

# GLOBAL FOREST RESOURCES ASSESSMENT 2015

## COUNTRY REPORT

# **Sudan**

Rome, 2014

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Global Forest Resources Assessment (FRA). This country report is prepared as a contribution to the FAO publication, the Global Forest Resources Assessment 2015 (FRA 2015).

The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guide for country reporting for FRA 2015 (<http://www.fao.org/3/a-au190e.pdf>). These reports were submitted to FAO as official government documents.

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### Introductory Text

Place an introductory text on the content of this report

(Optional)

### Desk Study?

Check "yes" if this survey is a Desk Study, "no" otherwise	
Desk Study?	no

## 1. What is the area of forest and other wooded land and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 1.1 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as "Forest" spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of 5-10 percent or trees able to reach these thresholds ; 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".
...of which with tree cover ( <i>sub-category</i> )	Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span 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. It includes bothe forest and non-forest tree species.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.
Forest expansion	Expansion of forest on land that, until then, was not defined as forest.
...of which afforestation ( <i>sub-category</i> )	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not defined as forest.
...of which natural expansion of forest ( <i>sub-category</i> )	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).
Deforestation	The conversion of forest to other land use or the longterm reduction of the tree canopy cover below the minimum 10 percent threshold.
...of which human induced ( <i>sub-category</i> )	Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold.
Reforestation	Natural regeneration or re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.
...of which artificial reforestation ( <i>sub-category</i> )	Re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.

### 1.2 National data

#### 1.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	World Bank 1983. Sudan Forestry sector Review.	L	Forest and other woody areas	1972
2	World Bank 1985. Sudan Forestry Sector Review	M	Forest cover	1976

3	FNC 2000. Country Submission to FRA 2000.	M	Forest cover	1997
4	FAO (2003). Land Cover Atlas. Africover Eastern Africa. GCO/RAF/287/ITA	H	Land Cover 1990-2000. Complete	2000
5	Dawelbait, Mohamed Salah Yousif, Branthomme, A.; Elmahi, A.G.; DeLungo, A. & AbdelNour, H. 2006. Estimating forest cover and forest cover change in Sudan. Forest Resources Assessment Working Paper 109. FAO, Rome	H/M	Forest cover Forest cover change	2000
6	FNC 2001-2008, Annual reports.	L/M	Plantation activities Regeneration, and loss estimates	2000-2008
7	FNC reports cross check sheet by region.	H	Displacement or additional loss in forest area	2000-2008
8	Abdelsalam, A.A. (2007) Macro Sectoral Policies in Woodfuels Conservation Strategy NPC Nile Trans boundary Environmental Action Project. Nile Basin Development Forum	M/H	Estimates of scenarios, total consumption, updates of 1994	2005-2010
9	Sudan Land Cover Atlas. 2012. FAO/SIFSIA.	H	Forest Cover Shrubs Herbs Bare land Urban Land Etc ...	N/A
10	FAO/FNC. 2000. LCCS.	N/A	N/A	N/A

### 1.2.2 Classification and definitions

National class	Definition
National classification is similar to the FRA 2010 one.	N/A
N/A	N/A
N/A	N/A
N/A	N/A

### 1.2.3 Original data

**Table T1 a:** Source, Land Cover Classification System Africover 2000.

No	State	Agric. ha	Forest ha	Range & Pasture	Urban ha	Bare ha	Water Bodies	Total area ha
1	Blue Nile	2042096.199	1071771.453	1075379.531	4314.327	0	24766.196	4219409.743
2	El Gadarif	3221523.625	522087.374	2079853.045	13934.723	9570.442	2026.086	5849006.888
3	El Gazera	1761939.933	5320.77	667288.935	28971.051	0	010876.626	2474355.925
4	Kassala	797522.144	899976.989	2849609.887	41987.313	403684.27	9873.16	5002643.856
5	Khartoum	171885.348	37842.195	1695294.957	58399.499	195247.689	21641.829	2180311.424
6	Northern St.	158125.091	20507.258	467277.911	7903.019	35661507.81	127561.081	36442884.39
7	Northern Darfur	2181131.194	830515.489	7845670.957	17163.217	18676388.99	102.656	29551077.84
8	Northern Kordofan	3025128.651	637074.19	8899416.557	32278.47	6257614.73	1569.011	18853074.77
9	Red Sea	100423.757	331434.122	2290225.347	8737.282	18899005.74	233.294	21630047.85
10	River Nile	162620.466	212507.917	3420954.931	10356.631	9078601.1	52692.738	12937734.05
11	Sinnar	1976947.936	626381.188	931459.839	3560.703	24664.433	19155.141	3582144.404
12	Southern Darfur	3441510.273	6009313.114	482193.201	17193.806	40686.336	44.416	13870974.52
13	Southern Kordofan	1213703.35	4139292.73	2607011.905	6296.069	71109.604	885.836	8038295.167
14	Western Darfur	624112.254	2734491.321	3877549.425	1487.926	638301.979	590.122	7880254.652
15	White Nile	1459892.751	609781.146	1859602.784	8119.987	21419.17	47185.85	4006045.604
	<b>Total area</b>	25812998.14	21826163.27	45677964.98	281060.569	90001344.57	319573.319	<b>187804015.7</b>
	<b>Percentage</b>	14%	12%	24%	0.0014%	47%	0.007%	

Table T1b: Adjustment of the original data LCCS 2000 (Calibration)

No	State	Agric. ha	Forest ha	Range & Pasture	Urban ha	Bare ha	Water Bodies	Total area ha
1	Blue Nile	2042096.199	1071771.453	1075379.531	4314.327	0	24766.196	<b>04 218 327.706</b>
2	El Gadarif	3221523.625	522087.374	2079853.045	13934.723	9570.442	2026.086	<b>05 848 995.295</b>
3	El Gazera	1761939.933	5320.77	667288.935	28971.051	0	010876.626	<b>02 474 397.315</b>
4	Kassala	797522.144	899976.989	2849609.887	41987.313	403684.27	9873.16	<b>05 002 653.763</b>
5	Khartoum	171885.348	37842.195	1695294.957	58399.499	195247.689	21641.829	<b>2 180 311.424</b>
6	Northern St.	158125.091	20507.258	467277.911	7903.019	35661507.81	127561.081	<b>36 442 882.170</b>
7	Northern Darfur	2181131.194	830515.489	7845670.957	17163.217	18676388.99	102.656	<b>29 550 972.503</b>
8	Northern Kordofan	3025128.651	637074.19	8899416.557	32278.47	6257614.73	1569.011	<b>18 853 081.609</b>
9	Red Sea	100423.757	331434.122	2290225.347	8737.282	18899005.74	233.294	<b>21 630 059.542</b>
10	River Nile	162620.466	212507.917	3420954.931	10356.631	9078601.1	52692.738	<b>12 937 733.783</b>
11	Sinnar	1976947.936	626381.188	931459.839	3560.703	24664.433	19155.141	<b>03 582 169.240</b>
12	Southern Darfur	4778038.486	8343060.765	669455.410	23871.108	56487.083	61.665	13870974.519
13	Southern Kordofan	1213703.35	4139292.73	2607011.905	6296.069	71109.604	885.836	<b>08 038 299.494</b>
14	Western Darfur	<b>624 407.144</b>	2735783.355	3879381.548	<b>1488.629</b>	<b>638603.573</b>	<b>590.400</b>	<b>07 880 254.651</b>
15	White Nile	1459892.751	609781.146	1859602.784	8119.987	21419.17	47185.85	<b>04 006 001.668</b>
	<b>Total area</b>	25812998.14	21826163.27	45677964.98	281060.569	90001344.57	319573.319	<b>187 802 859.725</b>
	<b>Percentage</b>	14%	12%	24%	0.0014%	47%	0.007%	

Comment: The total area in T1a is adjusted in the table T1b above.

**TableT1c:** Land Cover Map Data (Atlas) of Sudan 2012.

<b>STATES</b>	<b>Agriculture AG ha</b>	<b>Forest TCO ha</b>	<b>Shrubs close to sparseSCO ha</b>	<b>Herbaceo- us closed to sparseHCO ha</b>	<b>Urban URB ha</b>	<b>Bare Soil BS ha</b>	<b>Water WAT ha</b>	<b>TOTAL AREA</b>
<b>Blue Nile</b>	1 275 917	1 582 755	0 553 158	0 338 253	013 413	00 016 248	037 209	03 816 953
<b>El Gadarif</b>	3 458 932	0 598 354	0 197 738	1 207 604	039 799	00 331 314	124 163	05 957 904
<b>El Gazera</b>	2 075 145	0 068 536	0 016 991	0 335 004	075 660	00 128 948	013 149	02 713 437
<b>Kassala</b>	1 077 738	0 401 488	0 157 925	0 791 092	023 756	02 377 681	041 544	04 871 224
<b>Khartoum</b>	0 224 523	0 044 618	0 034 301	0 203 224	084 682	01 513 983	015 578	02 120 909
<b>Northern</b>	0 110 858	0 029 635	0 112 526	0 150 729	055 148	35 995 792	114 488	36 569 177
<b>Northern Darfur</b>	1 458 402	0 469 914	2 733 627	8 853 330	047 407	18 081358	107 158	31 751 197
<b>Northern kordofan</b>	4 571 176	2 852 632	5 776 385	5 135 514	146 862	05 188 063	385 136	24 055 768
<b>Red Sea</b>	0 030 155	0 458 962	1 030 880	0 578 602	017 522	18 479 544	027 033	21 622 699
<b>River Nile</b>	0 227 937	0 022 408	0 072 130	0 507 026	044 245	12 112 321	042 828	13 028 895
<b>Sinnar</b>	2 458 947	0 480 173	0 504 186	0 400 492	037 659	00 009 963	032 808	03 924 228
<b>Southern Darfur</b>	2 122 492	3 157 458	4 722 374	4 034 753	048 996	00 010 414	066 245	14 162 732
<b>Southern Kordofan</b>	1 963 585	7 174 761	4 134 598	0 675 395	036 182	00 011 999	089 235	14 085 754
<b>Western Darfur</b>	0 599 674	1 120 237	1 690 251	1 969 654	017 016	00 009 771	069 258	05 475 861

<b>White Nile</b>	<b>2 054 539</b>	<b>0 271 251</b>	<b>0 494 257</b>	<b>0 802 049</b>	<b>041 985</b>	<b>00 010 328</b>	<b>124 166</b>	<b>03 798 575</b>
<b>Grand Total</b>	<b>23 710 025</b>	<b>18 733 182</b>	<b>22 231 327</b>	<b>25 982 720</b>	<b>730 331</b>	<b>95 277 727</b>	<b>1 290 000</b>	<b><u>187 955 575</u></b>

Table T1d: Inconsistency of the total area

Year	Area N. Sudan (Official) (1000 ha)	Area N. Sudan (Land Cover) (1000 ha)
2000	n.a	187 802. 860
2012	188 200	187 955. 575
2015	188 200	187 955 .575

The area of the country is taken as provided by the LCCS **187 955 575** ha. In 2015, assuming no changes will take place, it will remain the same

### 1.3 Analysis and processing of national data

#### 1.3.1 Adjustment

Adjustment of the original data (LCCS 2000) table a (Calibration )

The adjustment is referred to in table T1b.

