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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 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site ([www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)).

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The Global Forest Resources Assessment Country Report Series is designed to document and make available the information forming the basis for the FRA 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 2010 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
2. CSIR & ARC (2005). National Land-Cover Database 2000. Council for Scientific and Industrial Research and the Agricultural Research Council	H	National Land Cover 2000	2000	Best available data source for national land cover classification in South Africa based on remote sensing and field sample plots. Good compatibility with FRA categories and definitions
3. Forestry South Africa: Forestry FP Industry Facts.2007.	H	Plantation area	1987, 1990, 2000 and 2005	Total plantation area in South Africa during these years.

## 1.2.2 Classification and definitions

### Definitions for land-cover classification in South Africa (CSIR & ARC, 2005)

(Source 1)

National class	Definition
<b>Forest (indigenous)</b>	All wooded areas with a tree canopy > 70 %. A multi-strata community, with interlocking canopies, composed of canopy, sub-canopy, shrub and herb layers. The canopy is composed mainly of self-supporting, single stemmed, woody plants > 5 metres in height. Essentially indigenous species, growing under natural or semi-natural conditions (although it may include some areas of self-seeded exotic species). Excludes planted forests (and woodlots)
<b>Woodland</b> (previously termed <i>Forest &amp; Woodland</i> )	All wooded areas with a tree canopy between 10 - 70%. A broad sparse - open – closed canopy community, typically consisting of a single tree canopy layer and a herb (grass) layer. The canopy is composed mainly of self-supporting, single stemmed, woody plants > 5 metres in height. Essentially indigenous species, growing under natural or semi-natural conditions (although it may include some areas of self-seeded exotic species). Excludes planted forests (and woodlots)  Canopy cover density classes may be mapped if desired, based on sparse (< 40%), open (40 – 70 %), and closed (> 70 %).
<b>Thicket, Bushland, Bush Clumps, High Fynbos</b>	Communities typically composed of tall, woody, self-supporting, single or multi-stemmed plants (branching at or near the ground), with, in most cases no clearly definable structure. Total canopy cover is greater than 10%, with canopy heights between 2 – 5 metres. Essentially indigenous species, growing under natural or semi-natural conditions (although it may include some areas of self-seeded exotic species, especially along riparian zones). Presence of alien exotic species can be modelled spatially using broad principles of unlikely structural / temporal occurrences within a given vegetation biome or region. Dense bush encroachment would be included in this category.  Canopy cover density classes may be mapped if desired, based on sparse (< 40%), open (40 – 70 %), and closed (> 70 %).
<b>Shrubland and Low Fynbos</b>	Communities dominated by low, <b>woody</b> , self supporting, multi-5stemmed plants, branching at or near the ground, between 0.2 and 2 m in height. Total tree cover < 0.1 Typical examples are low Fynbos, Karoo and Lesotho (alpine) communities.
<b>Herbland</b>	Communities dominated by low, <b>non-woody</b> , non-grass like plants, between 0.2 and 2 m in height. Total tree cover < 0.1 Typical examples are found in Namaqualand or “weed” dominated degraded areas.
<b>Natural Grassland</b> (previously termed <i>Unimproved Grassland</i> )	All areas of grassland with < 10% tree and/or shrub canopy cover, and >0.1% total vegetation cover. Dominated by grass-like, non-woody, rooted herbaceous plants. <i>Essentially indigenous species growing under natural or semi-natural conditions.</i>
<b>Planted Grassland</b> (previously termed <i>Improved Grassland</i> )	As above, except .... <i>Planted grassland, containing either indigenous or exotic species, growing under man-managed (including irrigated) conditions for grazing, hay or turf production, recreation (i.e. golf) etc</i>
<b>Forest Plantations (Eucalyptus spp)</b>	All areas of systematically planted, man-managed tree resources, composed of primarily exotic species (including hybrids). Category includes both young and mature plantations that have been established for commercial timber production, seedling trials and woodlot /Windbreaks of sufficient size to be identifiable on satellite imagery. Excludes all non-timber based plantations such as tea, sisal, citrus, nut crops etc.
<b>Forest Plantations (Pine spp)</b>	
<b>Forest Plantations (Acacia spp)</b>	
<b>Forest Plantations (Other / mixed spp)</b>	
<b>Forest Plantations (clearfelled)</b>	

<b>Waterbodies</b>	Areas of (generally permanent) open water. The category includes both natural and man-made waterbodies, which are either static or flowing, and fresh, brakish and salt-water conditions. This category includes features such as rivers, major reservoirs, farm-level irrigation dams, permanent pans, lakes and lagoons.
<b>Wetlands</b>	Natural or artificial areas where the water level is permanently or temporarily at (or very near) the land surface, typically covered in either herbaceous or woody vegetation cover. The category includes fresh, brakish and salt-water conditions. Examples include pans (with non-permanent water cover), and reed-marsh or papyrus-swamp. Dry pans are included in this category unless they are <i>permanently</i> dry.
<b>Bare Rock and Soil (natural)</b>	Natural areas of exposed sand, soil or rock with no, or very little vegetation cover during any time of the year, (excluding agricultural fields with no crop cover, and open cast mines and quarries). Examples would include rock outcrops, beach sand, and dry riverbed material.
<b>Bare Rock and Soil (erosion : dongas / gullies)</b>	Non-vegetated areas (or areas of very little vegetation cover <i>in comparison to the surrounding natural vegetation</i> ), that are primarily the result of active gully erosion processes. Typically located in association with areas of poor grassland cover along existing streamlines and / or on slightly steeper slopes than sheet erosion areas (i.e. greater than 6 degree slope). In some areas the full extent of donga activity may be obscured by either overhanging adjacent bushes, encroaching thorn bush, or, in the case of more stable dongas, by bush or grass cover along the actual streamline.
<b>Bare Rock and Soil (erosion : sheet)</b>	Non-vegetated areas (or areas of very little vegetation cover <i>in comparison to the surrounding natural vegetation</i> ), that are primarily the result of active sheet erosion processes. Typically located in association with areas of severe donga erosion and / or poor grassland cover (i.e. low image NDVI rating). In some areas the full extent of this process may be obscured by encroaching bush. Typically located on slopes less than or equal to 6 degrees.
<b>Degraded Forest &amp; Woodland</b>	Permanent or near-permanent, man-induced areas of very low vegetation cover (i.e. removal of tree, bush, or herbaceous cover) <i>in comparison to the surrounding natural vegetation cover</i> . Typically associated with subsistence level agriculture and rural population centres, where overgrazing of livestock and / or wood-resource removal has been locally excessive. Often associated with severe soil erosion problems.
<b>Degraded Thicket, Bushland, etc</b>	
<b>Degraded Shrubland and Low Fynbos</b>	
<b>Degraded Herbland</b>	
<b>Degraded Unimproved (natural) Grassland</b>	
<b>Cultivated, permanent, commercial, irrigated</b>	Land which has been ploughed and / or prepared for the raising of crops (excluding timber production). Unless otherwise stated, includes areas currently under crop, fallow land, and land being prepared for planting. Class boundaries are broadly defined to encompass the main areas of agricultural activity, and are not defined on exact field boundaries. As such all sub-classes may include small inter-field cover types (e.g. hedges, grass strips, small windbreaks), as well as farm infrastructure
<b>Cultivated, permanent, commercial, dryland</b>	Several sub-classes are defined, based on the following parameters :  <u>Commercial</u> : characterised by large, uniform, well managed field units (i.e. $\pm$ 50 ha), with the aim of supplying both regional, national and export markets. Often highly mechanised.
<b>Cultivated, permanent, commercial, sugarcane</b>	<u>Semi-Commercial</u> : characterised by small – medium sized field units (i.e. $\pm$ 10 ha), within an intensively cultivated site, often in close proximity to rural population centres. Typically based on multi-cropping activities where annual (i.e. temporary crops) are produced for local markets.
<b>Cultivated, temporary, commercial, irrigated</b>	Can be irrigated by either mechanical means or gravity-fed channels and furrows. Medium - low levels of mechanisation.
<b>Cultivated, temporary, commercial, dryland</b>	<u>Subsistence</u> : characterised by numerous small field units (less than $\pm$ 10 ha) in close proximity to rural population centres. Field units can either be grouped either intensive or widely spaced, depending on the extent of the area under cultivation and the proximity to rural dwellings and grazing areas. Includes both rainfed and irrigated (i.e. mechanical or gravity-fed), multi-cropping of annuals, for either

<b>Cultivated, temporary, subsistence, dryland</b>	individual or local (i.e. village) markets. May include fallow and 'old fields', and some inter-field grazing areas (which are often classified as degraded).
<b>Cultivated, temporary, subsistence, irrigated</b>	<p><u>Permanent Crops</u> : lands cultivated with crops that occupy the area for long periods and are not re-planted after harvest. Examples would include sugar cane and citrus orchards. Note in the case of sugar cane, the growing season is typically 15 – 18 months per ratoon (i.e. harvest), with 2 – 3 ratoons possible before re-planting. Sugar cane is mapped as a separate crop type, and includes both large and small-scale commercial activities, as well as fallow (i.e. burnt / cleared) areas.</p> <p><u>Temporary Crops</u> : land under temporary crops (i.e. annuals) that are harvested at the completion of the growing season, and that will remain idle until re-planted. In general this refers to maize and soya bean cultivation within the Pongola catchment, although cotton is locally dominant amongst the larger commercial sugar cane plantation areas.</p> <p><u>Irrigated / Non-Irrigated</u> : major irrigation schemes (i.e. areas supplied with water for agricultural purposes by means of pipes, overhead sprinklers, ditches or streams), and are often characterised</p>
<b>Urban / Built-up</b>	<p>A <b>generic urban class</b>, essentially comprising all formal built-up areas, in which people reside on a permanent or near-permanent basis, identifiable by the high density of residential and associated infrastructure. Includes both towns, villages, and where applicable, the central nucleus of more open, rural clusters. <b>This class should be used if it is not possible to identify more</b> industrial and transportation land-uses.</p> <p>Low-density smallholdings frequently located on the urban / peri-urban fringe should be mapped as a separate smallholding sub-classes, subdivided by the appropriate (level I) background vegetation type. If visible, individual farm units are to be mapped as isolated urban / built-up units (if no other class is applicable). <b>Specific urban / built-up sub-classes as listed below</b> – in such cases it could include residential, commercial,</p>
<b>Urban / Built-up (rural cluster)</b>	Areas of <b>clustered rural dwellings</b> (i.e. kraals) whose structural density is too low to be classified as a formal village, but are of sufficient level to be easily identifiable as such on satellite imagery. Small scale cultivation / garden plots often form a major spatial component, and are located amongst the residential structures.
<b>Urban / Built-up (residential, formal suburbs)</b>	Permanent residential structures, either single or multi-level, located within <b>new or well-established residential areas</b> , i.e. 'garden-suburbs', (often refers to 'middle-class' and 'upper class' residential areas). Includes both low and high building densities.
<b>Urban / Built-up (residential, flatland)</b>	Permanent residential structures, consisting mainly of 3 or more levels (often up to 10), resulting in a concentration of mid-to-high rise building, for example Hillbrow (Jhb) or Sunnyside (Pta).
<b>Urban / Built-up (residential, mixed)</b>	mixture ...
<b>Urban / Built-up (residential, hostels)</b>	Permanent residential structures, typically located in formal township districts, consisting mainly of 1 or 2 levels in concentrated block-like structures.
<b>Urban / Built-up (residential, formal township)</b>	Permanent (i.e. brick etc) structures (predominately single level), usually located on serviced sites within former black residential areas, laid out in a organised, pre-planned manner. Includes both low and high building densities.
<b>Urban / Built-up (residential, informal township)</b>	Permanent / semi-permanent shack type dwellings (i.e. corrugated tin structures) laid out and established in an organised, pre-planned manner on both serviced and non-serviced sites. Includes both low and high building densities
<b>Urban / Built-up (residential, informal squatter camp)</b>	Non-permanent shack type dwellings (i.e. tin, cardboard, wood etc) typically established on an informal, ad hoc basis, on non-serviced sites. Typically high building densities
<b>Urban / Built-up (smallholdings, forest &amp; woodland ...)</b>	see "residential" definition above ...
<b>Urban / Built-up (smallholdings, thicket, bushland ...)</b>	see "residential" definition above ...



