	<b>449.0</b>	<b>407.4</b>	<b>386.6</b>			
Carbon in dead wood	62.9	57.0	54.1			
Carbon in litter						
<b>Sub-total: Carbon in dead wood and litter</b>						
Soil carbon to a depth of _____ cm						
<b>TOTAL CARBON</b>	<b>511.9</b>	<b>464.4</b>	<b>440.7</b>			

## **8 Table T8 – Disturbances affecting health and vitality**

No information is available to provide estimates for this reporting table

## 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
<a href="http://www.iucn.org">www.iucn.org</a> , Redlist of threatened species	H	Endangered, vulnerable species	2000	

#### 9.2.2 Original data

No original data available for the total number of native tree species.

### 9.3 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	n/a
Critically endangered tree species	0
Endangered tree species	3
Vulnerable tree species	14

## 9.4 Comments to National reporting table T9

See Appendix I for a list of some of the available species in Somalia.

### IUCN Redlist

#### **Endangered**

- 1 Dirachma somalensis
- 2 Dracaena ombet
- 3 Hildegardia gillettii

#### **Vulnerable**

- 1 Acacia densispina
- 2 Acacia flagellaris
- 3 Acacia manubensis
- 4 Adenopodia rotundifolia
- 5 Albizia obbiadensis
- 6 Camptolepis ramiflora
- 7 Commiphora alata
- 8 Commiphora chaetocarpa
- 9 Cordeauxia edulis
- 10 Dicraeopetalum stipulare
- 11 Diospyros greenwayi
- 12 Euphorbia noxia
- 13 Euphorbia thulinii
- 14 Livistona carinensis

## **10 Table T10 – Growing stock composition**

No information is available to provide estimates for this reporting table

## 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 forest Product Year book		Industrial Roundwood Fuelwood removal	1988-2002	

#### 11.2.2 Original data

Year	Volume under bark in cubic meters	
	Industrial Roundwood	Wood Fuel
1988	99 000	6 008 706
1989	100 000	6 126 105
1990	101 000	6 264 327
1991	94 000	6 484 632
1992	95 000	6 966 111
1998	106 000	8 534 677
1999	110 000	8 874 382
2000	110 000	9 228 017
2001	110 000	9 522 271
2002	110 000	9 826 520

Multiplying the volume under bark by the 1.15 conversion factor to get over bark volume gives:

Year	Volume over bark in cubic meters	
	Industrial Roundwood	Wood Fuel
1988	113 850	6 910 012
1989	115 000	7 045 021
1990	116 150	7 203 976
1991	108 100	7 457 327
1992	109 250	8 011 028
<b>5- year average (1990)</b>	<b>112 470</b>	<b>7325473</b>
1998	121 900	9 814 879
1999	126 500	10 205 539
2000	126 500	10 612 220
2001	126 500	10 950 612
2002	126 500	11 300 498
<b>5-year average 2000</b>	<b>125 580</b>	<b>10 576 749</b>

### 11.3 Analysis and processing of national data

#### 11.3.1 Estimation and forecasting

FRA 2005 Category	Volume over bark in cubic meters		
	1990	2000	2005
Industrial Roundwood	112 470	125 580	132 135
Wood Fuel	7 325 473	10 576 749	12 202 388
<b>Total</b>	<b>7 437 943</b>	<b>10 702 329</b>	<b>12 334 523</b>

#### 11.4 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	112	126	132			
Woodfuel	7 325	10 577	12 202			
<b>TOTAL for Country</b>	<b>7 437</b>	<b>10 702</b>	<b>12 335</b>			

Notes: It is not clear whether these come from the forests or OWL

## **12 Table T12 – Value of wood removal**

No information is available to provide estimates for this reporting table

## **13 Table T13 – Non-wood forest product removal**

No information is available to provide estimates for this reporting table

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

No information is available to provide estimates for this reporting table

## 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
FAO 2003. Trends and current status of the contribution of the forest sector to national economies	L	Employment	1990, 2000	

#### 15.2.2 Original data

There is no available national data on employment in forestry

According to “Trends and current status of the contribution of the forest sector to national economies” (FAO, 2003), employment in forestry, logging and related services for Somalia was reported at 110 and 94 persons for 1990 and 2000 respectively

### 15.3 Data for National reporting table T15

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods		
Provision of services		
Unspecified forestry activities	0.110	0.094
<b>TOTAL</b>	<b>0.110</b>	<b>0.094</b>

## Appendix I

Below are names of some Somali tree species. (No inventory book available).

1. *Mimusops degan*
2. *Acacia stenocarpa*
3. *Garcinia ferrandii*
4. *Phoenix reclinata*
5. *Terminalia bispindosa*
6. *Tamarindus indica*
7. *Ficus spp*
8. *Hyphaena thebaica*
9. *Afzelia quanzensis*
10. *Cecchia somalensis*
11. *Delonix elata*
12. *Parkia filicoidea*
13. *Juniperus olea*
14. *Buxus hildebranthii*
15. *Cadia purpurea*
16. *Euphorbia abyssinica*
17. *Dodonea viscosa*
18. *Terminalia brownii*
19. *Avicennia marina*
20. *Rhizophora mucronata*
21. *Ceriops somalensis*
22. *Bruguiera gymnorrhiza*
23. *Sonneratia alba*
24. *Xylocarpus obovatus*
25. *Juniperus procera*
26. *Olea Africana*
27. *Sideroxylon buxifolium*
28. *Pistacia spp*
29. *Diospyros cornii*
30. *Termanilia holstii*
31. *Termanilia kelleri*
32. *Termanilia somalensis*
33. *Termanilia spinosa*
34. *Dobora glabra*
35. *Acacia seyal*
36. *Acacia nilotica*
37. *Acacia spirocarpa*
38. *Acacia bussei*
39. *Acacia ethbaica*
40. *Acacia misera*
41. *Acacia socotrana*
42. *Tamarix nilotica*
43. *Ziziphus mauritiana*
44. *Ziziphus mucronata*
45. *Lyptadenia spartium*
46. *Conocarpus lancifolius*
47. *Balanites glabra*
48. *Boswelia carteri*
49. *Boswelia freeriana*
50. *Commiphora spp*
51. *Acacia millifera*
52. *Acacia orfota*
53. *Dichrostachys glomerata*
54. *Grewia spp*
55. *Albizia anthelmintica*