#### 1.3.2 Estimation and forecasting

**Forest:** 1 million ha goes from shrubs to forest. Forest in 2012= 18 733 182+1000 000 = 19 733 182

DR= (F2000-F2010)/10=

DR=(21 826 163.27 -19 733 182 )/10 =2 092 981/12 = **174 415** ha/yr

**OWL :** (OWL 2000-OWL2010)/12= (23 446 637-21 231 327)/12= **184 610** ha/yr

<b>18 733 182 Tree cover 2012+1 million ha from shrub category= 19 733 182 ha</b>	<b>22 231 327 shrubs-1 million ha= 21 231 327 ha</b>	<b>25 982 720 herbs</b>
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Note: take 1 million ha from shrubs SCO and add to forest category and the remainder of SCO is as OWL .  
Cancel HCO because it never indicates Forest and never indicates OWL

Year	Forest (F)	SCO (OWL)	HCO
2010	19 733 182	21 231 327	25 982 720
2000	21 826 163	45 677 964-22231327 = 23 446 637	

### 1.3.3 Reclassification

Reclassification matrix 2015 (This is for one Sudan)

National classes	FRA Categories					
	1000 ha	Forest	OWL	Other land	Total	OLWTC
Forest	019 209. 938	019 209. 938			19 209.	
OWL			020 677. 487			
Other land	163 566.160				100%	12%
Inland water	12 981				100%	
	<b>250 581</b>					

Result of reclassification 2015 (This is for North Sudan)

National classes	FRA Categories					
	1000 ha	Forest	OWL	Other land	Total	OLWTC

Forest	019 209. 938	019 209. 938			019 209.938	
OWL	020 677.487				020 677.487	
Other land	146 777.887			146 777. 887	146 777.887	12%
Inland water	1290				1290	
	<b>187 955 312</b>				187 955 312	

## 1.4 Data

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	23570.313	21826.163	20954.088	20082.012	19209.938
	Other wooded land	25289.737	23446.637	22523.587	21600.537	20677.487
	Other land	137805.262	141392.512	143187.637	144982.763	146777.887
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	1290	1290	1290	1290	1290
	TOTAL	187955.31	187955.31	187955.31	187955.31	187955.31

Table 1b

Categories		Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
		1990	2000	2005	2010	1990	2000	2005	2010
CFRQ	Forest expansion	75	70	60	50	N/A	N/A	N/A	N/A
CFRQ	... of which afforestation	18	16	20	17	N/A	N/A	N/A	N/A
CFRQ	... of which natural expansion of forest	57	54	40	33	N/A	N/A	N/A	N/A
CFRQ	Deforestation	174.415	174.415	174.415	174.415	N/A	N/A	N/A	N/A
CFRQ	... of which human induced	174.415	174.415	174.415	174.415	N/A	N/A	N/A	N/A
CFRQ	Reforestation	5424	5639	5854	5940	N/A	N/A	N/A	N/A
CFRQ	... of which artificial	5424	5424	5424	5424	N/A	N/A	N/A	N/A

## Tiers

Category	Tier for status	Tier for reported trend
Forest	Tier 1	Tier 1
Other wooded land	Tier 1	Tier 1
Forest expansion	Tier 1	Tier 1
Deforestation	Tier 1	Tier 1
Reforestation	Tier 1	Tier 1

## Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> <li>Forest</li> <li>Other wooded land</li> <li>Afforestation</li> <li>Reforestation</li> <li>Natural expansion of forest</li> <li>Deforestation</li> </ul>	<b>Tier 3</b> : Data sources: Either recent (less than 10 years ago) National Forest Inventory or remote sensing, with ground truthing, or programme for repeated compatible NFIs <b>Tier 2</b> : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago) <b>Tier 1</b> : Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	-Adjustment of the original data of table a. Data is inconsistent.- The total area in T1a is adjusted in the table T1b above (Red color).	N/A

Other wooded land	-Adjustment of the original data of table a. Data is inconsistent.- The total area in T1a is adjusted in the table T1b above (Red color).	N/A
Other land	-Adjustment of the original data of table a. Data is inconsistent.- The total area in T1a is adjusted in the table T1b above (Red color).	N/A
Other land with tree cover	-Adjustment of the original data of table a. Data is inconsistent.- The total area in T1a is adjusted in the table T1b above (Red color).	N/A
Inland water bodies	-Adjustment of the original data of table a. Data is inconsistent.- The total area in T1a is adjusted in the table T1b above (Red color).	N/A
Forest expansion	Weak measurement.	N/A
Deforestation	Its measurement is indirect.	N/A
Reforestation	Full data results.	N/A

#### Other general comments to the table

The water bodies for the former one country is there. The water bodies for N. Sudan introduced by LCCS does indicate the true situation. Governments, UN STAT and FAO/STAT may explain this, discuss this The area of forest is 019 209 938 ha, and the area of OWL = 020 677 487 for the year 2015. The change rate or deforestation rate = 174 415 ha per year for forests and 184 610 ha per year for OWL. The answer comes from 1.4 data for national reporting table T1. The total area by official SSC and the LCCS is slightly different. Political negotiations between the two countries may reach the exact boundaries of the adjacent states. For the moment FRA 2015 we stick to the boundaries of the northern states before the independence of the two countries.-The water bodies in the two LCCS seems very small to FRA 2010 and before for the former one Sudan. We shall stick to water bodies 1 290 000 of the LCCS. When the true value for WBs is settled between the government, FAO STAT, and UN-STAT the right value should be weighed with the area of other land. Note: More Investigate and study about the Water Bodies.

## 2. What is the area of natural and planted forest and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 2.1 Categories and definitions

Term	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Naturalized introduced species	Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time.
Introduced species	A species, subspecies or lower taxon occurring <i>outside</i> 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).
Category	Definition
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.
...of which of introduced species ( <i>sub-category</i> )	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized ( <i>sub-sub category</i> )	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species ( <i>sub-category</i> )	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted ( <i>sub-category</i> )	Mangroves predominantly composed of trees established through planting.

### 2.2 National data

#### 2.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Bayoumi, Al Hourri and Badey, 1989. The forests of the Sudan. Forests National Corporation. Sudan.	M	Forest characteristics	N/A
2	Anon. 2002-2007. Annual Reports. Forests National Corporation. Sudan.	H	Forest characteristics	N/A
3	FOSA/FNC records.	M	N/A	N/A

4	Anon. 2003. Interviews and reports of States Forest Directors. 2008. FNC. Sudan.	M	Forest characteristics	N/A
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## 2.2.2 Classification and definitions

National class	Definition
Forests Plantations	The planting by seeds and seedlings in natural, reserved, irrigated schemes and institutions, private and community forests. It includes all the planting
Official planting	Planting by seedlings and seeds done in FNC annual programs.
Community planting	Planting by individuals and groups.
N/A	N/A

## 2.2.3 Original data

Information is based on interviews and reports from state forest departments.		
- From 2000 to 2008, plantation areas of introduced species (the below data derived from states documents		
State/region	Total Plantation of introduced species 2000-2008, in ha	Plantation of introduced species 2000 in ha **
White Nile	1 097	2731
Sinnar	n/a	
Blue Nile	115	
Gezira	617	2188
<b>Total Central</b>	<b>1 829</b>	
West Dar fur	1 645	
North Dar fur	25	
South Dar fur	45	

<b>Total Dar fur</b>	<b>1 715</b>	
Gedarif	122	
Kassala	555	
Red Sea	0	
<b>Total Eastern</b>	<b>677</b>	
North Kordofan	0	
West Kordofan	0	
South Kordofan	12	
<b>Total Kordofan</b>	<b>12</b>	
<b>Khartoum</b>	<b>n/a</b>	n/a
<b>Northern</b>	<b>4</b>	
<b>Total</b>	<b>4 237*</b>	<b>4919</b>

Notes: \* It is estimated that the annual rate of planting (for the introduced species) is  $4237/8 = 530$  ha/y.

\*\* Gezira scheme and Kenana Sugar scheme

- From 2002 to 2008, total forest plantations (extracted from the annual reports, 2002, 2003, 2004, 2005, 2006 and 2007).

Type of planting	Annual planting ha 2002-2007					
	2002	2003	2004	2005	2006	2007
Official (In and outside the forest reserves) in ha	21 008	10 268	12 605	12 158	13 377	42 213
Private and community in ha	17 647	10 606	5 147	5 750	42 294	55 853
Institutions and schemes in ha	n/a	3 068	n/a	1 063	395	3 976

<b>Total in ha</b>	<b>38 655</b>	<b>23 942</b>	<b>17 752</b>	<b>18 971</b>	<b>56 066</b>	<b>102 042</b>

**Fill in for the years below: Annual reports and FNC Records**

**Note: Check institutional forests 2008-2011 and beyond**

- Mangrove status, reference year 2005: (Any new reserved areas?)

Forest name	Area Covered by Mangrove in ha
Kalaneet	49.02
Damat	14.47
Ashat	131.49
Setrab	80.69
Marsa Alshekh Saad	32.23
Handob	20.91
Gib north	129.30
Almalaha	639.82
Remaining areas (OWL), mapping in process	886.07
<b>Total</b>	<b>1984.00</b>

## 2.3 Analysis and processing of national data

### 2.3.1 Adjustment

### 2.3.2 Estimation and forecasting

Estimation of **Primary forest** is 7% of the total forest area

#### **Planted forest**

Planted forests for the year 2000 is the same of that reported in FRA 2005 where it was estimated to be 8 % of the total forest area or 5 639 000 ha.

To estimate the planted forests 1990, the annual plantation rate has been established of **21,500** ha per year (See Table T5).

- **Planted forests 1990** :  $5639000 - 10 \times 21500 = 5\ 424\ 000$  ha

To estimate the planted forests 2005 and 2010, the annual plantation rate has been established (based on the reference years 2002-2007) :  $257428/6 = 42\ 904.67$  ha/year

Then;

- **Planted forests 2005** = Planted forest 2000 + 5 x annual plantation

- *Planted forests 2005* =  $5639000 + 5 \times 42904.67 = 5\ 853\ 523.35$  ha (The above remains as in FRA 2010

But for 2010 we should include the new data: Annual planting rate (2008-2011) =  $120\ 507/4 = 30\ 127$  ha/year.

- Planted forests 2010 = Planted forest 2000 + 10 x annual plantation

- Planted forests 2010 =  $5\ 639\ 000 + 10 \times 30\ 127 = 5\ 940\ 270$  ha

- Planted forest 2015 = planted forests 2010 + 5x annual planting rate.  
forests 2015 =  $5\ 940\ 270 + (6 \times 30\ 127) = 5\ 940\ 270 + 180\ 762 = 6\ 121\ 032$  ha

- Planted

#### **Planted forest with introduced species:**

In 2000, the estimated area is **4919** ha. Then, for the following years, it is considered that the area increases by **530** ha/y.

- Planted forests of introduced species 2005 =  $4919 + (5 \times 530) = 7569$  ha

- Planted forests of introduced species 2010 =  $4919 + (10 \times 530) = 10219$  ha

- Planted forests of introduced species 2015 =  $4919 + (15 \times 530) = 12\ 869$  ha

No data is available for 1990.

#### **Estimation of Mangroves:**

- For the years 1990 no data is available.