<b>Urban / Built-up (smallholdings, shrubland ...)</b>	see “residential” definition above ...
<b>Urban / Built-up (smallholdings, grassland ...)</b>	see “residential” definition above ...
<b>Urban / Built-up, (commercial, mercantile)</b>	Non-residential areas used primarily for the conduct of commerce and other mercantile business, typically located in the central business district (CBD). Often consisting of a concentration of multi-level buildings, but also includes small commercial zones (i.e. spaza shops) within former black townships.
<b>Urban / Built-up, (commercial, education, health, IT)</b>	Non-residential, non-industrial sites or complexes associated with educational (i.e. schools, universities), business development centres such as industrial ‘techno-parks’, and / or social services (i.e. hospitals), often consisting of a concentration of multi-level buildings (Note : only mapped if clearly identifiable, otherwise included within ‘commercial / mercantile’ or ‘suburban’ categories.
<b>Urban / Built-up, (industrial / transport : heavy)</b>	Non-residential areas with major industrial (i.e. manufacture and/or processing of goods and products) or transport related infrastructure. Examples would include power stations, steel mills, dockyards, train stations and airports (i.e. Johannesburg).
<b>Urban / Built-up, (industrial / transport : light)</b>	Non-residential areas with major technology, manufacturing or transport related infrastructure. Examples would include <b>light manufacturing units</b> , warehouse dominated business development centres, and small airports (i.e. Lanseria). Also includes similar structures such as <b>farm-based pig and battery hen breeding units</b> .
<b>Mines &amp; Quarries (underground / subsurface mining)</b>	Active or non-active underground or sub-surface based mining activities. Category includes all associated surface infrastructure etc
<b>Mines &amp; Quarries (surface-based mining)</b>	Active or non-active surface-based mining activities. Includes both hardrock or sand quarry extraction sites, and opencast mining sites i.e. coal. Category includes all associated surface infrastructure.
<b>Mines &amp; Quarries (mine tailings, waste dumps)</b>	Primarily non-vegetated, exposed mining (and heavy industry) extraction or waste material. <i>Major areas</i> of managed vegetation re-habilitation on these sites can be mapped according to the appropriate vegetation category.

### 1.2.3 Original data

**Original data for 2000** (Source 1: CSIR & ARC, 2005).

<b>Land cover description</b>	<b>Area (ha)</b>	<b>%</b>
Forest	515 717.9300	0.42
Woodland (previously termed Forest and Woodland)	9 219 818.1210	7.56
Forest plantations	1 722 946.6310	1.41
Thicket, Bushland, Bush Clumps, High Fynbos	21 957 271.0330	18
Shrubland and low Fynbos	42 005 260.4190	34.44
Cultivated land <sup>1</sup>	12 766 493.2180	10.47
Degraded land <sup>1</sup>	1 730 933.6220	1.42
Degraded Forest & Woodland	1 609 933.009	1.32
Degraded Thicket, Bushland, etc <sup>1</sup>	1 164 274.688	0.96
Urban/built-up land: small holding <sup>2</sup>	30 461.8170	0.02
Urban/built-up land: other <sup>1</sup>	1 830 477.612	1.5
Dongas and sheet erosion scars <sup>1</sup>	640 323.9730	0.53
Barren rock <sup>1</sup>	119 902.3060	0.1
Herbland	213 984.3760	0.18
Improved grassland	294 255.3930	0.24
Mines and quarries <sup>1</sup>	202 156.2590	0.17
Unimproved grassland	24 030 992.9280	19.7

Wetlands	1 300 241.9700	1.07
Waterbodies	599 331.7670	0.49
<b>Total Country Area</b>	<b>121 954 777.0730</b>	<b>100%</b>

- 1) Aggregation of several classes from the original data set
- 2) Presented separately in this table as it provides information for estimating Other Land with tree cover. This applies to Barren Rock, and Degraded Land, too, at least in certain provinces.

It must be noted that the official figures for forest plantation areas for 1987, 1990, 2000 and 2005 are 1 159 480 ha; 1 295 531 ha; 1 351 760 ha and 1 281 519 ha respectively (Source: Forestry South Africa: Forestry FP Industry Facts, 2007). These figures are less than the figure reported by CSIR & ARC (2005). This can be attributed to various reasons: 1. Woodlots, Windbreaks and some abandoned (i.e. not managed) plantations are not reported in the official figures even though they are more than 0.5 ha and have a canopy of cover of more than 10% cover. The area of plantation from Table 1, based on data from CSIR & ARC (2005) has, therefore, been used for the following reporting Tables (e.g. Table 3 and 4) as it complies with FRA categories.

### 1.3 Analysis and processing of national data

#### 1.3.1 Calibration

Calibration is necessary for source 1

Land area	121 355 445.30
FAOSTATS land area	121 447 000.00
Calibration factor	1.000754434

Land cover description	Area (ha)	Calibration factor	Calibrated Area
Forest	515 717.9300	1.000754434	516 107.0051
Woodland (previously termed Forest and Woodland)	9 219 818.1210	1.000754434	9 226 773.8653
Forest plantations	1 722 946.6310	1.000754434	1 724 246.4805
Thicket, Bushland, Bush Clumps, High Fynbos	21 957 271.0330	1.000754434	21 973 836.34
Shrubland and low Fynbos	42 005 260.4190	1.000754434	42 036 950.6156
Cultivated land	12 766 493.2180	1.000754434	12 776 124.6945
Degraded land	1 730 933.6220	1.000754434	1 732 239.4972
Degraded Forest & Woodland	1 609 933.009	1.000754434	1 611 147.597
Degraded Thicket, Bushland, etc	1 164 274.688	1.000754434	1 165 153.056
Urban/built-up land: small holding	30 461.8170	1.000754434	30 484.7984
Urban/built-up land: other	1 830 477.612	1.000754434	1 831 858.5865
Dongas and sheet erosion scars	640 323.9730	1.000754434	640 807.0552
Barren rock	119 902.3060	1.000754434	119 992.7644
Herbland	213 984.3760	1.000754434	214 145.8131
Improved grassland	294 255.3930	1.000754434	294 477.3863
Mines and quarries	202 156.2590	1.000754434	202 308.7736
Unimproved grassland	24 030 992.9280	1.000754434	24 049 122.7261
Wetlands	1 300 241.9700	1.000754434	1 301 222.9168
<b>Total</b>	<b>121 355 445.30</b>		<b>121 446 999.98</b>

### 1.3.2 Estimation and forecasting

Comparing the information provided by the two national land covers (NLC, 1996 and 2000), it appears that no major change (regarding the forest and OWL areas) takes since the 90's. Therefore, assumption has been made to consider that the forest and OWL covers remain stable.

It has been decided to use data from the latest national land cover and more detailed 2000 NLC.

In the FRA 2005 report, only the area corresponding to forest areas > 10 ha in size was included in order to make it comparable to the definitions used for the 1987 estimate. The original figure of 533 669 hectares was thus reduced by 37 207 hectares (total area of patches less than 10 hectares). In this report these patches have been included as the 2000 land cover information is consistent with the FRA categories and definitions.

There is notable difference between this report and the last FRA report, the biggest increase has been that of woodlands. The variance in the two datasets can be attributed to the different methodologies that were used (NLC 1996 was created using the manual image-interpretation mapping techniques from 1:250 000 scale paper-based Space Maps using Land sat Thematic Mapper satellite imagery acquired during 1994-1995. The NLC 2000 in turn is derived from multi-temporal Land sat 7 enhanced Thematic Mapper imagery acquired principally during 2000-2001, using the latest digital image classification techniques).

### 1.3.3 Reclassification into FRA 2010 categories

Reclassification matrix

National Class	Forest	OWL	OL	OLTC	Water
Forest (indigenous)	100%				
Forest (woodland previously termed Forest & woodland)	75%	25%			
Forest Plantations	100%				
Thicket and bushland		100%			
Shrubland and low Fynbos			100%		
Cultivated land			100%		100%
Degraded land:			100%		
Degraded Forest & Woodland	5%	10%	85%		
Degraded Thicket, Bushland, etc		10%	90%		
Urban/built up land: Residential/small holding			100%	100%	
Urban/built-up land: Other			100%		
Dongas and sheet erosion scars			100%		
Barren rock			100%		
Herbland			100%		
Improved grassland			100%		
Mines and quarries			100%		
Unimproved grassland			100%		
Wetlands			100%		
Water bodies					100%

In the FRA 2005 report, woodlands were grouped together with the forests and were reported under the FRA category “forests”. The thickets and bushland reported under the FRA category “other wooded land “. In this report, woodlands are classified as such and the percentage has been split between forests (Assumption is that 75% is comprised of dense woodlands and therefore classified under FRA category “forests”) and other wooded land (less dense woodlands estimated to be about 25%). It has been assumed that 5% of degraded forest & woodland is still forest, 10% can still be classified as woodland and 85 % as other land. Besides, It has been estimated that 10 % of degraded thickets, bushland etc are woodlands and 90 % other land and therefore has been calculated as such in this report. The reclassification into FRA 2010 categories was not on the national classes definitions, but also established based on expert knowledge and field experience.

National Classes	Area in hectares			
	Forests	OWL	OL	OLWTC
Forest	516 107.0051	0	0	0
Forest (Woodlands)	6 920 080.399	2 306 693.466		
Forest Plantations	1 724 246.481	0	0	
Thicket and bushland	0	21 973 836.34	0	0
Shrubland and low Fynbos	0	0	42 036 950.6156	0
Cultivated land	0	0	12 776 124.6945	0
Degraded land:			1 732 239.4972	
Degraded Forest & Woodland	80 557.3798	161 114.7597	1 369 475.4575	0
Degraded Thicket, Bushland, etc		116 515.3056	1 048 637.7504	
Urban/built up land: Residential/small holding : woodlands, thicket, bushland	0		0	<b>30 484.7984</b>
Urban/built-up land: Other	0	0	1 831 858.5865	0
Dongas and sheet erosion scars	0	0	640 807.0552	0
Barren rock	0	0	119 992.7644	0
Herbland	0	0	214 145.8131	0
Improved grassland	0	0	294 477.3863	0
Mines and quarries	0	0	202 308.7736	0
Unimproved grassland	0	0	24 049 122.7261	0
Wetlands	0	0	1 301 222.9168	0
<b>TOTAL</b>	<b>9 240 991</b>	<b>24 558 159</b>	<b>87 617 364</b>	<b>30 485</b>

Both good and degraded Shrubland & low Fynbos are aggregated

#### 1.4 Data for Table T1

For the different reporting years, data is based on the NLC 2000 information taken from CSIR & ARC (2005). For forest and OWL areas remain unchanged.

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	9 241	9 241	9 241	9 241
Other wooded land	24 558	24 558	24 558	24 558
Other land	87 648	87 648	87 648	87 648
...of which with tree cover	30	30	30	30
Inland water bodies	462	462	462	462
<b>TOTAL</b>	<b>121 909</b>	<b>121 909</b>	<b>121 909</b>	<b>121 909</b>

#### 1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest		In Plantations, from a national perspective, there is an insignificant decrease according to experts and as depicted by the national land cover data sets. This may be attributed to the fact that there has been very little new

		afforestation over past decade Hence the data could remain stable. However, expansion is expected to be significant due to afforestation plans in the next ten years. On the other hand, according to data sets, natural forests are stable but evidence on the ground shows that they are declining for various reasons in some areas, but in many other areas they are expanding. However, there is no concrete data to back these claims on a national level or to quantify the loss or gain.
Other wooded land		According to expert opinion, woodlands are increasing in some areas at the expense of grasslands and in other areas they are decreasing. It is however not known whether the increase equals the decrease. No significant change based on two country National land cover data sets
Other land		
Other land with tree cover		
Inland water bodies	The area for inland waterbodies is taken from the FAOSTAT, However, according to NLC 2000 the Waterbodies for the country is 599 331.7670 ha.	

**Other general comments to the table**

There were several other sources that reported on forest cover in South Africa i.e. National forest inventory 2002, Department of Water Affairs and Forestry. 2004: Unpublished state of the forest report for South Africa. These sources were eliminated as they used classifications and definitions that were not compatible with each other, or with the FRA definitions. The 2000 data used was the only source that could provide comprehensive data compatible with the FRA classifications.

**Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping**

Field inventory	2012
Remote sensing survey / mapping	2012

## 2 Table T2 – Forest ownership and management rights

### 2.1 FRA 2010 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Individuals ( <i>sub-category of Private ownership</i> )	Forest owned by individuals and families.
Private business entities and institutions ( <i>sub-category of Private ownership</i> )	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities ( <i>sub-category of Private ownership</i> )	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities ( <i>sub-category of Private ownership</i> )	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
<b>Categories related to the holder of management rights of public forest resources</b>	
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals/households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

## 2.2 National data

### 2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National Forest Act 84 of 1998 as amended	H	Classification & definitions	1998	
<b>Department of Water Affairs and Forestry.</b> Commercial timber resources and primary round wood processing in South Africa	H	Ownership Pattern	2000 and 2005	Covers plantations only
<b>Department of Water Affairs and Forestry.</b> National Forest Inventory	M	Ownership Pattern	1990, 2000 and 2005	Used to determine natural forest ownership
Expert Opinion	L	Ownership pattern	1990, 2000 and 2005	Forest (woodland) ownership
CSIR & ARC (2005). National Land-Cover Database 2000. Council for Scientific and Industrial Research and the Agricultural Research Council	H	National Land Cover 2000	2000	Natural forests original figure for 2000

### 2.2.2 Classification and definitions

National class	Definition
State Forests	(i) State land, other than trust forests, acquired or reserved for forestry in terms of this Act or any previous forest legislation, unless it has been released under section 50 (3); (ii) State land, other than trust forests designated as demarcated State forest or a similar designation in terms of any previous forest legislation, unless it was withdrawn from demarcation and is no longer used for forestry; and (iii) trust forests; and includes (i) State plantations, State sawmills and State timber preservation plants; (ii) land controlled and managed by the Department for research purposes or as a tree nursery; (iii) areas protected in terms of sections 8(1)(a) and (b) and 9; (iv) an area of State land which has been set aside in terms of previous forest legislation for the prevention of soil erosion or sand drift; (v) an area referred to in paragraph (a) or paragraph (b) (i) to (iv), the ownership or control of which is transferred to a person or organ of State contemplated in section 53 (2)(g)(i);(xxxiii).

## 2.2.3 Original data

### Management rights of public forests

According to the Department in 2005, a total of 25 314.3230 ha was leased to Amathole Forests (Proprietary) Limited and 111 899.4500 ha leased to Mountain to Ocean (MTO) Forestry (Proprietary) Limited. In 2000, a total of 76 567.000 ha was leased to Singisi (Pty) Ltd and 35 520. 6 ha was leased to Siyaqhubeka (Pty) Ltd

This means that

- 2000, 112 087 ha of public forests were managed by private corporations
- 2005, 137 213 ha of public forests were managed by private corporations

## 2.3 Analysis and processing of national data

### 2.3.1 Estimation and forecasting

#### Forest ownership situation

	Area in hectares					
	Public		Private		Total	
	2000	2005	2000	2005	2000	2005
Plantations	380663	303219	971098	978302	1351761	1281521
%	28.16	23.66	71.84	76.34	100	100

The source of figures for plantation ownership is **Department of Water Affairs and Forestry**. Commercial timber resources and primary round wood processing in South Africa 2000/01 and 2005/06.

The above data is assumed not to report planted woodlots/windbreaks and some abandoned (i.e. not managed) plantations, and therefore are different from the information provided by CSIR & ARC (2005), which is considered to be the best available data at national level. But we could assume that the ratio public/private (of the above table) could be used to estimate the forest ownership.

From T3 (3.3.1), forest plantation areas known

Applying the above ratio public/private, and considering that the ratio public/private remains similar in 1990 and 2000, the following result is obtained :

	Area in hectares								
	Total			Public			Private		
	1990	2000	2005	1990	2000	2005	1990	2000	2005
Plantations	1626362	1724246	1749466	457984	485548	413924	1168378	1238698	1335542

It is assumed that 70% of forest (woodlands) is in state lands and 30% in private land.

	Area in hectares								
	Total			Public			Private		
	1990	2000	2005	1990	2000	2005	1990	2000	2005
Forest (woodlands)	7000638	7000638	7000638	4900447	4900447	4900447	2100191	2100191	2100191



Therefore, the following table could be established:

	Area in hectares								
	Total			Public			Private		
	1990	2000	2005	1990	2000	2005	1990	2000	2005
Natural Forests									
Forest (woodlands)	7000638	7000638	7000638	4900447	4900447	4900447	2100191	2100191	2100191
<b>Total Natural forest</b>									
Plantations	1626362	1724246	1749466	457984	485548	413924	1168378	1238698	1335542
<b>Total</b>	<b>9240991</b>	<b>9240991</b>	<b>9240991</b>						

And total natural forest estimates

	Area in hectares								
	Total			Public			Private		
	1990	2000	2005	1990	2000	2005	1990	2000	2005
Natural Forests	613991	516107	490887						
Forest (woodlands)	7000638	7000638	7000638	4900447	4900447	4900447	2100191	2100191	2100191
<b>Total Natural forest</b>	7614629	7516745	7491525						
Plantations	1626362	1724246	1749466	457984	485548	413924	1168378	1238698	1335542
<b>Total</b>	<b>9240991</b>	<b>9240991</b>	<b>9240991</b>						

Based on the National Forest Inventory (Department of Water Affairs and Forestry), the public ownership accounts for 219 922 ha. It is assumed that this figure remains constant for the different reporting years.

Consequently, the following table is obtained:

	Area in hectares								
	Total			Public			Private		
	1990	2000	2005	1990	2000	2005	1990	2000	2005
Natural Forests	613991	516107	490887	219922	219922	219922	394069	296185	270965
Forest (woodlands)	7000638	7000638	7000638	4900447	4900447	4900447	2100191	2100191	2100191
<b>Total Natural forest</b>	7614629	7516745	7491525	5120369	5120369	5120369	2494260	2396376	2371156
Plantations	1626362	1724246	1749466	457984	485548	413924	1168378	1238698	1335542
<b>Total</b>	<b>9240991</b>	<b>9240991</b>	<b>9240991</b>	<b>5578353</b>	<b>5605917</b>	<b>5534293</b>	<b>3662638</b>	<b>3635074</b>	<b>3706698</b>

**Table 2a - Forest ownership**

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	5 578	5 606	5 534
Private ownership	3 663	3 635	3 707
...of which owned by individuals	n/a	n/a	n/a
...of which owned by private business entities and institutions	n/a	n/a	n/a
...of which owned by local communities	n/a	n/a	n/a
...of which owned by indigenous / tribal communities	n/a	n/a	n/a
Other types of ownership	0	0	0
<b>TOTAL</b>	<b>9 241</b>	<b>9 241</b>	<b>9 241</b>

Note:

1. The only reliable information which divides private ownership is that of plantations.
2. Input for 1990 is taken from FRA 2005

Does ownership of trees coincide with ownership of the land on which they are situated?	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If <b>No</b> above, please describe below how the two differ:		
<b>No:</b> In Plantations, where the land is leased, ownership does not coincide with the ownership of trees. Where the land is successfully claimed by the communities, the trees belong to the company but the land belongs to the state/community.		