- For the year 2000 =  $1\ 984 + 840 = 2\ 824$  ha, (using the reference year 2005 and knowing that the amount of **840** ha has been removed for new salt industry in the red sea coast between 2000 and 2005)

- For the years 2005 = **1 984** ha (original data from the survey).

- For the years 2010 = **1 984** ha (expected to have same amount as 2005 due to conservation policy).

- For the year 2015 = **1984** (No change).

**Estimation of Bamboo:**

- For the years 1990 no data is available.
- For the year 2000 = no data is available.
- For the year 2005 = **30 000** ha (Estimate from bamboo expert)
- For the year 2010 = **31 000** ha (FRA national experts estimate based on management plans)
- For the year 2015 = **50 000** ha ( Increase due to internal displacement of people around bamboo sites)

**Estimation of other naturally regenerated forest is the remaining area .**

## 2.3.3 Reclassification

**2.4 Data**

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	1649.922	1527.831	1466.786	1405.741	1344.696
	Other naturally regenerated forest	16496.391	14659.332	13633.302	12736.001	11744.21
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
	... of which naturalized	N/A	N/A	N/A	N/A	N/A
	Planted forest	5424	5639	5854	5940.27	6121.032
	... of which of introduced species	3.7	4.919	7.569	10.219	12.869
TOTAL		23570.31	21826.16	20954.09	20082.01	19209.94

Table 2b

Primary forest converted to (000 ha)		
1990-2000	2000-2010	2010-2015

Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land
N/A	N/A	122.091	N/A	N/A	122.091	N/A	N/A	61.045

Table 2c

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Mangroves (forest and OWL)	N/A	N/A	30	31	35
... of which planted	0	0	0	0	0

## Tiers

Category	Tier for status	Tier for reported trend
Primary forest	Tier 1	Tier 1
Other naturally regenerated forest	Tier 1	Tier 1
Planted forest	Tier 1	Tier 1
Mangroves	Tier 1	Tier 1

## Tier Criteria

Category	Tier for status	Tier for reported trend
Primary forest/Other naturally regenerated forest/Planted forest	<p><b>Tier 3</b> : Data sources: Recent (less than 10 years) National Forest Inventory or remote sensing with ground truthing or data provided by official agencies or programme for repeated compatible NFIs</p> <p><b>Tier 2</b> : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years)</p> <p><b>Tier 1</b> : Other</p>	<p><b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status)</p> <p><b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status)</p> <p><b>Tier 1</b> : Other</p>

## 2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	N/A
Other naturally regenerating forest	N/A	N/A
Planted forest	N/A	N/A
Mangroves	N/A	N/A

Other general comments to the table

Note to Table 2b: 1990-2000 primary forest converted to: Other land= 1 649 922 - 1 527.831= 122.091 ha 2000-2010 primary forest converted to: Other land= 1 527 831-1 405741= 122.091 ha 2010-2015 primary forest converted 61 045 to: Other land= 1 405.741- 1 344.696 = ha Comment: Supposed that the conversion is only to other land, may any other conversion arises think about it Note: The above definitions are established by the national task force working on FRA. There are no official definitions

### 3. What are the stocks and growth rates of the forests and how have they changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

#### 3.1 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net Annual Increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
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 2 mm 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.
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 soil depth of 30 cm.

#### 3.2 National data

##### 3.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	and woody biomass: Review of FRA 2000 estimates. FRA WP 69.	Volume per hectare per region	1995	The working paper contained information on the mean volume per hectare calculated with the information of the Handbook of Forestry Sector (FAO 1995).
2	FAO. 1995. Handbook of Forestry Sector Statistics Sudan. Forestry development in the Sudan (GCP/SUD/047/NET).	Productive forests, Semi-natural forests	1995	Data provided by the document were used to compile the working paper FAO 2003.

3	Anon. 1998. National Forest Inventory for Sudan. Forest National Corporation of Sudan and FAO (GCP/SUD/047/NET), Khartoum, Sudan.	Growing stock. Partial (1995)	1995	N/A
4	K. Jackson. 1960. Forest management in the Sudan. FAO, Rome & the Government of the Sudan, Expanded Technical assistance Program.	Forest resources in Sudan. Volume estimates in South Sudan. Partial data.	1960	N/A
5	FAO. Working Paper 143. 2008. FAO Forestry Department	Bio-mass expansion factors. - Root-shoot ratios	2006-2008	Derived from IPCC corrections
6	FAO. Working Paper 143. 2008. FAO Forestry Department	Carbon fraction Carbon in soil. Carbon in liter.	2006-2008	N/A
7	FAO/FNC/RSA. Sudan Atlas. 2012.	Land CoverForestOWLOOther categories	2000 and 2010	N/A

### 3.2.2 Classification and definitions

National class	Definition
N/A	N/A

### 3.2.3 Original data

<b>Table: Categorization of the types of forests</b>						
Category	Area ha					
	m <sup>3</sup> per ha	1990	2000	2005	2010	2015
<b>Forests with management plans</b>	80	2 900 000	3 500 000	4 742 847	4 821 290	5 038 045

<b>Private forests</b>	50	1 628 000	1 764 000	6 330 552	6 331 034	6 331 516
<b>Protected Areas</b>	90	3 254 000	3 254 000	3 254 000	4 709 000	4 709 000
<b>Natural forests</b>	70	15 052 313	13 306 399	6 622 693	4 220 688	3 631 377
<b>Total (T1)</b>		23 570 313	21 826 163	20 954 088	20 082 012	19 209 938

To decide the GS according to the type of forest with different volumes per hectare.

**Comments:** categorization of the volume according to type of forest due to variation between the forests will give better volume estimates than the former generalized **14m<sup>3</sup> per ha** .

Box:

**(1)Area of Natural Forests 2000 +Area of Forests with Management Plans 2000=Total Area of Forest 2000- (Area of Private Forests 2000+ Protected Areas 2000).**

**(2)**21 826 163 – 5 019 764 = 16 806 399 ha (N. forests 13 306 399. FM Plan=3 500 000 ha)

Forests with management plans =3 500 000 ha x 72.5 m<sup>3</sup>= **253 750 000 m<sup>3</sup>**

Private Forests = 1 764 000 ha x 50 m<sup>3</sup>= **088 200 000 m<sup>3</sup>**

Protected Areas = 3 254 000 ha x 90 m<sup>3</sup>= **292 860 000 m<sup>3</sup>**

Natural Forests = 13 306 399 ha x 72.5 m<sup>3</sup>= **964 713 928 m<sup>3</sup>**

The total (in the table) = **1 599 523 928 m<sup>3</sup>**

- For table T6b

The partial inventory from 1995 gives the following growing stock in m<sup>3</sup> of the 10 most common species by sector:

Scientific name	Sector						
	RNS	ES	CS	KS	DS	SKS	Total
<i>Balanites aegyptiaca</i>	51 200	102 900	1 275 302	6 331 681	14 497 991	283 001	22. 542 075

<i>Acacia seyal</i>	6 400	735 000	9 413 650	3 113 942	2 899 592	565 999	16. 734 583
<i>Anogeissus leiocarpus</i>	-	21 000	331 725	3 840 528	3 690 398	720 366	8. 604 017
<i>Albizzia amara</i>	-	-	22 113	7 681 060	1 449 799	283 000	9. 435 972
<i>Acacia senegal</i>	-	63 000	184 291	2 179 757	790 760	154 356	3. 372 164
<i>Acacia tortilis</i>	128 000	189 000	538 132	1 660 766	395 393	77 181	2. 988 472
<i>Ziziphus spina-christi</i>	-	-	530 761	311 392	790 796	154 363	1. 787 312
<i>Khaya senegalensis</i>	-	-	-	311 392	890 968	317 200	1. 519 560
<i>Acacia nilotica</i>	6 400	6 300	184 291	103 797	263 593	51 454	0.615 835
<i>Isoberlinia doka</i>	-	-	-	-	32 000	6 264	0.038 264

The above table is rounded

Scientific name	Sector						
	RNS	ES	CS	KS	DS	SKS	Total Million m <sup>3</sup>
<i>Balanites aegyptiaca</i>	51 200	102 900	1 275 302	6 331 681	14 497 991	283 001	22. 54
<i>Acacia seyal</i>	6 400	735 000	9 413 650	3 113 942	2 899 592	565 999	16. 73
<i>Anogeissus leiocarpus</i>	-	21 000	331 725	3 840 528	3 690 398	720 366	08.60
<i>Albizzia amara</i>	-	-	22 113	7 681 060	1 449 799	283 000	09.44
<i>Acacia senegal</i>	-	63 000	184 291	2 179 757	790 760	154 356	03.37
<i>Acacia tortilis</i>	128 000	189 000	538 132	1 660 766	395 393	77 181	02. 99

<i>Ziziphus spina-christi</i>	-	-	530 761	311 392	790 796	154 363	01.79
<i>Khaya senegalensis</i>	-	-	-	311 392	890 968	317 200	01.52
<i>Acacia nilotica</i>	6 400	6 300	184 291	103 797	263 593	51 454	00.62
<i>Isoberlinia doka</i>	-	-	-	-	32 000	6 264	00.04
							<b>67.64</b>

Where:

RNS=River Nile State. ES=Eastern Sector. CS=Central Sector. KS= Kordofan Sector. DS=Dar fur Sector. SKS= South Kordofan State (It is one of Kordofan States missed in NFI 2000.

#### For table T6b:

It is the same table of the last FRA, but adjusted by excluding South Sudan from the table. To estimate the GS for 1990, 2005, 2010 and 2015 the assumptions are the following:

- 1- The proportion of the total GS of the basic year 2000 (source of the data inventory of this table), versus the GS of the 10 most common species remains the same i.e **67.64 million m<sup>3</sup> /980 million m<sup>3</sup> = 7%** approximately. We will need this ratio for the results of the commercial species
- 2- Ratio of GS among species maintains the same % percentages.

#### Table:

Category, name and proportion			Growing stock in forests (million m <sup>3</sup> )				
Scientific name	Common name	Proportion	1990	2000	2005	2010	2015
Balanites aegyptiaca	heglig	0.014088	23.5543	22. 542 075	20.5114	20.03243	19.41258
Acacia seyal	Talih	0.010456	17.48285	16. 734 583	15.2243	14.86879	14.40871

Annogeissus leiocarpus	Sahab	0.005375	08.987	8. 604 017	7.826	7.64325	7.40675
Albizia amara	Arad	0.0059	09.8648	9. 435 972	8.5904	8.3898	8.1302
Acacia senegal	Hashab	0.002106	03.52165	3. 372 164	3.0667	2.995088	2.902413
Acacia tortilis	Seyal	0.001869	03.12455	2. 988 472	2.7209	2.657363	2.575138
Ziziphus spina-christi	Sidir	0.001119	01.87055	1. 787 312	1.6289	1.590863	1.541638
Khaya spp.	Mahogany	0.00095	01.5884	1. 519 560	1.3832	1.3509	1.3091
Acacia nilotica	Sunut	0.000388	00.6479	0.615 835	0.5642	0.551025	0.533975
Isoberlina doka	Bu	0.000025	00.0418	0.038 264	0.0364	0.03555	0.03445
Total 10 most common species			<b>70.6838</b>	<b>67.638250</b>	<b>61.5524</b>	<b>60.11505</b>	<b>58.25495</b>
Remaining			<b>1601.3162</b>	<b>1532.36175</b>	<b>1394.4476</b>	<b>1361.88495</b>	<b>1319.74505</b>
Total GS			<b>1 672</b>	<b>1 600</b>	<b>1 456</b>	<b>1 422</b>	<b>1 378</b>

Note: For convenience of the indirect methodology, the column of the proportion of the magnitude of the species has been introduced in the original data 3but will not appear in the data for national reporting table.