**Table 2b - Holder of management rights of public forests**

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	n/a	5 494	5 285
Individuals	0	0	0
Private corporations and institutions	0	112	249
Communities	0	0	0
Other	n/a	n/a	n/a
<b>TOTAL</b>	<b>5 578</b>	<b>5 606</b>	<b>5 534</b>

## 2.4 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		There is slight decrease in public ownership during the reporting period due to the transfer of plantations to private companies.
Private ownership		Ownership of plantations mainly in hands of corporate growers and individual commercial farmers. It is envisaged that the ownership of the Industry will change dramatically – as much as 50% of the current plantation could be under claim therefore ownership shifting towards communities.
Other types of ownership		

<p>Management rights</p>	<p>During the reporting period, the management rights were only transferred to private companies. According to the Department in 2000, 76 567.000 ha was leased to Singisi (Pty) Ltd and 35 520.600 ha was leased to Siyaqhubeka (Pty) Ltd. Then in 2005, 25 314.323 ha was leased to Amathole Forests (Proprietary) Limited and 111 899.4500 ha leased to Mountain to Ocean (MTO) Forestry (Proprietary) Limited.</p>	
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**Other general comments to the table**

According to the National Forest Act of 1998 (source 1), all natural (indigenous) forests are protected.

### 3 Table T3 – Forest designation and management

#### 3.1 FRA 2010 Categories and definitions

Term	Definition
Primary designated function	The primary function or management objective assigned to a management unit either by legal prescription, documented decision of the landowner/manager, or evidence provided by documented studies of forest management practices and customary use.
Protected areas	Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
<b>Categories of primary designated functions</b>	
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.
<b>Special designation and management categories</b>	
Area of permanent forest estate (PFE)	Forest area that is designated to be retained as forest and may not be converted to other land use.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area under sustainable forest management	To be defined and documented by the country.
Forest area with management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.

#### 3.2 National data

##### 3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
White paper on the conservation and sustainable use of South Africa's biological diversity	H	South African legal or other equivalent IUCN category	1997	Notice 1095 of 1997
Forestry South Africa: Forest Facts		Plantation Area		1987, 1990, 2000 and 2005
Elliot W., 1996		Wilderness	1990	

Wilderness in the new South Africa. International journal of Wilderness/Volume 2, Number 2, August 1996		areas		
Department of Water Affairs and Forestry. 2007. Unpublished state of the forest report for South Africa	H	Sustainable forest management; Natural Forests Plantations and Woodlands	2004 - 2006	Based on Principles; Criteria Indicators and standards.
Forest Act 122 of 1984		List of Wilderness areas		

### 3.2.2 Classification and definitions

South Africa does not have definitions for Table 3. The definitions equivalents of the IUCN categories were obtained from the White Paper of Sustainable Use of Biodiversity. Due to problems of classification of woodlands, protected areas are assumed to have more than 10% canopy cover.

IUCN Category	Name	Management Objective	South African or other equivalent Category
Category 1a	Scientific Reserves	Managed mainly for scientific research and monitoring	- Special nature reserves - Wilderness areas
Category 1b	Wilderness Areas	Managed mainly for wilderness protection, subsistence, and recreation	- Special nature reserves - Wilderness areas
Category II	National Parks and Equivalent reserves	Managed mainly for ecosystem protection and recreation	- National parks

### 3.2.3 Original data

Wilderness areas of South Africa, Legally declared under Forest Act

Wilderness areas in Natural Forests	Area in hectares
	<b>1990</b>
Mdedelelo	27 000
Mkhomazi	48 000
Ntendeka	5 200
Mlambonja	14 000
Mzinkulu	28 300
Wolkberg	17 400
Cedarberg	64 400
Groendal	21 800
Boosmansbos	14 200
Grootwinterhoek	23 600
Doringrivier	11 000
<b>Total wilderness areas in Natural Forests</b>	<b>274 900</b>
Wilderness areas in Kruger National park	672 200
<b>Total wilderness areas</b>	<b>947 100</b>

Source: Elliot, 1996

From table T5, Increase of afforestation areas

Year	Afforestation in ha
1990/91	45 423
1991/92	28 241
1992/93	16 578
1998/99	4 891
1999/00	2 751
Total increase from 1990 to 2000	97 884
2000/01	5 529
2001/02	6 207
2002/03	7 418
2003/04	1 995
2004/05	4 071
Total increase from 2000 to 2005	25 220
2005/06	2 635
2006/07	2 198
2007/2008	<b>2 725</b>
2008/2009	<b>2 725</b>
2009/2010	<b>2 725</b>
Total increase from 2005 to 2010	13 008

From 2007 to 2010, the assumption made is that the annual increase of afforestation (established) is **2 725 ha** (the average of 2005).

### 3.3 Analysis and processing of national data

#### 3.3.1 Estimation and forecasting

From T1, plantation area in 2000 (data from NLC 2000 / CSIR & ARC (2005) is: 1 724 246 ha. Considering the above information about plantation, it is possible to estimate the plantation in 1990, 2005 and 2010

	1990	2000	2005	2010
Plantations in ha	1 724 246 – 97 884 = 1 626 362	1 724 246	1 724 246 + 25 220 = 1 749 466	1 749 466 + 13 008 = 1 762 474

National Classes	1990	2000	2005	2010
Plantations	1 626 362	1 724 246	1 749 466	1 762 474
Wilderness Areas	947 100	947 100	947 100	947 100
Other forests	6 667 529	6 569 645	6 544 425	6 531 417
<b>TOTAL Forest</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>

Notes:

- 1) It is assumed that the wilderness areas are the same for the years 1990, 2000, 2005 and 2010.
- 2) The class “Other forests” has been estimated by subtracting Plantations and Wilderness areas from the total forest area.

### 3.3.2 Reclassification into FRA 2010 categories

All the Other Wooded Land are regarded as modified forests

National Categories	Production	Protection of soil and water	Conservation of biodiversity	Social services	Multiple purpose
Wilderness areas			100%		
Plantations	100%				
Other Forests					100%

#### Results after reclassification

FRA Categories	Area in hectares			
	1990	2000	2005	2010
Production	1 626 362	1 724 246	1 749 466	1 762 474
Conservation	947 100	947 100	947 100	947 100
Multiple purpose	6 667 529	6 569 645	6 544 425	6 531 417
<b>Total Forest</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>

### 3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	1 626	1 724	1 750	1 763
Protection of soil and water	0	0	0	0
Conservation of biodiversity	947	947	947	947
Social services	0	0	0	0
Multiple use	6 668	6 570	6 544	6 531
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
<b>TOTAL</b>	<b>9 241</b>	<b>9 241</b>	<b>9 241</b>	<b>9 241</b>

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	n/a	1 463	1 463	1 463
Forest area within protected areas	947	947	947	947
Forest area under sustainable forest management	0	1 006	1 042	1 110
Forest area with management plan	n/a	2 002	2 038	2 106

Note:

1. In South Africa, Natural forests and Wilderness areas are protected under the law (National Forest Act). The figure for PFE is therefore estimated by adding up wilderness area and natural forests area.
2. South African plantations with FSC certification do have management plans and that these plans are in daily application. In the category “forest area with management plan” certified forests plus the uncertified forests but with management plans as revealed by audits are included.

### 3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water		
Conservation of biodiversity		
Social services		
Multiple use		
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas		
Forest area under sustainable forest management	Sustainable forest management is generally defined in the country as “the Stewardship and use of forests and forest land in such a way and rate, that maintains biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, and that does not impact negatively on other ecosystems.”	
Forest area with management plan	The area with management plans but uncertified is 49 292 ha	

#### Other general comments to the table

There is some substantial part of OWL, unknown right now, which is designated for protection of soils and water (Mountain Catchment’s Areas Act) and for the conservation of biodiversity.



## 4 Table T4 – Forest characteristics

### 4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	A species, subspecies or lower taxon, occurring <u>outside</u> its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
<b>Characteristics categories</b>	
Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
Other naturally regenerated forest of introduced species (sub-category)	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species (sub-category)	Planted forest, where the planted/seeded trees are predominantly of introduced species.
<b>Special categories</b>	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

### 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 Act 84 of 1998 as amended	H	Classification & definitions	1998	Definition of a plantation

#### 4.2.2 Classification and definitions

There are no national definitions for other categories of table 4

National class	Definition
Plantation	Plantation means a group of trees cultivated for exploitation of the wood, bark, leaves or essential oils in the trees.

### 4.2.3 Original data

Input from Table 3, for table T4a

National Classes	1990	2000	2005	2010
Plantations	1 626 362	1 724 246	1 749 466	1 762 474
Wilderness Areas	947 100	947 100	947 100	947 100
Other forests	6 667 529	6 569 645	6 544 425	6 531 417
<b>TOTAL Forest</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>

Input, Mangrove for table T4b

Mangroves according to the NFI are 2 392 hectares. The extent will be the same for 1990 to 2005. In 2010 there will be 5 hectares less that we know will be destroyed by an approved harbour development (thus 2 387 hectares in 2010).

## 4.3 Analysis and processing of national data

### 4.3.1 Reclassification into FRA 2010 categories

National Categories	Primary Forests	Other naturally regenerated forest	Planted Forests
Wilderness areas	100%		
Plantations			100%
Other Forests		100%	

Results after reclassification

FRA Categories	Area in hectares			
	1990	2000	2005	2010
Primary Forests	947 100	947 100	947 100	947 100
Other naturally regenerated forest	6 667 529	6 569 645	6 544 425	6 531 417
Planted Forests	1 626 362	1 724 246	1 749 466	1 762 474
<b>Total Forest</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>	<b>9 240 991</b>

## 4.4 Data for Table T4

Notes:

1. It is assumed that wilderness areas satisfy the FRA definition of a primary forest
2. The figure for “Other naturally regenerated forest” is calculated by subtracting plantations and wilderness areas from the total area of forests.
3. All plantations are of introduced species in the country

**Table 4a**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	947	947	947	947
Other naturally regenerated forest	6 668	6 570	6 544	6 531
...of which of introduced species	0	0	0	0
Planted forest	1 626	1 724	1 750	1 763
...of which of introduced species	1 626	1 724	1 750	1 763
<b>TOTAL</b>	<b>9 241</b>	<b>9 241</b>	<b>9 241</b>	<b>9 241</b>

**Table 4b**

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	2.4	2.4	2.4	2.4
Bamboo (Forest and OWL)	0	0	0	0

#### 4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest		
Planted forest	All plantations are of introduced species in the country	
Rubber plantations	Not applicable	
Mangroves		Mangroves according to the NFI are 2 392 hectares. The extent will be the same for 1990 to 2005. In 2010 there will be 5 hectares less that we know will be destroyed by an approved harbour development (thus 2 387 hectares in 2010).
Bamboo	Not applicable	

#### Other general comments to the table

Mangroves are strictly protected in the country because they are threatened by developments

## 5 Table T5 – Forest establishment and reforestation

### 5.1 FRA 2010 Categories and definitions

Term	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

### 5.2 National data

#### 5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forestry SA-“Abstract of South African Forestry Facts.	H	Afforestation	1990-2005/06	
Department of Water Affairs and Forestry. Commercial timber resources and primary roundwood processing in South Africa	H	Afforestation and Reforestation	1998 - 2006	Covers plantations only

#### 5.2.2 Original data

Note: information below covers only the plantation area

Year	Afforestation	Reforestation
1988/89	30 057	-
1989/90	30 965	-
1990/91	45 423	-
1991/92	28 241	-
1992/93	16 578	-
<b>Average</b>	<b>30 252.8</b>	<b>Not applicable</b>
1998/99	4 891	42 764
1999/00	2 751	68 163
2000/01	5 529	49 203
2001/02	6 207	69 064
2002/03	7 418	75 309
<b>Average</b>	<b>5 359.2</b>	<b>60 900.6</b>
2003/04	1 995	86 673
2004/05	4 071	90 742
2005/06	2 635	81 943
2006/07	2 198	91 334
<b>Average</b>	<b>2 724.75</b>	<b>87 673</b>

### 5.3 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species <sup>1)</sup> (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	30 252.8	5 359.2	2 724.75	30 252.8	5 359.2	2 724.75
Reforestation	n/a	60 900.6	87 673	n/a	60 900.6	87 673
...of which on areas previously planted	n/a	60 900.6	87 673	n/a	60 900.6	87 673
Natural expansion of forest	n/a	n/a	n/a	n/a	n/a	n/a

Notes: The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

Afforestation and reforestation occurs in Plantations only in the country at the moment.

No information on woodlots/windbreaks.

### 5.4 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		Physical footprint of Industry (plantation) is shrinking. This may be attributed to the fact that there has been very little new afforestation over past decade. However an increase is expected in the coming years due to afforestation initiatives.
Reforestation		
Natural expansion of forest	There is no available data for the country	

#### Other general comments to the table

All plantation species are exotics in South Africa.

## 6 Table T6 – Growing stock

### 6.1 FRA 2010 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.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

### 6.2 National data

#### 6.2.1 Data sources

Note: No national data is available. The figures to calculate Volumes per hectare of all forest types were taken from the FRA 2005 report and confirmed by an expert opinion.

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Bailey, C.L., Shackleton, C.M., Geldenhuys, C.J., Moshe, D., Fleming, G., Vink, E.R., Rathogwa, N.R. and Cawe, S.G 1999. Guide to and summary of the meta-database pertaining to selected attributes of south African indigenous forests and woodlands: ENV –P-C 99027	L	Basal area for woodland and natural forest	1999	
Expert Opinion	L	Vol/ha plantations, Woodlands & Natural forests	2008	
Expert Opinion	L	Vol/ha Pines, Poplars, wattle and Eucalyptus	2009	
<b>Department of Water Affairs and Forestry.</b> Commercial timber resources and primary roundwood processing in South Africa	H	Area of softwood and hardwood	2000 and 2005	
Forestry South Africa Calculation of total annual increment of softwood log categories, 1991/92 areas	H	Annual increment of plantations	1992	The only study done for plantation at time of writing the report

## 6.2.2 Classification and definitions

### 6.2.3 Original data

#### Growing Stock, Notes:

1. No growing stock data exist at country level. The growing stock has therefore been estimated by multiplying the area of different forest types (CSIR/ARC, 2005, calibrated areas from Table T1) with an estimated volume per hectare. The volume per hectare was also derived by using average basal area obtained from data source 1 multiplied by estimated relevant tree height for each forest type and by a form factor. Volume per hectare of plantations was calculated by using data source 4. Reference year is 2000.
2. Woodlands are those dense woodlands that are classified as “Forests” according to FRA categories and the rest fall other the FRA category “ OWL”

National Classes	Area in ha	Volume (m <sup>3</sup> /ha)	Growing Stock in m <sup>3</sup>
Eucalyptus Plantations	526 248	150 <sup>1</sup>	78 937 200
Pine Plantations	705 227	135 <sup>2</sup>	95 205 645
Wattle Plantations	107 944	145 <sup>3</sup>	15 651 880
Poplar Plantations	2 234	135 <sup>4</sup>	301 590
Others	10 107	135 <sup>5</sup>	1 364 445
Unaccounted	372 486	135 <sup>6</sup>	50 285 610
<b>Total Plantations</b>	<b>1 724 246</b>		<b>241 746 370</b>
<b>Total Natural Forest</b>	<b>516 107</b>	<b>315<sup>7</sup></b>	<b>162 573 705</b>
Total Woodland (corresponding to FRA definition of forest)	7 000 638 (6 920 080 + 80 557)	38 <sup>8</sup>	266 024 244
<b>TOTAL FOREST</b>	<b>9 240 991</b>		<b>670 344 319</b>
<b>OWL</b>	<b>24 558 159</b>	<b>20</b>	<b>491 163 180</b>

#### Growing Stock of the 10 most common species, Notes:

1. Reliable and existing data is that of officially recorded areas of plantations (**1 351 760 ha for 2000 and 1 281 519 for 2005**). The area in ha of common commercial species is therefore based on the official data.
2. The growing stock of the 10 most common species has been estimated by multiplying the area covered by the species by estimated plantation volume per hectare as in table 6a.

Commercial Species	Area in ha			Volume (m <sup>3</sup> /ha)	Growing Stock in m <sup>3</sup>		
	1990	2000	2005		1990	2000	2005
Eucalyptus, of which		526 248	478 191	150		78 937 200	71 728 650
<i>Eucalyptus Grandis</i>	n/a	287 774	301 931	150	n/a	43 166 100	45 289 650
Other Eucalyptus	n/a	238 474	176 260	150	n/a	35 771 100	26 439 000
Pine spp, of which	n/a	705 227	688 313	135	n/a	95 205 645	92 922 255
<i>Pinus Patula</i>	n/a			135	n/a		
<i>Pinus Elliotti</i>	n/a			135	n/a		
<i>Pinus Radiata</i>	n/a			135	n/a		
<i>Pinus Taeda</i>	n/a			135	n/a		
<i>Pinus Pinaster</i>	n/a			135	n/a		

<sup>1</sup> Derived from source 3

<sup>2</sup> Derived from source 3

<sup>3</sup> Derived from source 3

<sup>4</sup> Derived from source 3

<sup>5</sup> Derived from source 3

<sup>6</sup> Derived from source 3

<sup>7</sup> Calculated using average basal area of 30m<sup>2</sup>/ha, tree height of 15m and tree form factor of 0.7. Basal area as derived from source 1 and expert opinion.

<sup>8</sup> Derived from basal area obtained from source 1

<i>Other Pinus</i>	n/a			135	n/a		
Wattle ( <i>Acacia mearnsii</i> )	n/a	107 944	104 821	145	n/a	15 651 880	15 199 045
Poplars ( <i>Populus x canescens</i> )	n/a	2 234	2 725	135	n/a	301 590	367 875
<b>Total</b>	<b>n/a</b>	<b>1 351 760</b>	<b>1 281 519</b>		<b>n/a</b>	<b>191 460 760</b>	<b>181 226 140</b>

### 6.3 Analysis and processing of national data

#### 6.3.1 Reclassification into FRA 2010 categories

Reclassified data

National data	Growing stock (2000) in m <sup>3</sup>	Growing stock (2000) in m <sup>3</sup>
	Forest	OWL
Growing stock	670 344 319	491 163 180

### 6.4 Data for Table T6

#### Table 6a – Growing stock

Notes:

1. All plantations in the country are composed of commercial species; the figure for the growing stock of commercial species is derived from the growing stock of plantations (see the table above).
2. Natural forests are protected. There is little harvesting of about 1.500 m<sup>3</sup> /annum in the natural forests. This volume is seen to be insignificant to impact on the volume of commercial plantation species.
3. The growing stock of coniferous is estimated from the coniferous & broadleaved areas reported by the industry which is less the total area of plantations supplied by CSIR & ARC 2005, NLC 2000.

FRA 2010 category	Volume (million cubic meters over bark)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	670	670	670	670	491	491	491	491
... of which coniferous	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
... of which broadleaved	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Growing stock of commercial species	242	242	242	242	n/a	n/a	n/a	n/a



**Table 6b – Growing stock of the 10 most common species**

FRA 2010 category / Species name			Growing stock in forest (million cubic meters)		
Rank	Scientific name	Common name	1990	2000	2005
1 <sup>st</sup>	<i>Pinus Patula</i>	Patula pine	n/a	47	47
2 <sup>nd</sup>	<i>Eucalyptus Grandis</i>	Rose gum; Saligna gum	n/a	43	45
3 <sup>rd</sup>	<i>Other Eucalyptus</i>	Other gums	n/a	36	27
4 <sup>th</sup>	<i>Pinus Elliotti</i>	Slash pine	n/a	25	26
5 <sup>th</sup>	<i>Acacia mearnsii</i>	Black Wattle	n/a	16	15
6 <sup>th</sup>	<i>Pinus Radiata</i>	Monterey pine, Radiata pine	n/a	9	8
7 <sup>th</sup>	<i>Other Pinus</i>	Other Pines	n/a	6	6
8 <sup>th</sup>	<i>Pinus Taeda</i>	Loblolly pine	n/a	5	4
9 <sup>th</sup>	<i>Pinus Pinaster</i>	Cluster pine	n/a	3	2
10 <sup>th</sup>	<i>Populus x canescens</i>	Matchwood poplar, Grey Poplar	n/a	0.3	0.3
Remaining			n/a	479.7	489.7
<b>TOTAL</b>			<b>n/a</b>	<b>670</b>	<b>670</b>

Note: Rank refers to the order of importance in terms of growing stock, i.e. 1<sup>st</sup> is the species with the highest growing stock. Year 2000 is the reference year for defining the species list and the order of the species.

**Table 6c – Specification of threshold values**

No inventory to supply this data

Item	Value	Complementary information
Minimum diameter (cm) at breast height <sup>9</sup> of trees included in growing stock (X)		
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)		
Minimum diameter (cm) of branches included in growing stock (W)		
Volume refers to “above ground” (AG) or “above stump” (AS)		

## 6.5 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock		
Growing stock of broadleaved / coniferous		
Growing stock of commercial species	Plantations are composed of species that are cultivated for commercial species in the country.	
Growing stock composition		

<sup>9</sup> Diameter at breast height (DBH) refers to diameter over bark measured at a height of 1.30 m above ground level or 30 cm above buttresses if these are higher than 1 m.

**Other general comments to the table**

Legally, all natural forests are protected. They are not used for commercial purposes.

## 7 Table T7 – Biomass stock

### 7.1 FRA 2010 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 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	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.