Table: Forest Biomass

Category	Forest				
	1990	2000	2005	2010	2015
F. Area (1000 ha)	23570 313	21 826 163	20 954 088	20 082 012	19 209 938
a)GS. (Million m <sup>3</sup> )	<b>1 638</b>	1600	1456	1422	1378
b)Wood density	0.7	0.7	0.7	0.7	0.7
c)BEF	3.4	3.4	3.4	3.4	3.4

<b>d)AGB (a*b*c)mil. m<sup>3</sup></b>	<b>3 898.44</b>	<b>3 808.00</b>	<b>3 465.28</b>	<b>3 384.36</b>	<b>3 279.64</b>
e) Root-shoot ratio	0.28	0.28	0.28	0.28	0.28
<b>BGB (d*e) millions tons</b>	<b>1091.56</b>	<b>1066.24</b>	<b>970.28</b>	<b>947.62</b>	<b>918.30</b>

Table: OWL Biomass

Category	OWL				
	1990	2000	2005	2010	2015
F. Area (1000 ha)	025 289 737	023 446 637	022 523 587	021 600 537	020 677 487
<b>a)GS. (Million m<sup>3</sup>)</b>	379.3	351.7	337.9	324	310.2
b)Wood density	0.7	0.7	0.7	0.7	0.7
c)BEF	3.4	3.4	3.4	3.4	3.4
<b>d)AGB (a*b*c)mil. m<sup>3</sup></b>	<b>902.73</b>	<b>837.05</b>	<b>804.20</b>	<b>771.12</b>	<b>738.28</b>
e)Root-shoot ratio	0.28	0.28	0.28	0.28	0.28
<b>BGB (d*e) millions tons</b>	<b>252.76</b>	<b>234.37</b>	<b>225.18</b>	<b>215.91</b>	<b>206.77</b>

### 3.3 Analysis and processing of national data

#### 3.3.1 Adjustment

A/- Carbon stock is calculated by multiplying the biomass by 0.47. Carbon stocks of litter and soil have not been estimated.

**B** /- Carbon in the litter has been estimated, based on the standard factor of **2.1 t C /ha**, and

- Soil carbon has been estimated, based on the factor of **35 t C/ha**.

The biomass/ hectare values are then applied to the forest area values in table T1 to get the results for the reporting years.

**C/- No data on dead wood carbon**

### 3.3.2 Estimation and forecasting

Category	Forest					OWL				
	1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
Area (million ha)	023.570 313	021.826 163	020.954 088	020.082 012	019.209 938	025.289 737	023.446 637	022.523 587	021.600 537	020.677 487
AGB million t	3 898.44	3 808.00	3 465.28	3 384.36	3 279.64	379.3	351.7	337.9	324	310.2
BGB million t	1091.56	1066.24	970.28	947.62	918.30	252.76	234.37	225.18	215.91	206.77
Conversion factor	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Carbon in AGB million t	<b>1832.26</b>	<b>1789.76</b>	<b>1628.68</b>	<b>1590.65</b>	<b>1541.43</b>	<b>178.55</b>	<b>165.30</b>	<b>158.81</b>	<b>152.28</b>	<b>145.79</b>
Carbon in BGB million t	<b>513.03</b>	<b>501.13</b>	<b>456.03</b>	<b>445.38</b>	<b>431.60</b>	<b>118.80</b>	<b>110.15</b>	<b>105.83</b>	<b>101.48</b>	<b>97.18</b>
<b>Total carbon (living biomass)</b>	<b>Sum</b>									

Carbon in litter (t/ha)	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
<b>Carbon in litter (million t)</b>	<b>49.5</b>	<b>45.83</b>	<b>44.00</b>	<b>42.17</b>	<b>40.34</b>	<b>53.11</b>	<b>49.24</b>	<b>47.30</b>	<b>45.36</b>	<b>43.42</b>
Carbon in soil (t/ha)	35	35	35	35	35	35	35	35	35	35
<b>Carbon in soil (million t)</b>	<b>824.96</b>	<b>763.92</b>	<b>733.39</b>	<b>702.87</b>	<b>672.35</b>	<b>885.15</b>	<b>820.63</b>	<b>788.33</b>	<b>756.02</b>	<b>723.71</b>
<b>Carbon in dead wood</b>	<b>n.a</b>									

### 3.3.3 Reclassification

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## 3.4 Data

Table 3a

Category		Growing stock volume (million m <sup>3</sup> over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	1638	1600	1456	1422	1378	379.3	351.7	337.9	324	310.2
	... of which coniferous	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	... of which broadleaved	1638	1600	1456	1422	1378	379.3	351.7	337.9	324	310.2
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Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	Balanites aegyptiaca	heglig	23.5543	22.542075	20.5114	20.03243
2 nd	Acacia seyal	Talih	17.48285	16.734583	15.2243	14.86879
3 rd	Annogeissus leiocarpus	Sahab	8.987	8.604017	7.826	7.64325
4 th	Albizia amara	Arad	9.8648	9.435972	8.5904	8.3898
5 th	Acacia senegal	Hashab	3.52165	3.372164	3.0667	2.995088
6 th	Acacia tortilis	Seyal	3.12455	2.988472	2.7209	2.657363
7 th	Ziziphus spina-christi	Sidir	1.87055	1.787312	1.6289	1.590863
8 th	Khaya spp.	Mahogany	1.5884	1.51956	1.3832	1.3509
9 th	Acacia nilotica	Sunut	0.6479	0.615835	0.5642	0.551025
10 th	Isoberlina doka	Bu	0.0418	0.038264	0.0364	0.03555
Remaining			1567.3162	1532.36175	1394.4476	1361.88495
TOTAL			1638.00	1600.00	1456.00	1422.00

**THE PRE-FILLED VALUES FOR GROWING STOCK REFER TO THE FOLLOWING THRESHOLD VALUES (SEE TABLE BELOW)**

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

**PLEASE NOTE THAT THE DEFINITION OF GROWING STOCK HAS CHANGED AND SHOULD BE REPORTED AS GROWING STOCK DBH 10 CM INCLUDING THE STEM FROM GROUND LEVEL UP TO A DIAMETER OF 0 CM, EXCLUDING BRANCHES.**

Table 3c

Category		Net annual increment (m <sup>3</sup> per hectare and year)				
		Forest				
		1990	2000	2005	2010	2015
	Net annual increment	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	N/A	N/A	N/A	N/A	N/A

Table 3d

Category		Biomass (million metric tonnes oven-dry weight)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Above ground biomass	3979.36	3808	3465.28	3384.36	3279.64	379.3	351.7	337.9	324	310.2
	Below ground biomass	1114.22	1066.24	970.28	947.62	918.3	252.76	234.37	225.18	215.91	206.77
	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		5093.58	4874.24	4435.56	4331.98	4197.94	632.06	586.07	563.08	539.91	516.97

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Carbon in above ground biomass	1870.29	1789.76	1628.68	1590.65	1541.43	178.55	165.3	158.81	152.28	145.79
	Carbon in below ground biomass	523.68	501.13	456.03	445.38	431.6	118.8	110.15	105.83	101.48	97.18
	<i>Subtotal Living biomass</i>	2393.97	2290.89	2084.71	2036.03	153.03	297.35	275.45	264.64	253.76	242.97

	Carbon in dead wood	N/A									
	Carbon in litter	49.5	45.83	44	42.17	40.34	53.11	49.24	47.3	45.36	43.42
	<i>Subtotal Dead wood and litter</i>	49.5	45.83	44	42.17	40.34	53.11	49.24	47.3	45.36	43.42
	Soil carbon	824.96	763.92	733.39	702.87	672.35	885.15	820.63	788.33	756.02	723.71
TOTAL		3268.43	3100.64	2862.10	2781.07	2685.72	1235.61	1145.32	1100.27	1055.14	1010.10

## Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 1	Tier 1
Net annual increment	N/A	N/A
Above ground biomass	Tier 1	Tier 1
Below ground biomass	Tier 1	Tier 1
Dead wood	N/A	N/A
Carbon in above-ground biomass	Tier 1	Tier 1
Carbon in below ground biomass	Tier 1	Tier 1
Carbon in dead wood and litter	Tier 1	Tier 1
Soil carbon	Tier 1	Tier 1

## Tier criteria

Category	Tier for status	Tier for reported trend
Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other
Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other

Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>• Carbon in above ground biomass</li> <li>• Carbon in below ground biomass</li> <li>• Carbon in dead wood and litter</li> <li>• Soil carbon</li> </ul>	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
Total growing stock	New adjusted according to ecological zone. Higher than in FRA 2010.	N/A
Growing stock of broadleaved coniferous	N/A	N/A
Growing stock composition	N/A	N/A
Net annual increment	N/A	N/A
Above-ground biomass	Rise with increase and adjustment in GS	N/A
Below-ground biomass	Increase with increased GS.	N/A
Dead wood	N/A	N/A
Carbon in above-ground biomass	IPCC/FRA Default values	N/A
Carbon in below-ground biomass	IPCC/FRA Default values	N/A
Carbon in dead wood	No data	N/A
Carbon in litter	No data	N/A
Soil carbon	IPCC/FRA Default values	N/A

#### Other general comments to the table

N/A

## 4. What is the status of forest production and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 4.1 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.
Non wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Commercial value of NWFP	For the purpose of this table, value is defined as the commercial market value at the forest gate.
Category	Definition
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Total wood removals	The total of industrial round wood removals and woodfuel removals.
...of which woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

### 4.2 National data

#### 4.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Annual Reports	NWFPs	2005	N/A
2	2007. Central Bureau of Statistics. Statistical Year Book 2007.	Total population.Urban and rural.Population growth rate.Population wood consumption.	2008	N/A
3	1994.FAO-GCP/SUD/047/ Net and The Forests National Corporation FNC. Forest Products Consumption Survey in The Sudan	Consumption by households.Consumption by industry.Other consumption (Commercial, services, Quran schools.	1995	N/A
4	N/A	N/A	N/A	N/A

#### 4.2.2 Classification and definitions

National class	Definition
----------------	------------

N/A	N/A

#### 4.2.3 Original data

- For Table T3a, the basic information is taken from Africover classification, which indicates that:
- 51% of the forest area is for Production;
- 10 %of the forest area is for Protection of soil and water;
- 36% of the forest and other wooded land area is for Conservation of biodiversity; =PA. total/Total F and OWL=6 959 000/19 209 938
- The remaining 3% is unknown.