### 7.2 National data

#### 7.2.1 Data sources

Figures derived from T6 as no original data is available

### 7.3 Analysis and processing of national data

Note:

1. Biomass figures for 2000 have been calculated directly from T6 with conversion factors obtained from IPCC Good Practice Guidelines and applied in the FRA 2005 report.
2. Stem vol. for plantation has been updated for 2000, based on the data from point 6.2.3, and the result is the following:  $241\,746\,370 \text{ (m}^3\text{)} / 1\,724\,246 \text{ (ha)} = 140.24 \text{ m}^3\text{/ha}$

National Classes	Stem vol.	Density	Stem wood	BEF	R/S ratio	D/L ratio
	m <sup>3</sup> /ha	ton/m <sup>3</sup>	ton/ha			
Natural forest	315	0.58	182.7	2.73	0.24	0.14
Plantations	140	0.58	81.2	2.35	0.34	0.14
Forest and woodland	38	0.58	22.04	5	0.24	0.14
OWL	20	0.58	11.6	5	0.48	0.14

Calculating biomass stock for 2000

Multiplying area by conversion factors gives:

	Natural forest	Plantations	Forest and woodland	OWL
	Area (ha)			
	516 107	1 724 246	7 000 638	24 558 159
	<b>Biomass (million tonnes)</b>			
<b>Aboveground biomass</b>	257.4	329.0	771.5	1 424.4
<b>Belowground biomass</b>	61.8	111.9	185.2	683.7
<b>Dead wood biomass</b>	44.7	61.7	133.9	295.1
<b>Total</b>	363.9	502.6	1 090.6	2 403.2

Aboveground biomass = Area (ha) x Stem wood (ton/ha) X BEF

Belowground biomass = Aboveground biomass x R/S ratio

Dead wood biomass = (Aboveground biomass + Belowground biomass) x D/L ratio

**7.4 Data for Table T7**

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass	1 358	1 358	1 358	1 358	1 424	1 424	1 424	1 424
Below-ground biomass	359	359	359	359	684	684	684	684
Dead wood	240	240	240	240	295	295	295	295
<b>TOTAL</b>	<b>1 957</b>	<b>1 957</b>	<b>1 957</b>	<b>1 957</b>	<b>2 403</b>	<b>2 403</b>	<b>2 403</b>	<b>2 403</b>

Figures for 1990 are derived from FRA 2005.

**7.5 Comments to Table T7**

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass		
Below-ground biomass		
Dead wood		

Other general comments to the table
Conversion factor for hardwood in a subtropical climatic zone has been used to calculate the biomass stock for Natural forests and OWL.

## 8 Table T8 – Carbon stock

### 8.1 FRA 2010 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 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	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 the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil.
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.

### 8.2 National data

#### 8.2.1 Data sources

Since there is no national data, data from table 7 is used as an input.

### 8.3 Analysis and processing of national data

A conversion factor of 0.47 for converting biomass to carbon has been used as suggested by IPCC 2006 good practice guidelines for 1990, 2000, 2005 & 2010 figures.

### 8.4 Data for Table T8

FRA 2010 Category	Carbon (Million metric tonnes)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Carbon in above-ground biomass	638.2	638.2	638.2	638.2	669.3	669.3	669.3	669.3
Carbon in below-ground biomass	168.7	168.7	168.7	168.7	321.5	321.5	321.5	321.5
<b>Sub-total: Living biomass</b>	<b>806.9</b>	<b>806.9</b>	<b>806.9</b>	<b>806.9</b>	<b>990.8</b>	<b>990.8</b>	<b>990.8</b>	<b>990.8</b>
Carbon in dead wood	112.8	112.8	112.8	112.8	138.7	138.7	138.7	138.7
Carbon in litter	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Sub-total: Dead wood and litter</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
Soil carbon	582.2	582.2	582.2	582.2	1 547.2	1 547.2	1 547.2	1 547.2
<b>TOTAL</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>

Soil depth (cm) used for soil carbon estimates	30cm
--	------

### 8.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		
Carbon in below-ground biomass		
Carbon in dead wood		
Carbon in litter		
Soil carbon	In calculating soil carbon, LAC soil is assumed for warm temperate moist (63 t C/ha)	

Other general comments to the table
It was difficult to calculate soil carbon based on climatic region in Table 5.10. However, the default values for Warm temperate, moist-climatic region were used.

## 9 Table T9 – Forest fires

### 9.1 FRA 2010 Categories and definitions

Category	Definition
Number of fires	Average number of vegetation fires per year in the country.
Area affected by fire	Average area affected by vegetation fires per year in the country.
Vegetation fire ( <i>supplementary term</i> )	Any vegetation fire regardless of ignition source, damage or benefit.
Wildfire	Any unplanned and/or uncontrolled vegetation fire.
Planned fire	A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action.

### 9.2 National data

#### 9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry. Commercial timber resources and roundwood processing in South Africa	H	Damage by Fire	1989-2007	Covers plantations only

**Note: Data provided is only covering plantations. There is no national data on natural forests and woodlands and other lands**

#### 9.2.2 Classification and definitions

#### 9.2.3 Original data

**Note: information below covers only the plantation area**

Year	Fires	
	No.	(ha)
1988/89	634	6 680
1989/90	1 303	15 923
1990/91	751	6 680
1991/92	1 304	11 469
1992/93	1 216	13 924
<b>Average</b>	<b>1 041.6</b>	<b>10 935.2</b>
1998/99	1 690	16 455
1999/00	3 265	20 221
2000/01	3 540	17 266
2001/02	3 128	16 727
2002/03	3 809	28 982
<b>Average</b>	<b>3 086.4</b>	<b>19 930.2</b>
2003/04	2 634	28 326
2004/05	3 657	22 444
2005/06	2 885	27 813
2006/07	2 209	70 697
<b>Average</b>	<b>2 846.25</b>	<b>37 320</b>

### 9.3 Data for Table T9

**Table 9a**

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire	n/a	n/a	n/a	n/a	n/a	n/a
... of which on forest	n/a	n/a	n/a	n/a	n/a	n/a
... of which on other wooded land	n/a	n/a	n/a	n/a	n/a	n/a
... of which on other land	n/a	n/a	n/a	n/a	n/a	n/a

**Table 9b**

There is no national data for this table

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire	n/a	n/a	n/a
Planned fire	n/a	n/a	n/a

### 9.4 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire	Only the data for plantations is available.	Plantations were seriously affected by fires in 2005.
Number of fires		
Wildfire / planned fire		

#### Other general comments to the table

It is difficult to get the statistics on fire outside the forest. The negative effects of fire are less pronounced in Natural forests This is because natural forests are located in fire-shadow areas.



## 10 Table T10 – Other disturbances affecting forest health and vitality

### 10.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.
Category	Definition
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

### 10.2 National data

Note: The only reliable national data available for this table is on plantations.

#### 10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry. Commercial timber resources and roundwood processing in South Africa	H	Damage by other causes	1989-2007	Covers plantations only
Department of Water Affairs and Forestry, 2007 State of the Forest Report	H	Pests, Diseases	2004-2006	Covers Natural forests & Plantations
Department of Water Affairs and Forestry, Working for Water programme	H	Invasive plants	2005	Statistics received from the planning manager
FSA; Forestry Industry Facts, 2007 for 1988 to 1992	H	Damage by other causes	1988-1992	Covers plantations only for these years but this source did not separate the area damaged by insects, diseases, animals and rodents but gave the total area damaged by all of these

## 10.2.2 Original data

Data from the above sources: Damage to plantations by other causes

Year	Causes				Total Area (ha)
	Weather (ha)	Diseases (ha)	Insects (ha)	Animals (ha)	
1988/89					5 812
1989/90					8 855
1990/91					4 068
1991/92					15 233
1992/93					22 527
<b>Average</b>					<b>11 299</b>
1998/99	3 039	61	1 303	1 085	21 943
1999/00	609	51	41	2 226	23 147
2000/01	530	202	165	1 878	20 041
2001/02	1 228	134	470	190	18 749
2002/03	1 813	68	966	919	32 748
<b>Average</b>	<b>1443.8</b>	<b>103.2</b>	<b>589</b>	<b>1 259.6</b>	<b>23 325.6</b>
2003/04	8 599	72	3 619	614	12 904
2004/05	1 733	70	17 135	581	19 519
2005/06	2 746	67	17 114	3 681	23 608
2006/07	22 242	164	2 691	1 800	26 897
<b>Average</b>	<b>8 830</b>	<b>93.25</b>	<b>10 139.75</b>	<b>1 669</b>	<b>2 0732</b>

Note: The source did not separate the area damaged by insects, diseases, animals and rodents but gave the total area damaged by all of these for the years 1988 to 1992

Category	Affected Plantation area		
	Average (1988-1992)	Average (1998-2002)	Average (2003-2007)
	1990	2000	2005
Disturbance by insects	n/a	589	10139.75
Disturbance by diseases	n/a	103.2	93.25
Disturbance by weather	n/a	1 443.8	8 830
Disturbance by animals & rodents	n/a	1 259.6	1669
<b>Total area affected by disturbances</b>	<b>11 299</b>	<b>3 395.4</b>	<b>20731.75</b>

## 10.3 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	n/a	n/a	n/a
Disturbance by diseases	n/a	n/a	n/a
Disturbance by other biotic agents	n/a	n/a	n/a
Disturbance caused by abiotic factors	n/a	n/a	n/a
<b>Total area affected by disturbances</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>

**Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality**

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
<i>Sirex noctilio</i> (Sirex wood wasp)	<i>Pinus spp</i>	2006	27.000	n/a
<i>Thaumastocoris australicus</i>	<i>Eucalyptus</i>	2005	0.480	n/a
<i>Fusarium circinatum</i>	<i>Pinus spp</i>	2007	n/a	n/a

Note: Area affected refers to the total area affected during the outbreak.

**Table 10c – Area of forest affected by woody invasive species**

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
<i>Acacia spp.</i>	7 034
<i>Lantana camara</i>	1 330
<i>Hakea spp.</i>	523
<i>Eucalyptus spp.</i>	1 905
<i>Caesalpinia decapetala</i>	1 047
<b>Total forest area affected by woody invasive species</b>	n/a

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

#### 10.4 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects		Increase in damage by pests, and diseases
Disturbance by diseases		
Disturbance by other biotic agents		
Disturbance caused by abiotic factors		
Major outbreaks		
Invasive species		

#### Other general comments to the table

According to the State of the Forest Report, 2007, during 2005, a new invasion of *Thaumastocoris australicus*, a sap-sucking insect, was reported. This insect defoliated natural forest and 480 ha of *Eucalyptus* clones in Mpumalanga. The source did not mention the tree species affected in Natural forests. *Thaumastocoris* was in 2006 recognised as one of the most serious threats to *Eucalyptus* forestry in South Africa.