#### - Original data for table T4b

Rank	NWFP Category	Production/unit	Value USD	Value in local currency
First	Gum Arabic	12 000 tons	36 000 000	108 000 000
2nd	Fodder	<b>D.Talaat</b>	<b>Promised to report</b>	<b>On this</b>
3rd	Food (Fruits, leaves, roots)	3000 tons		041 800 000
4th	Raw material for utensils, handicrafts & construction			
<b>5th</b>	Wild honey	<b>Talaat</b>		
<b>6</b>	and bee-wax	<b>No data</b>		
<b>7</b>	Living animals	<b>W. Life</b>		
<b>8</b>	Hides, skins and trophies	<b>W. Life</b>		
<b>9</b>	Wild meat	<b>W. Life</b>		

<b>10</b>	Other plant and animal products			
-----------	---------------------------------	--	--	--

**NWFP1:Gum Arabic** 12 000 ton x3000 \$ x 3 SDG = 108000000 SDG (Please check the quantity, price and local currency equivalent to the dollar in the year 2010. (D.Abdel Majid Abdegadir. 2011. Gum Arabic in Sudan, Infinitive Struggle.

Average export of gum 2001-2008= 11000 tons, price/ton 2008=2750\$ and in 2011=3250\$, author abdel Majid Abdel Gadir., 2010.

**NWFP 2:Animal fodder** Camels, sheep, goats and wild life omnivorous number of animals, live for 8 months, how much the animal eat per day and what the price equivalent if the fodder is bought from the market. You need studies about the tame and wild life animals and if pre prepared studies have been prepared that will solve the requested information.

**NWFP 3** : Food, Nabaq= **800** t, Dom= **500** tons, heglig = **600** tons, goddiem= **250** tons, tebeldi= **700** tons, aradeib=950t. Total= **3800** tons.

3800 t x 22 ka x 100 pounds x 5 SDG = **41 800 000** SDG

*-Natural Reserves. Source: General Wild Life Administration and Wild Life Research Centre.*

#### Original data Table 4c:

**Table: Number of population (Rural/Urban)**

Year	Population	% Rural	% Urban
2005	35 397 000	63.16	36.84
2006	36 297 000	62.44	37.56
2007	37 239 000	61.73	38.27
2013	37 007 000	60.00	40.00

Number of population of South Sudan Republic in 2013 = **6 128 000**

**Table: Population Growth Rate**

#	Year	Population Growth Rate %
1	1955/1956	2.13
2	1973-1983	2.57
3	1983-1993	2.88

4	1993-1998	1.73
5	1998-2003	2.63
6	2003-2008	2.53

**Table: Main Reference table from The Central Bureau of Statistics, Statistical Year Book**

Year	Total Population	% Rural	Rural Population	% Urban	Rural Population
2005	35 397 000	63.16	22 356 745	36.84	13 040 255
2006	36 297 000	62.44	22 663 847	37.56	13 633 153
2007	37 239 000	61.73	22 987 635	38.27	14 251 365
2013	37 007 000				

**Table: Rural and Urban population**

Year	Population	% Rural	Rural population	% Urban	Urban population
2005	35 397 000	63.16	22 356 745	36.84	13 040 255
2006	36 297 000	62.44	22 663 847	37.56	13 633 153
2007	37 239 000	61.73	22 987 635	38.27	14 251 365
2013	37 007 000				

Average Rural %=  $187.33/3 = 62.44$  .Avge.% for Urban =  $112.67/3 = 37.56$  . These will be used for the missed years 2008-2013 in the above tables.

**Table:**

Year	Total Population	% Rural	Consumption	Population	% Urban	Population	Consumption
2008	38 181 147	62.44		23 840 308	<b><u>37.56</u></b>	14 340 839	
2009	39 147 130	62.44		24 443 468	<b><u>37.56</u></b>	14 703 662	
2010	40 137 552	62.44		25 061 887	<b><u>37.56</u></b>	15 075 665	
2011	41 153 032	62.44		25 695 953	<b><u>37.56</u></b>	15 457 079	
2012	42 194 203	62.44		26 346 060	<b><u>37.56</u></b>	15 848 143	
2013	43 261 716	62.44		27 012 615	<b><u>37.56</u></b>	16 249 101	

What is requested for FRA2015 report for the period 2008, 2009, 2010, and 2011. The years 2012 and 2013 is an additional information that will appear in data for 4c.

-Growth Rate 2008= **2.53**

-Pop. 2008= (Population 2007+ one year growth rate)= 37 239 000+942 147 = **38 181 147**

-Pop. 2009=(Population 2008+ one year growth rate) =38 181147+965 983 = **39 147 130**

-Pop. 2010= (Population 2009+ one year growth rate) = 39 147 130+990 422 = **40 137 552**

-Pop. 2011 = (Population 2010+ one year growth rate) =40 137 552+1 015 480= **41 153 032**

-Pop. 2012 = (Population 2011+ one year growth rate) =41 153 032+1 041 171= **42 194 203**

-Pop. 2013 = (Population 2012+ one year growth rate) = 42 194 203+1067 513= **43 261 716**

Year	FRA 2015 category (1000 m <sup>3</sup> u.b.)		
	Total wood removals	...of which wood-fuel	Industrial round wood
1988	17 778.540	16 043. 540	1 735. 000
1989	17 738.830	15 965. 830	1 773 .000
1990	18 095.247	16 286 .247	1 809 .000

1991	18 270.308	16 521 .308	1 749 .000
1992	18 045.849	16 261 .849	1 784 .000
<b>Av.1990</b>	<b>17 985.755</b>	<b>16 215 .755</b>	<b>1 770 .000</b>
1993	n.a	n.a	n.a
1994	n.a	n.a	n.a
1995	n.a	n.a	n.a
1996	n.a	n.a	n.a
1997	n.a	n.a	n.a
1998	18 552.949	16 421. 949	2 131.000
1999	18 721.511	16 548 .511	2 173.000
2000	18 553.060	16 680 .060	2 173.000
2001	19 044.138	16 871 .138	2 173.000
2002	19 241.332	17 068 .332	2 173.000
<b>Av. 2000</b>	<b>18 882.598</b>	<b>16 717 .998</b>	<b>2 164.600</b>
2003	19 444.816	17 271 816	2 173.000
2004	19 654.780	17 481 780	2 173.000
2005	19871.406	17 698 406	2 173.000
2006	20 074.275	17 901 275	2 173.000
2007	20283.300	18 110 300	2 173.000
<b>Av.2005</b>	<b>19 865.715</b>	<b>17 692 715</b>	<b>2 173.000</b>
<b>- Use the population growth rate of 2.5 growth per year</b>			

### 4.3 Analysis and processing of national data

#### 4.3.1 Adjustment

## 4.3.2 Estimation and forecasting

**For Table T3a** , the percentages related to the different functions have been applied for the different years.

FRA 2010 categories	Area (1000 ha)				
	1990	2000	2005	2010	2015
Forest	023570 .313	021 826 .163	020 954 .088	020 082 .012	019 209 .938
Other Wooded land	025 289 .737	023 446 .637	022 523 .587	021 600 .537	020 677 .487

Production: 51% of the total area of forest and other wooded land

Multiple use forest: If we neglect the above percentages for protection of soil, water and biodiversity, then the 49% that remains for multiple uses

**Production: Forest and other wooded land area times 51%**

FRA 2010 categories	Area (1000 ha)				
	1990	2000	2005	2010	2015
Forest	<b>12 020.860</b>	<b>11 131.343</b>	<b>10 686.585</b>	<b>10 241.826</b>	<b>9 79. 068</b>
Other Wooded land	<b>12 897.766</b>	<b>11 957.785</b>	<b>11 487.029</b>	<b>11 016.274</b>	<b>10 545.518</b>

**Multiple uses: Forest and other wooded land area times 49%**

FRA 2010 categories	Area (1000 ha)				
	1990	2000	2005	2010	2015
Forest	<b>11 549.943</b>	<b>10 694.820</b>	<b>10 267503</b>	<b>9 840.186</b>	<b>9 412.870</b>
Other Wooded land	<b>12 391.971</b>	<b>11 488.852</b>	<b>11 036.557</b>	<b>10 584.263</b>	<b>10 131.969</b>

Note that designation for 4a has not been requested.

Estimation and forecasting for table 4b:

**Estimation and forecasting For Table 4c: this long Comment should be summarized and sent to the comment field.**

**Comments and forecasting:** We shall change the scenario of this table from 1988-2007 that produced the results for data for table T11 in FRA 2010. Instead we shall look for the data from 2008-2011 and beyond. The previous data was built on the scenarios of the consumption per capita mentioned in FOSA and in the old wood consumption survey 1995 and the calculation that relied on the increase and population growth, the scenarios that are uncertain, and a lot of factors that may likely change with time. Of these factors is the change in consumption from wood fuel to LPG due to economic reasons and efficiency especially in big towns and cities and in some rural zones that find access to LPG. Bearing in mind that still big cities consume wood-fuel not for household but in brick-kilns and some commercial services like tea selling. On the other hand in remote areas still wood-fuel is being used for economic reasons, ease of access to wood fuel and difficulty in accessing LPG and the traditional habits and customs... etc. So the majority of the wood fuel consumption goes to rural population and some of it to the urban population.

**The trend in wood removal** for consumption will not be obtained from FNC records because these rely mainly on collection of returns from selling wood and the returns from forest royalties. These (quantities of removals based on the returns) will not reflect the real situation of the wood removal because some removals are missed one way or another by illegal escape from FNC control, and rural population collect wood products without paying for that. In short large quantity of wood products is not being recorded, and therefore for the purpose of this report the wood removal in the years 2008-2011 and beyond we shall not depend on FNC records (Annuals Reports), not on FOSA assumptions and scenarios but make effort on:

- **Old fuel wood consumption survey 1995**, per capita consumption (wood-fuel, industrial and other forms).
- **The population size and growth rates** including the fact of the one country till July 2011 and after that 6 million inhabitants went to their newly born country.
- **The consumption volume** of the rural versus the urban (75% of the population in population consume forest products while 25% in the urban cities consume forest products).

10% of the urban population use wood products (industrial, services, coffee/tea sellers, restaurants meat cooking ..etc).

90% of the rural population use wood products (Not in the cities).

$$2006R = 0.90 \times 22\,356\,745 \times \text{per capita consumption} = 0.90 \times 22\,356\,745 \times 0.73 = \underline{14\,688\,381\,m^3}$$

$$2006U = 0.10 \times 13\,633\,153 \times 0.73 = \underline{995\,220m^3}$$

$$2007 R = 0.90 \times 22\,663\,847 \times 0.73 = \underline{14\,890\,147}$$

$$2007 U = 0.10 \times 14\,251\,365 \times 0.73 = \underline{1\,040\,349}$$

$$2008 R = 0.90 \times 23\,840\,308 \times \text{per capita consumption} = 0.90 \times 23\,840\,308 \times 0.73 = \underline{15\,663\,082m^3}$$

$$2008U = 0.10 \times 14\,340\,839 \times 0.73 = \underline{1\,740\,342m^3}$$

$$2009 R = 0.90 \times 24\,443\,468 \times 0.73 = \underline{16\,059\,358m^3}$$

$$2009 U = 0.10 \times 14\,703\,662 \times 0.73 = \underline{1\,073\,367m^3}$$

$$2010 R = 0.90 \times 25\,061\,887 \times 0.73 = \underline{16\,465\,660}$$

$$2010 U = 0.10 \times 15\,075\,665 \times 0.73 = \underline{1\,100\,524}$$

$$2011 R = 0.90 \times 25\,695\,953 \times 0.73 = \underline{16\,882\,241}$$

$$2011 U = 0.10 \times 15\,457\,079 \times 0.73 = \underline{1\,128\,366}$$

$$2012 R = 0.90 \times 26\,346\,060 \times 0.73 = \underline{17\,309\,361}$$

$$2012 U = 0.10 \times 15\,848\,143 \times 0.73 = \underline{1\,156\,914}$$

$$2013 R = 0.90 \times 27\,012\,615 \times 0.73 = \underline{17\,747\,288}$$

$$2013U = 0.10 \times 16\,249\,101 \times 0.73 = \underline{1\,186\,184}$$

**Table: Rural and urban population and the per capita consumption**

This table is the summary result of the series of the above tables , and it represents the final data for 2008-2013. The data will go directly to 4c.

Year	Total Population	Rural Population	Consumption m <sup>3</sup>	Urban Population	Consumption m <sup>3</sup>	Total consumption m <sup>3</sup>
2006	36 297 000	22 356 745	14 688 381	13 633 153	995 220	15 683 601
2007	37 239 000	22 663 847	14 890 147	14 251 365	1 040 349	15 930 469

2008	38 181 147	23 840 308	15 663 082	14 340 839	1 046 881	<b>16 709 963</b>
2009	39 147 130	24 443 468	16 059 358	14 703 662	1 073 367	<b>17 132 725</b>
2010	40 137 552	25 061 887	16 465 660	15 075 665	1 100 524	<b>17 566 184</b>
2011	41 153 032	25 695 953	16 882 241	15 457 079	1 128 366	<b>18 010 607</b>
2012	42 194 203	26 346 060	17 309 361	15 848 143	1 156 914	<b>18 466 275</b>
2013	43 261 716	27 012 615	17 747 288	16 249 101	1 186 184	<b>18 933 472</b>

#### 4.3.3 Reclassification

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#### 4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	12020.86	11131.343	10686.585	10241.826	9797.068
	Multiple use forest	0	0	0	0	0

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	GumArabic	Acaciasenegal	108000000	7
2 nd	Foddertrees	Acaciasetc.	N/A	2
3 rd	TreeFruits	N/A	41800000	1
4 th	Rawmaterialforutensils, handicrafts&construction	N/A	N/A	N/A
5 th	Wildhoney	N/A	N/A	N/A
6 th	andbee-wax	N/A	N/A	N/A
7 th	Livinganimals	N/A	N/A	N/A
8 th	Hides,skinsandtrophies	N/A	N/A	N/A

9 th	Wildmeat	N/A	N/A	N/A
10 th	Other plant and animal products	N/A	N/A	N/A
TOTAL			149800000.00	

2010	
Name of local currency	Sudanese Gineih (SDG)

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

Table 4c Pre-filled data from FAOSTAT

Year	FRA 2015 category (1000 m <sup>3</sup> u.b.)
------	--

	<b>Total wood removals</b>	<b>...of which woodfuel</b>
1990	N/A	N/A
1991	N/A	N/A
1992	N/A	N/A
1993	N/A	N/A
1994	N/A	N/A
1995	N/A	N/A
1996	N/A	N/A
1997	N/A	N/A
1998	N/A	N/A
1999	N/A	N/A
2000	N/A	N/A
2001	N/A	N/A
2002	N/A	N/A
2003	N/A	N/A
2004	N/A	N/A
2005	N/A	N/A
2006	N/A	N/A
2007	N/A	N/A
2008	N/A	N/A
2009	N/A	N/A
2010	N/A	N/A
2011	N/A	N/A

## Tiers

<b>Category</b>	<b>Tier for status</b>	<b>Tier for reported trend</b>
Production forest	Tier 1	Tier 1

Multiple use forest	Tier 1	Tier 1
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### Tier Criteria

Category	Tier for status	Tier for reported trend
Production forest Multiple use forest	Tier 3: Updated including field verifications national forest maps including functions Tier 2: Forest maps older than 6 years including forest functions Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	N/A	N/A
Multiple use forest	N/A	N/A
Total wood removals	N/A	N/A
Commercial value of NWFP	N/A	N/A

#### Other general comments to the table

Note to table 4c: 88% of the total wood removal (consumption) is wood fuel. In the above table from 2008-2013. FOR EXAMPLE: In the year 2008

## 5. How much forest area is managed for protection of soil and water and ecosystem services?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 5.1 Categories and definitions

Category	Definition
Protection of soil and water	Forest area designated or managed for protection of soil and water
...of which production of clean water ( <i>sub-category</i> )	Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality.
...of which coastal stabilization ( <i>sub-category</i> )	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control ( <i>sub-category</i> )	Forest area primarily designated or managed for desertification control.
...of which avalanche control ( <i>sub-category</i> )	Forest area primarily designated or managed to prevent the development or impact of avalanches on human life assets or infrastructure.
...of which erosion, flood protection or reducing flood risk ( <i>sub-category</i> )	Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion riparian floods and landslides or for providing flood plain services.
...of which other ( <i>sub-category</i> )	Forest area primarily designated or managed for other protective functions.
Ecosystem services, cultural or spiritual values	Forest area primarily designated or managed for selected ecosystem services or cultural or spiritual values.
...of which public recreation ( <i>sub-category</i> )	Forest area designated or managed for public recreation.
...of which carbon storage or sequestration ( <i>sub-category</i> )	Forest area designated or managed for carbon storage or sequestration.
...of which spiritual or cultural services ( <i>sub-category</i> )	Forest area designated or managed for spiritual or cultural services.
...of which other ( <i>sub-category</i> )	Forest area designated or managed for other ecosystem services.

### 5.2 National data

#### 5.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Annual Reports. 2010-2012. FNC.	Desert area. Working plans.	2010 2011 2012	Working plans. Forest areas in different zones including the desert.

2	Expert estimate s. 2013. Task force.	021 826 163	2013	N/A
3	025 289 737	023 446 637	N/A	N/A
4	N/A	N/A	N/A	N/A

### 5.2.2 Classification and definitions

National class	Definition
1	Annual Reports. 2010-2012. FNC.
2	Expert estimate s. 2013. Task force.
3	N/A
N/A	N/A

### 5.2.3 Original data

Please refer to 5.2 National Data

FRA 2015 categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Forest	023570 313	021 826 163	020 954 088	020 082 012	019 209 938
Other wooded land	025 289 737	023 446 637	022 523 587	021 600 537	020 677 487

The data for table T1 the extent of forests and OWL will be used here

This table is designed for table T5a, derived from table T1c of T1

#	State	Forest area (ha) 2000	Forest area (ha) 2012
1	Khartoum	0 171 855	0 044 618
2	Northern State	0 158 125	0 029 635

3	Northern Dar fur	2 181 131	0 469 914
4	Northern Kordofan	3 025 128	2 852 632
5	Red Sea	0 100 423	0 458 962
6	River Nile	0 162 620	0 022 408
7	White Nile	1 459 892	0 271 257
<b>Total</b>		<b>7 259 174</b>	<b>4 149 426</b>

Forest area in the dry states in 2000 not used 7 259 174 ha. Is it useful to decide desertification at that time? Think?

All the forest area in the 7 states above is mainly designated for protection of soil and water.

### 5.3 Analysis and processing of national data

#### 5.3.1 Adjustment

#### 5.3.2 Estimation and forecasting

FRA 2015 categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Forest	4 714.063	4 365.233	4 190.818	4 016.402	3 841.988
Other wooded land	025 289 737	023 446 637	022 523 587	021 600 537	020 677 487

- The data for table T1 the extent of forests and OWL will be used here.

-The protection role of forests and OWLs to protection will amount 20% and may be more.

-You multiply the F and OWL of T1 by 0.20

- We shall provide the data for F only in table 5.4a, protection role of OWL was not requested.

## 5.3.3 Reclassification

## 5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
CFRQ	Protection of soil and water	3064.141	2837.401	2724.031	2610.662	2497.292
CFRQ	... of which production of clean water	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which coastal stabilization	2	2	2	2	2
CFRQ	... of which desertification control	3062.141	2835.401	2722.031	2608.662	2495.292
CFRQ	... of which avalanche control	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which erosion, flood protection or reducing flood risk	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

## Other

N/A

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	N/A	N/A	N/A	N/A	N/A
...of which public recreation	N/A	N/A	N/A	N/A	N/A

...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...of which spiritual or cultural services	N/A	N/A	N/A	N/A	N/A
...of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

### Tiers

Category	Tier for reported trend	Tier for status
Protection of soil and water	Tier 1	Tier 1
Ecosystem services, cultural or spiritual values	Tier 1	Tier 1

### Tier criteria

Category	Tier for status	Tier for reported trend
Protection of soil and water	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>Cultural or spiritual values</li> <li>Public recreation</li> <li>Spiritual or cultural services</li> <li>Other</li> </ul>	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 5.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Protection of soil and water	Estimated as 20% of forest area	Decreases with the decrease in forest area
Production of clean water	No measurements	No measurements
Coastal stabilization	Not applicable	Not applicable

Desertification control	Applied to 7 states facing the desert.	Decreases with reduced forest area
Avalanche control	Not applicable	Not applicable
Erosion, flood protection or reducing flood risk	No measurements	No measurements
Other protective functions	Not practiced	Not practiced
Ecosystem services, cultural or spiritual values	Not available, no measurements	Not available, no measurements
Public recreation	No measurements	No measurements
Carbon storage or sequestration	Will be practiced when REDD+ activities commence.	Will be measured with the implementation of REDD+ activities
Spiritual or cultural services	Though no attention paid, spiritual and cultural values exist.	Trend will appear with the availability of the data to work on
Other ecosystem services	No new discoveries.	No new discoveries.

**Other general comments to the table**

N/A

## 6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 6.1 Categories and definitions

Category	Definition
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.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

### 6.2 National data

#### 6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 6.2.2 Classification and definitions

National class	Definition
N/A	N/A

#### 6.2.3 Original data

Firstly, National Parks: Table1 of National data					
S. No	Name of the Reserve	Area (ha)	Type of the Reserve	Ecological Zone	International Order

1	Dinder National Park	1 129 000	National Park	Savanna	Second Classification (Order)
2	Al Radom National Park	1 250 000	National Park	Savanna	Second Classification (Order)
3	Sanganeib Marine National Park	0 026 000	National Park	Semi-Desert/ marine	Second Classification
4	Danganab Marine N.Park.	0 030 000	National Park	Marine within Semi-Desert	Second Classification
5	Wadi Howar N. Park	1 455 000	N. Park	Desert, Semi-Desert	Second Classification
6	Jebel Hassaniya	0 850 000	N. park	Desert, Semi-Desert	Second Classification
	Total	<b><u>4 740 000</u></b>			

**Secondly, The Reserved Areas: Table 2 of the Original Data**

S. No	Name of the Reserve	Area (ha)	Type of the Reserve	Ecological Zone	International Order
1	Tokar Reserved Area	630 000	Reserved Area	Semi-desert	Fourth International Classification (Order)
2	Sabaloqa Reserved Area	116 000	Reserved Area	Semi-desert	Fourth Classification (Order)
3	Total	<b><u>746 000</u></b>			

**Thirdly, The Peripheral or Boundary Areas:**

S. No	Name of the Reserve	Area (ha)	Type of the Reserve	Ecological Zone	International Order
-------	---------------------	-----------	---------------------	-----------------	---------------------