## 11 Table T11 – Wood removals and value of removals

### 11.1 FRA 2010 Categories and definitions

Category	Definition
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (wood fuel).
Woodfuel removals	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
Department of Water Affairs and Forestry. Commercial timber resources and primary roundwood processing in South Africa	H	Plantations (Roundwood)	2000 and 2005	Volume of roundwood is overbark
Forestry South Africa: 2007, Industrial Facts Sheet	H	Plantations	From 1988 to 2006	Figures on roundwood and fuelwood
FAOStat	M	Woodfuel	from 1988 to 2007	Volume of Woodfuel is under bark

#### 11.2.2 Classification and definitions

#### 11.2.3 Original data

A- The below data provided is only for plantations. No industrial woods are extracted from natural forests, which are officially protected areas.

The national figures for 2007 are not yet available. The average of 4 years is used to calculate a figure for 2005

National Data	Volume in cubic meters					
	1988	1989	1990	1991	1992	5 year average 1990
Industrial wood	14 702 439	15 705 319	15 368 360	15 669 005	15 937 914	15 476 607
Fuelwood	245 778	347 642	243 780	238 780	308 899	276 976
	1998	1999	2000	2001	2002	5 year average 2000
Industrial wood	15 473 442	16 511 325	16 370 691	16 387 403	18 988 110	16 746 194
Fuelwood	416 400	168 974	236 188	231 910	217 401	254 174
	2003	2004	2005	2006	2007	4 year average 2005
Industrial wood	20 046 818	21 702 679	22 531 163	20 025 464		21 076 531
Fuelwood	264 375	273 654	296 028	305 036		284 928

National Data	Value in Rand million					
	1988	1989	1990	1991	1992	5 year average in 1990
Industrial wood	826.3	885.9	905.3	1 064.4	1 014.6	939.3
Fuelwood	6.4	12.8	6.8	7.1	4.4	7.5
	1998	1999	2000	2001	2002	5 year average 2000
Industrial wood	2 250.9	2 566.5	2 695	3 243.3	4 059.7	2 963.08
Fuelwood	17.4	7.6	17.4	22.9	20.2	17.1
	2003	2004	2005	2006	2007	4 year average 2005
Industrial wood	4 196	4 934.8	5 143.5	5 144.8	n/a	4 854.8
Fuelwood	20.3	21.9	23.0	22.2	n/a	21.9

### Calculating Unit value / m<sup>3</sup>

National Data	5 year average 1990		5 year average 2000		4 year average 2005		Divide the value by the volume to get unit value / m <sup>3</sup>		
	Value	Volume	Value	Volume	Value	Volume	1990	2000	2005
Industrial wood	939.3	15.477	2 963.1	16.746	4 854.8	21.077	60.69	176.94	230.34
Fuelwood	7.5	0.277	17.1	0.254	21.9	0.285	27.08	67.32	76.84

B- In order to have an average of the woodfuel removed from the total forest, data from FAOStat has been used:

National Data	Volume in cubic meters						
	under bark					over bark	
	1988	1989	1990	1991	1992	5 year average 1990	5 year average 1990
Fuelwood	11000000	11400000	11800000	12200000	12600000	11800000	13570000
	1998	1999	2000	2001	2002	5 year average 2000	5 year average 2000
Fuelwood	12000000	12000000	12000000	12000000	12000000	12000000	13800000
	2003	2004	2005	2006	2007	5 year average 2005	5 year average 2005
Fuelwood	12000000	12000000	12000000	12000000	12000000	12000000	13800000

### 11.3 Data for Table T11

FRA 2010 Category	Industrial roundwood removals			Woodfuel removals		
	1990	2000	2005	1990	2000	2005
Total volume (1000 m <sup>3</sup> o.b.)	15 477	16 746	21 077	13 570	13 800	13 800
... of which from forest	15 477	16 746	21 077	13 570	13 800	13 800
Unit value (local currency / m <sup>3</sup> o.b.)	60.69	176.94	230.34	27.08	67.32	76.84
Total value (1000 local currency)	939 300	2 963 080	4 854 800	367 476	929 016	1 060 392

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

	1990	2000	2005
Name of local currency	ZAR	ZAR	ZAR

### 11.4 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals	The data provided is only for plantations. Except an insignificant volume, removed from the Tsitsikamma-Knysna forest (1 500 m <sup>3</sup> ), there is not extraction from natural forests, which are officially protected areas.	Decreased plantation production. There has not been a good monitoring system to enable time series comparisons in Woodlands.
Total volume of woodfuel removals	There are still no reliable records of how much fuelwood is being removed from woodlands	It is noted that the part of woodfuel is low compared to industrial wood. This can be attributed to the fact that the sources report only a fraction of consumption. Much of woodfuel consumption occurs from the woodlands
Unit value		
Total value		

#### Other general comments to the table

Natural Forests in South Africa are legally protected.

## 12 Table T12 – Non-wood forest products removals and value of removals

### 12.1 FRA 2010 Categories and definitions

Term	Definition
Non-wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of NWFP removals	For the purpose of this table, value is defined as the market value at the site of collection or forest border.

### NWFP categories

Category
<p><b><u>Plant products / raw material</u></b></p> <ol style="list-style-type: none"> <li>1. Food</li> <li>2. Fodder</li> <li>3. Raw material for medicine and aromatic products</li> <li>4. Raw material for colorants and dyes</li> <li>5. Raw material for utensils, handicrafts &amp; construction</li> <li>6. Ornamental plants</li> <li>7. Exudates</li> <li>8. Other plant products</li> </ol> <p><b><u>Animal products / raw material</u></b></p> <ol style="list-style-type: none"> <li>9. Living animals</li> <li>10. Hides, skins and trophies</li> <li>11. Wild honey and bee-wax</li> <li>12. Wild meat</li> <li>13. Raw material for medicine</li> <li>14. Raw material for colorants</li> <li>15. Other edible animal products</li> <li>16. Other non-edible animal products</li> </ol>

### 12.2 National data

#### 12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry, 2007 State of the Forest Report	H	Non wood forest products	2004-2006	
Department of Water Affairs and Forestry, 2007 Forestry Sub-sector Studies	M	Non wood forest products	2005	The studies, commissioned by DWAF, focus on the role that each subsector can play in promoting poverty eradication.

### 12.2.2 Original data

The figures for NFWP have been derived from the studies, commissioned by Department, focusing on the role that each subsector can play in promoting poverty eradication, the State of the forest report and personal communication with people dealing with forestry development.

### 12.3 Data for Table T12 (2005)

Rank	Name of product	Key species	Unit	NFWP removals 2005		NFWP category
				Quantity	Value (1000 local currency)	
1 <sup>st</sup>	Marula Fruit	<i>Sclerocarya birrea</i>	tons	Est 2 200	500 000	1
2 <sup>nd</sup>	Medicinal Plants	n/a	tons	Est. 20 000	270 000	3
3 <sup>rd</sup>	Honey		tons	Est. 1 580	Est. 63 000	1
4 <sup>th</sup>	Mushrooms (cultivated under pine trees)	<i>Boletus edulis</i>	n/a	n/a	17 000 to 25 000.	1
5 <sup>th</sup>	Seven-week fern	<i>Rumohra adiantiformis</i>	tons	300	20 000	6
6 <sup>th</sup>	Resin			n/a	Est. 5 000	1
7 <sup>th</sup>	Mopane worms		n/a		n/a	1
8 <sup>th</sup>	Wild fruits		n/a	n/a	n/a	1
9 <sup>th</sup>	Wild spinaches		n/a	n/a	n/a	1
10 <sup>th</sup>	Porcupine needles		n/a	n/a	n/a	6
	All other plant products				n/a	
	All other animal products				n/a	
	<b>TOTAL</b>				<b>Est. 8 000 000</b>	

	2005
Name of local currency	ZAR

### 12.4 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	Data is based on estimates provided by sources
Other plant products	Data is based on estimates provided by sources
Other animal products	No data available
Value by product	Data is based on estimates provided by sources
Total value	

Other general comments to the table
Getting statistics for the whole country is very difficult. Many studies report on the use of NTFPs. However, the estimates are mostly site and species specific and by necessity lack general application. However, According to sources, the direct-use value of woodland resources consumed each year is at least R8 billion. There is no data for animals most probable because hunting is illegal in forests.



## 13 Table T13 – Employment

### 13.1 FRA 2010 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment	Includes all persons in paid employment or self-employment.
Paid employment	Persons who during a specified reference period performed some work for <u>wage or salary</u> in cash or in kind.
Self-employment	Persons who during a specified reference period performed some work for <u>profit or family gain</u> in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers).

### 13.2 National data

#### 13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
<a href="http://www-dwaf.pwv.gov.za/Events/Arborweek/2004/documents/EnablingEnvironment1Jul04l.doc">http://www-dwaf.pwv.gov.za/Events/Arborweek/2004/documents/EnablingEnvironment1Jul04l.doc</a>	M	Employment	2004	
Department of Water Affairs & Forestry, Annual report, 2006/07	H	Employment	2005/06 - 2006/07	Employment in state managed operations and Forestry sector. Confirmed by the Human Resources department
Companion to the draft forest sector transformation charter,	H	Employment	2008	Based on 2006 plantation figures and 2003 GDP and employment figures (from Genesis Study) and adapted with Producer Price Increase for the various product groupings to obtain estimates for 2006
Global Forest Resources Assessment 2005, South Africa Country Report	H	Employment	2000	

#### 13.2.2 Classification and definitions

#### 13.2.3 Original data

Forestry sub-sector	Employment (2004)
Commercial plantations	60 000
Mining timber	500
Poles	5000
Tourism (game parks; eco-tourism)	Estimated 200 000
Conservation	50 000

Government (DWAF)	5 000
<b>Total</b>	<b>320 500</b>

Forestry sub-sector	Employment (2006)
Commercial plantations	107 000
Mining timber	2 200
Poles	5 000
Charcoal Producers	5 500
Composite Board Producers	6 000
Woodchip producers	< 500
Pulp and Paper Manufactures	24 000
Sawmillers	Estimated 25 000
Tourism (game parks; eco-tourism)	Estimated 200 000
Conservation	50 000
Government (DWAF)	3 749
<b>Total</b>	<b>Estimated 428 949</b>

### 13.3 Analysis and processing of national data

#### 13.3.1 Reclassification into FRA 2010 categories

Forestry sub-sector	Employment (2004)	
	Employment	Primary Production of Goods
Commercial plantations	60 000	60 000
Mining timber	500	500
Poles	5 000	5 000
Tourism (game parks; eco-tourism)	Estimated 200 000	
Conservation	50 000	
Government (DWAF)	5 000	
<b>Total</b>	<b>320 500</b>	<b>65 500</b>

Forestry sub-sector	Employment (2006)			
	Employment	Paid employment	Self employment	Primary Production of Goods
Commercial plantations	107 000	69 556	37 444	107 000
Mining timber	2 200	2 200		2 200
Poles	5 000	5 000		5 000
Charcoal Producers	5 500	5 500		5 500
Composite Board Producers	6 000	6 000		
Woodchip producers	< 500	< 500		
Pulp and Paper Manufactures	24 000	13 219	10 781	
Sawmillers	+ 25 000	+ 25 000		
Tourism (game parks; ecotourism)	+ 200 000	+ 200 000		
Conservation	50 000	50 000		
Government (DWAF)	3 749	3 749		+ 1 508
<b>Total</b>	<b>Estimated 428 949</b>	<b>380 724</b>	<b>48 225</b>	<b>121 208</b>

**13.4 Data for Table T13**

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	n/a	66	121
...of which paid employment	n/a	n/a	84
...of which self-employment	n/a	n/a	37
Employment in management of protected areas	n/a	n/a	n/a

**13.5 Comments to Table T13**

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Employment in primary production of goods	Figures for 2005 are based on the 2006 data.	
Paid employment / self-employment	Most employees in industry either work for contractors or are self-employed small growers	
Employment in management of protected areas		

**Other general comments to the table**

Employment statistics in the forest sector are very difficult to obtain from primary production of goods, as most of these activities are either outsourced or are seasonal.