1	Sinkat Periphery	12 000	Hunting Periphery	Semi-desert hilly	Less than fourth International Classification (Order).
2	Erkoit Periphery	82 000	Periphery	Semi-desert hilly	Less than fourth International Classification (Order).
3	Sunut Forest Periphery	01 500	Periphery	Semi-desert	Second
	<b>Total</b>	<b><u>95 500</u></b>			

#### **Fourthly: The Proposed Areas.**

<b>S. No</b>	<b>Name of the Reserve</b>	<b>Area (ha) Approx.</b>	<b>Type of the Reserve</b>	<b>Ecological Zone</b>	<b>International Order</b>
1	Khashm Al Girba dam	010 000	Proposed Bird Reserve.	Semi-desert	Less than 4 <sup>th</sup> Order.
2	Sinnar Dam	008 000	Proposed Bird Reserve.	LRF. Savanna	Less than 4 <sup>th</sup> Order.
3	Rosieris Dam	070 000	Proposed Bird Reserve.	HRF. Savanna	Less than 4 <sup>th</sup> Order.
4	Jebel Awlia Dam	100 000	Proposed Bird Reserve.	Semi-desert	Less than 4 <sup>th</sup> Order.
5	Abeid Lake	500 000	Proposed Bird Reserve.	HRF. Savanna	Less than 4 <sup>th</sup> Order.
6	<b>Kielak lake</b>	003 000	Proposed Bird Reserve.	HRF. Savanna	Less than 4 <sup>th</sup> Order.
7	<b>Kundi lake</b>	002 000	Proposed Bird Reserve.	HRF. Savanna	Less than 4 <sup>th</sup> Order.
8	<b>Al Nuba lake</b>	010 000	Proposed Bird Reserve.	Desert/semi desert	Less than 4 <sup>th</sup> Order.
9	<b>Um Badi lake</b>	150 000	Proposed Bird Reserve.	savanna	Less than 4 <sup>th</sup> Order.

10	<b>Nou lake</b>	100 000	Proposed Bird Reserve.	Desert	Less than 4 <sup>th</sup> Order.
11	<b>Port Sudan National Marine Park</b>	100 000	Marine Reserve	Desert/Marine	Less than 4 <sup>th</sup> Order.
12	<b>Sawakin Gulf National Park</b>	150 000	Marine Reserve	Desert/Marine	Less than 4 <sup>th</sup> Order.
13	<b>Jebel Marra series Reserved Area</b>	150 000	Reserved Area	HRF. Montane Climate	Less than 4 <sup>th</sup> Order.
14	<b>Jebel Garri series Reserved Area</b>	010 000	Reserved Area	Semi-desert	Less than 4 <sup>th</sup> Order.
15	<b>Red Sea Mountains series Reserved Area</b>	015 000	Reserved area	Semi-desert	Less than 4 <sup>th</sup> Order.
	<b>Total</b>	<b><u>1 378 000</u></b>			

**Summary: Tables 1-4 of to FRA 2015**

<b>No.</b>	<b>Reserve type</b>	<b>Area</b>
<b>1</b>	<b>National Parks</b>	<b>4 740 300</b>
<b>2</b>	<b>The Reserved Areas</b>	<b>0 746 000</b>
<b>3</b>	<b>The Peripheral or Boundary Areas</b>	<b>0 095 000</b>

<b>4</b>	<b>The Proposed Areas</b>	<b>1 378 000</b>
<b>Total</b>		<b><u>6 959 000</u></b>

**Table 5: Forests area within protected areas**

<b>S. No</b>	<b>Name of the Reserve</b>	<b>Area (ha)</b>	<b>Type of the Reserve</b>	<b>Ecological Zone</b>	<b>International Order</b>
1	Dinder National Park	1 129 000	N. park	HRF. Savanna	2 <sup>nd</sup> Order.
2	Radom National Park	1 250 000	N. park	HRF. Savanna	2 <sup>nd</sup> Order.
3	Wadi Howar	1 455 000	N. Park	Savanna	4 <sup>th</sup> Order.
4	Rosieris dam periphery	0 070 000	Dam periphery.	HRF. Savanna	4 <sup>th</sup> Order.
5	Abied lake and periphery	0 500 000	Lake periphery	Savanna	4 <sup>th</sup> Order.
6	Kielak lake and periphery	0 003 000	Lake periphery	Savanna	4 <sup>th</sup> Order.
7	Kundi lake and periphery	0 002 000	Lake periphery	Savanna	4 <sup>th</sup> Order.
8	Umbadi lake and periphery	0 150 000	Lake periphery	Savanna	4 <sup>th</sup> Order.
9	Jebel Marra Mountains	0 150 000	Mountainous	HRF. Savanna	4 <sup>th</sup> Order.
	<b>Total</b>	<b><u>4 709 000</u></b>			

### 6.3 Analysis and processing of national data

#### 6.3.1 Adjustment

#### 6.3.2 Estimation and forecasting

**Estimates for Conservation of Biodiversity: Scenario 1**

Total protected areas One Sudan- North Sudan= P.A South Sudan=13 345 000-6 959 000= 6 386 600 ha

Total area of all reserved areas and national parks= **6 959 000** ha (Summary tables 1-4)

CBD 2000=6 959 000-1 002 000 = **5 957 000** ha

CBD 2005= 5 957 000-46 000 (FRA 2010 estimate)= **5 911 000** ha

CBD 2010=5 911 000-46000 (FRA 2010 = **5 865 000** ha

CBD 2015= **5 865 000** ha

6 959 000 ha matches the year 2005 and since the areas protected the area increased in 2003. Why not take this figure minus (the newly reserved in 2003/2004, Wadi Howar and Jebel Hassaniya of area 2 305 000 ha.

1990 and 2000 CBD = 6 959 000-2 305 000 = 4 654 000

CBD 2005 = 6 959 000 ha

CBD 2010 = 6 959 000 ha

CBD 2015 = 6 959 000 ha (Expected to remain protected)

FAWPA: Forest Area Within Protected Areas

2005, 2010 and 2015 = 4 709 000 (same).

2000 and 2005= The recent figure-the new reserve in 2003= 4 709 000-1 455 000=3 254 000 ha

### 6.3.3 Reclassification

## 6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	8485.313	7857.419	7543.472	7229.524	6915.578
	Forest area within protected areas	3254	3254	4709	4709	4709

## Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 1	Tier 1
Forest area within protected areas	Tier 1	Tier 1

## Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> <li>Conservation of biodiversity</li> <li>Forests within protected areas</li> </ul>	Tier 3: Data obtained from national or state agencies responsible for conservation and protected area or legislation relating to area protection. Tier 2: Studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates Tier 1 Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	CBD area will increase if new areas allotted.	Additions in the area after the year 2003/2004 by adding 2 new areas. Before that no change plus or minus.
Forest area within protected areas	N/A	N/A

## Other general comments to the table

N/A
-----

## 7. What is the area of forest affected by woody invasive species?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 7.1 Categories and definitions

Category	Definition
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.

### 7.2 National data

#### 7.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Abdel Magid, 2007, An Approach Towards management In Sudan, The case of Kassala State, Ph.D Thesis, University of Khartoum.	H	- Mesquite area (1996 and 2007); - Hazard classification	1996-2007
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 7.2.2 Classification and definitions

National class	Definition
N/A	N/A

#### 7.2.3 Original data

Total area of mesquite ( <i>Prosopis chilensis</i> ) - 2007 (Source : Abdel Magid, 2007)
In FRA 2015 we add a column to 2005 table

<b>State and location</b>	<b>Area (ha) 1996</b>	<b>Area (ha) 2005</b>	<b>Area (ha) 2010</b>	<b>Comment</b>
Gash Delta	4 200	500 000	200 000	Efforts to eradicate it after 2005.
Halfa	9 044	242 000	002 000	Efforts to eradicate it after 2005.
Tokar Delta	140 560	650 000	300 000	Efforts to eradicate it after 2005.
Red Sea	20 860	050 000	050 000	No change
Gedarif	2 100	n.a	002 100	No change
Khartoum	5 111	13 000	013 000	No change
River Nile	3 360	28 000	030 000	Slight change
Northern State	n.a	n.a	n.a	n.a
White Nile	11 008	60 000	060 000	No change
Gezera	8 000	08 000	008 000	No change
Kordofan	1 260	n.a	001 260	No change
Darfur	294	n.a	000 294	No change
Sennar	420	n.a	000 420	No change
<b>Total</b>	<b>206 217</b>	<b>1 551 000</b>	<b>667 074</b>	

### 7.3 Analysis and processing of national data

#### 7.3.1 Adjustment

#### 7.3.2 Estimation and forecasting

## 7.3.3 Reclassification

## 7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
1. Prosopis chilensis	1551	667.074
2.	N/A	N/A
3.	N/A	N/A
4.	N/A	N/A
5.	N/A	N/A
6.	N/A	N/A
7.	N/A	N/A
8.	N/A	N/A
9.	N/A	N/A
10.	N/A	N/A
Total	1551	667.074

## Tiers

Category	Tier for status	Tier for reported trend
Invasive species	Tier 2	Tier 1

## Tier Criteria

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	The data is not very accurate and the source from PhD. Holder who is expert in "mesquite"	-If you go back to table (original data), it will be adjusted for 2010 to match the new changes for example in the two deltas Tokar and El Gash and in Halfa agricultural irrigated scheme there a7.47re efforts to undertake eradication to Prosopis chilensis. The efforts range from a limited scale, medium to complete eradication as in Halfa Scheme.

#### Other general comments to the table

Generally Prosopis chilensis has been prohibited by the policy of the country, though this is not the idea of the forest institution that in spite of its invasive nature it is a useful species under proper management and control . It is extensively utilized for charcoal to contribute in fuel-wood production and in reducing its extent at the extent of other land uses in particular the agricultural land use.

## 8. How much forest area is damaged each year?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 8.1 Categories and definitions

Category	Definition
Number of fires	Number of fires per year
Burned area	Area burned per year
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.
Severe weather events	Damage caused severe weather events, such as snow, storm, drought, etc.