## 14 Table T14 – Policy and legal framework

### 14.1 FRA 2010 Categories and definitions

Term	Definition
Forest policy	A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society.
Forest policy statement	A document that describes the objectives, priorities and means for implementation of the forest policy.
National forest programme (nfp)	A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies.
Law (Act or Code) on forest	A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.

### 14.2 Data for Table T14

Indicate the existence of the following (2008)			
<b>Forest policy statement with national scope</b>	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Year of endorsement	1996	
	Reference to document	White Paper on Sustainable Forest Development	
<b>National forest programme (nfp)</b>	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Name of nfp in country	South Africa National Forest Programme	
	Starting year	1997	
	Current status	<input type="checkbox"/>	In formulation
		<input type="checkbox"/>	In implementation
		<input checked="" type="checkbox"/>	Under revision
Reference to document or web site	<input type="checkbox"/>	Process temporarily suspended	
<b>Law (Act or Code) on forest with national scope</b>	<input checked="" type="checkbox"/>	Yes, specific forest law exists	
	<input type="checkbox"/>	Yes, but rules on forests are incorporated in other (broader) legislation	
	<input type="checkbox"/>	No, forest issues are not regulated by national legislation	
If Yes above, provide:	Year of enactment	1998	
	Year of latest amendment	2005	
	Reference to document	National Forest Act, 1998 (No 84 of 1998) National Veld and Forest Fire Act, 1998	

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with Laws on forests		

### 14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	The white paper for sustainable forest development is currently being reviewed as part of the SA National Forest Programme (NFP)
National forest programme (nfp)	The NFP was revised on 31 <sup>st</sup> May 2007
Law (Act or Code) on forest with national scope	South Africa has two pieces of legislation regulating forest issues, namely, the National Forest Act, 1998 (No 84 of 1998) and the National Veld and Forest Fire Act, 1998  Both these laws have been amended under the “Forestry Laws Amendment Act, 2005”
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

Other general comments to the table

## 15 Table T15 – Institutional framework

### 15.1 FRA 2010 Categories and definitions

Term	Definition
Minister responsible for forest policy-making	Minister holding the main responsibility for forest issues and the formulation of the forest policy.
Head of Forestry	The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests.
Level of subordination	Number of administrative levels between the Head of Forestry and the Minister.
University degree	Qualification provided by University after a minimum of 3 years of post secondary education.

### 15.2 Data for Table T15

**Table 15a – Institutions**

FRA 2010 Category	2008
Minister responsible for forest policy formulation : please provide full title	Mrs Lindiwe Hendricks- Current Minister of the Department of Water Affairs and Forestry.
Level of subordination of Head of Forestry within the Ministry	1 <sup>st</sup> level subordination to Minister
	X 2 <sup>nd</sup> level subordination to Minister
	3 <sup>rd</sup> level subordination to Minister
	4 <sup>th</sup> or lower level subordination to Minister
Other public forest agencies at national level	
Institution(s) responsible for forest law enforcement	Department of Water Affairs and Forestry.

**Table 15b – Human resources**

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	10 000	n/a	3 749	n/a	3 095	45 % (1394 f)
...of which with university degree or equivalent	n/a	n/a	n/a	n/a	119	36 % (43 f)

Notes:

1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

### 15.3 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation	South Africa will hold general elections in 2009. The minister responsible for forestry might change.	
Level of subordination of Head of Forestry within the Ministry		
Other public forest agencies at national level	Not applicable	
Institution(s) responsible for forest law enforcement	The Department is responsible for forest law enforcement in South Africa	
Human resources within public forest institutions	<p>Data covers employees of the department.</p> <p>Since 2000, the department engaged in a programme to transfer state forest assets to other agencies such as conservation authorities, municipalities, commercial forestry companies and communities affected by Land Reform Policy and commercial forestry operations, through appropriate vehicles / instruments that promotes Black Economic Empowerment (BEE) and socio economic development at the local level.</p> <p>The assets are transferred with the operational staff and other posts remained vacant hence the decrease of staff.</p>	

#### Other general comments to the table

The Data source for 2000 is Department of Water Affairs and Forestry, Annual Report for 2000/01. The data source for 2005 is Department of Water Affairs & Forestry, Annual report, 2005/06 and data for 2008 was provided by the Human Resource section of the department

## 16 Table T16 – Education and research

### 16.1 FRA 2010 Categories and definitions

Term	Definition
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctor's degree (PhD)	University (or equivalent) education with a total duration of about 8 years.
Master's degree (MSc) or equivalent	University (or equivalent) education with a total duration of about five years.
Bachelor's degree (BSc) or equivalent	University (or equivalent) education with duration of about three years.
Technician certificate or diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.
Publicly funded forest research centers	Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.

### 16.2 National data

#### 16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Institutions offering Forestry Education	H	Graduation of students in forest-related education	2000, 2005, 2008	Reliable data

### 16.3 Analysis and processing of national data

#### 16.3.1 Estimation and forecasting

No estimation and forecasting were necessary as the figures are for the reporting years.



**Data for Table T16**

FRA 2010 Category	Graduation <sup>1)</sup> of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	10	30 % (3 f)	8	25 % (2 f)	0	0
Bachelor's degree (BSc) or equivalent	38	7.8 % (3 f)	23	0 %	29	17.2 % (5 f)
Forest technician certificate / diploma	55	18 % (10 f)	41	29.2 % (12 f)	48	25 % (12 f)
FRA 2010 Category	Professionals working in publicly funded forest research centres <sup>2)</sup>					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Doctor's degree (PhD)	24	37.5 % (9 f)	34	41 % (14f)	34	44 % (15 f)
Master's degree (MSc) or equivalent	12	41.6 % (5 f)	20	55 % (11f)	35	48.5 % (17 f)
Bachelor's degree (BSc) or equivalent	7	42.8 % (3 f)	8	50 % (4f)	11	36.3 % (4f)

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.

**16.4 Comments to Table T16**

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education	Data is reliable	The number of forest graduates declined significantly with a slight increase in female graduates. However, it can be noted that there is still a few number of students pursuing higher degrees especially females. Most females are diploma graduates
Professionals working in public forest research centres	Data is reliable	There is a steady increase in number of professionals working in research centres. Of particular note, is the significant increase of female professionals working in these centres.

**Other general comments to the table**

Forestry is not seen as an interesting field of study in the country, especially amongst the youth. It is seen as employment of last resort. However, attempts are being made by the department and the industry to raise its profile to attract students by offering bursaries amongst other things.

## 17 Table T17 – Public revenue collection and expenditure

### 17.1 FRA 2010 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose, forest products include: roundwood; sawnwood; wood-based panels; pulp and paper; and non-wood forest products. As far as possible, this should include revenue collected by all levels of government (i.e. central, regional/provincial and municipal level), but it should exclude the income of publicly owned business entities.
Public expenditure	All government expenditure on forest related activities (further defined below).
Operational expenditure (sub-category to Public expenditure)	All government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities.
Transfer payments (sub-category to Public expenditure)	All government expenditure on direct financial incentives paid to non-government and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities.
Domestic funding	Public expenditure funded from domestic public financial resources, including: retained forest revenue; forest-related funds; and allocations from the national budget (i.e. from non-forest sector public revenue sources).
External funding	Public expenditure funded from grants and loans from donors, non-governmental organisations, international lending agencies and international organisations, where such funds are channelled through national public institutions.

### 17.2 National data

#### 17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry; Budget	H	Expenditure	2000,2005	
Department of Water Affairs and Forestry; Annual report 2000-2001	H	External Funding	2000	
Expert Estimate	L	External Funding	2000,2005	This is an estimate made by project managers who managed projects funded by donors.

### 17.3 Analysis and processing of national data

#### 17.3.1 Estimation and forecasting

No estimation as figures were for the requested reporting years

## 17.4 Data for Table T17

**Table 17a - Forest revenues**

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	n/a	46 735

**Table 17b - Public expenditure in forest sector by funding source**

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 local currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	123 135	403 132	n/a	n/a	n/a	n/a
Transfer payments	218 091	17 787	n/a	n/a	n/a	n/a
<b>Total public expenditure</b>	<b>341 226</b>	<b>420 919</b>	n/a	n/a	n/a	n/a
If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.	<input type="checkbox"/>	Reforestation				
	<input type="checkbox"/>	Afforestation				
	<input type="checkbox"/>	Forest inventory and/or planning				
	<input checked="" type="checkbox"/>	Conservation of forest biodiversity				
	<input checked="" type="checkbox"/>	Protection of soil and water				
	<input checked="" type="checkbox"/>	Forest stand improvement				
	<input type="checkbox"/>	Establishment or maintenance of protected areas				
	<input checked="" type="checkbox"/>	Other, specify below				
Development of Principles, Criteria, Indicators and Standards.						

**17.5 Comments to Table T17**

<b>Variable / category</b>	<b>Comments related to data, definitions, etc.</b>	<b>Comments on the reported trend</b>
Forest revenue	Data is reliable	
Operational expenditure	Data is reliable	Operational expenditure has shown a steady increase over the years
Transfer payments	Data is reliable	There is a notable difference during the reporting years probable because the plantations at this time were being refurbished in preparation for transferring to private companies

**Other general comments to the table**

According to the Department's annual report, 2000/01, the department received R5 284 000 in 2000 for the Restructuring of the forest of the former administrations from the department for international development (DFID – UK) and a further estimated amount of 12 500 000 for the year 2000 and 6 150 000 in 2005 for development of PCI &S and the Forest Inventory. However, it is not clear how much was spent during the reporting years.