### 8.2 National data

#### 8.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 8.2.2 Classification and definitions

National class	Definition
N/A	N/A

#### 8.2.3 Original data

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## 8.3 Analysis and processing of national data

### 8.3.1 Adjustment

### 8.3.2 Estimation and forecasting

### 8.3.3 Reclassification

## 8.4 Data

Table 8a

Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
CFRQ	Total land area burned	37266.66	N/A	37361.38	N/A	43166.73	N/A	34441.85	N/A	38852.42	N/A
CFRQ	... of which forest area burned	267.35	N/A	98.16	N/A	142.25	N/A	243.86	N/A	1051.85	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
CFRQ	Total land area burned	37668.14	N/A	37417.87	N/A	27778.94	N/A	34020.64	N/A	27468.84	N/A

	... of which forest area burned	219.44	N/A	178.26	N/A	125.37	N/A	69.82	N/A	89.18	N/A
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Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
Insects	Sphenopterachalcichroaarenosa	2009	4.2
Insects	Anacrediummelanorhodon melanorhodon	1994	5000
Insects	Anacrediummelanorhodon melanorhodon	2000	4000
Severeweatherevents	Acacianilotica	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Outbreak category
1 Insects
2 Diseases
3 Severe weather events

## Tiers

Category	Tier for status	Tier for trend
Area affected by fire	Tier 1	Tier 1
<ul style="list-style-type: none"> <li>• Insects</li> <li>• Diseases</li> <li>• Severe weather events</li> </ul>	Tier 1	Tier 1

## Tier criteria

Category	Tier for status	Tier for reported trend
----------	-----------------	-------------------------

Burned area	<b>Tier 3</b> : National fire monitoring routines <b>Tier 2</b> : Remote sensing surveys <b>Tier 1</b> : Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>• Insects</li> <li>• Diseases</li> <li>• Severe weather events</li> </ul>	<b>Tier 3</b> : Systematic survey (e.g. via inventory or aerial damage assessment) <b>Tier 2</b> : Management records <b>Tier 1</b> : Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Burned area	Data on fires not available	Data on fires not available
Insects	N/A	N/A
Diseases	N/A	N/A
Severe weather events	Drought is the major severe weather event and it is explained and measured by the reduction in forests and wooded lands in table T1 (indicator).Tree falls are encountered but not serious. The incidence sparse as individual trees, and cannot be measured in area wise. It is possible by calculation of the number of fallen trees.Mortality for known and unknown reasons may seldom take place but not a degree as an outbreak.	Drought is the major severe weather event and it is explained and measured by the reduction in forests and wooded lands in table T1 (indicator).Tree falls are encountered but not serious.

### Other general comments to the table

FNC never had studies on wild forest areas, had observations and control on reserved and , permanent and sustainable forests. There is a knowledge with some Sudanese experts on the techniques of locating fire places with remote sensing technology, but this information is not reachable and no publications for free. FNC or the country ought to pay attention to wild fires. How this will be solved I do not know.

## 9. What is the forest area with reduced canopy cover?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

Category	Definition
Reduction in canopy cover	Forest that has undergone a reduction of canopy cover of more than 20% between the years 2000 and 2010 within the forest canopy cover range of 30-80% as detected by the MODIS VCF sensor.

Table 9

Category	Area of forest with reduced canopy cover (000 ha)
Reduction in canopy cover	1981.57

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 2

Tier criteria

Category	Tier for reported trend
Reduction in canopy cover	<b>Tier 3</b> : Remote sensing with ground truthing and/or Landsat imagery <b>Tier 2</b> : Remote sensing using Modis (using pre-filled data provided by FAO) <b>Tier 1</b> : Expert opinion

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	LCCS of FAO and the partner countries "Africover" 2000 and the recent update FAO/SISIA of 2012 used global remote sensing methodologies never mentioned reduction in canopy cover. The classification included 83 classes aggregated in 7 major classes for ease of display and understanding. Canopy cover reduction is a forest degradation that we do not have studies on.

Other general comments

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## 10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 10.1 Categories and definitions

Category	Definition
Policies supporting sustainable forest management	Policies or strategies that explicitly encourage sustainable forest management.
Legislation and regulations supporting sustainable forest management	Legislation and regulations that govern and guide sustainable forest management, operations and use.

### 10.2 National data

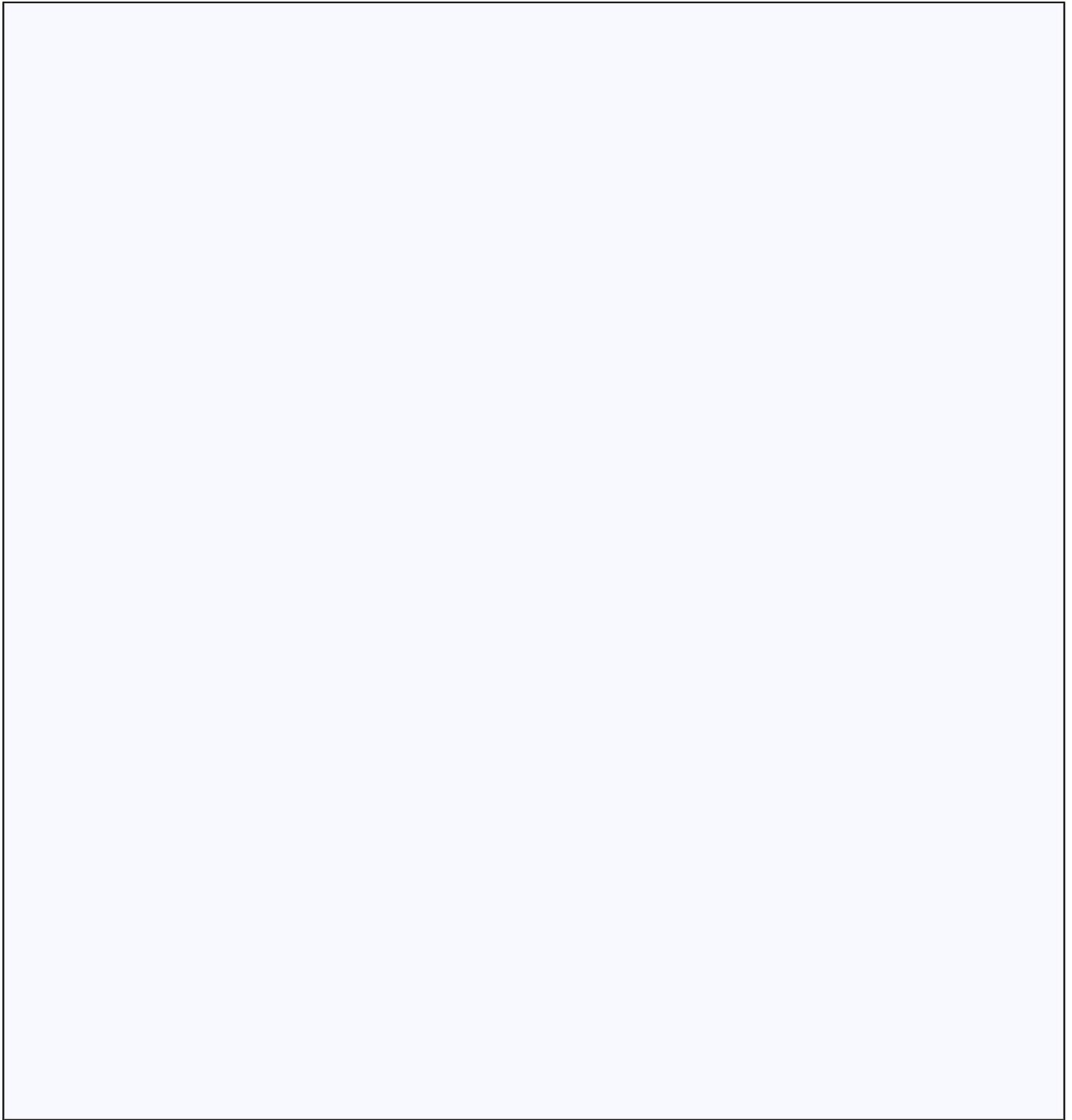
#### 10.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forests and Renewable Natural Resources Law. 2002. FNC	N/A	2002- and ahead	N/A
2	Forests National Corporation Policy.1986.FNC	N/A	1986	N/A
3	Revision of National Forestry Policy, Legislation and Institutional Reorganization. 2004. FAO: TCP/SUD/2903 Project.	N/A	2004-And ahead	N/A
4	N/A	N/A	N/A	N/A

#### 10.2.2 Classification and definitions

National class	Definition
N/A	N/A

### 10.2.3 Original data



### 10.3 Data

Table 10

Category		
	National	Sub-national

		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes		yes	
... of which, in publicly owned forests	yes		yes	
... of which, in privately owned forests	yes		yes	
Legislation and regulations supporting sustainable forest management	yes		yes	
... of which, in publicly owned forests	yes		yes	
... of which, in privately owned forests	yes		yes	

#### 10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	Forest policy 1932 and the revised Forests National Corporation Policy 1986 were superseded by the Revised Forest Policy Statement of Sudan 2005.
Legislation and regulations supporting sustainable forest management	The first Forest Law was enacted in 1932. It was updated in 1989. The Forests and Natural Resources Act was enacted in 2002 and continues up to date. New corrections have been proposed but not yet approved. Forest and Renewable Natural resources Law 2002 is acting.

Other general comments

--

## 11. Is there a national platform that promotes stakeholder participation in forest policy development?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 11.1 Categories and definitions

Category	Definition
National stakeholder platform	A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy.

### 11.2 National data

#### 11.2.1 Data sources

	References to sources of information	Years	Additional comments
1	Revision of Forest Policy, Legislation and Institutional Reorganization TCP/SUD/2903. 2004. FNC	2005	N/A
2	Community based Forest Resources Management in The Sudan.2012. Talaat AbdelMagid and Abdalla G. Mohamed.	2012	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

<b>Is there a national platform that promotes or allows for stakeholder participation in forest policy development?</b>	yes
---	-----

### 11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	Coordination with the stakeholder ministries sharing the land for example, the ministry of agriculture. Coordination with the local communities in planting crops within the forests to share benefits in multiple agricultural systems, Taungyas ..etc, however the cooperation is under development. Coordination with state governments is also taking place to close between national and state concepts of the forest resource. Involvement of the private sector invest in forest sub-sector is also practice to some extent. Regulation of the community in the Gum Arabic zone in revitalization and development of marketing of gum and in the development of the communities of G.A zone.

Other general comments

--

## 12. What is the forest area intended to be in permanent forest land use and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 12.1 Categories and definitions

Category	Definition
Forest area intended to be in permanent forest land use	Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use.
...of which permanent forest estate ( <i>sub-category</i> )	Forest area that is designated by law or regulation to be retained as forest and may not be converted to other land use.

### 12.2 National data

#### 12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	FAO (2003). Land Cover Atlas. Africover Eastern Africa. GCO/RAF/287/ITA	M	Land Cover 1990-2000. Complete	N/A
2	FAO/SIFSIA (2012). Land Cover Atlas of Sudan.	H	2012	N/A
3	More sources? In FRA 2010?	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 12.2.2 Classification and definitions

National class	Definition
N/A	N/A

#### 12.2.3 Original data

**-Forest reserves**

Reservation up to the Year	Number of reserved forests with management plans	Area of reserved forests with management plans ha	No. of reserved forests without management plans	Area of reserved forests without management plans ha	Total number of reserved forests	Total area of reserved forests ha
-2005	1 400	5 079 369	1 233	5 984 694	2 633	11 064 063
2006	1 502	5 224 002	1 343	5 989 932	2 845	11 213 933
2007	1 623	5 544 209	1 602	6 493 727	3 225	12 037 936
2008	1623	5 544 209	1 694		3 317	12 068 936
2009	1623	5 544 209	1 694		3 317	12 068 936
2010	1623	5 544 209	1 694		3 317	12 068 936
2011	1623	5 544 209	1 694		3 317	12 068 937
2012	1623	5 544 209	1 704		3 327	12 101 188
2013	1623	5 544 209	1 705		3 328	12 107 121

## Private ownership by forest type

Type of Forest	Private forests in hectares	Remarks
Community forests	053 965	
Social forests	010 602	
Other private forests	001 210	
<b>Total 2</b>	<b>065 777</b>	

2005. Source: States and FNC statistics

**- Private forest owned by gum farmers (societies)**

State	No. of societies	Membership	Forest area (ha)
Blue Nile	347	24 795	1 236 975

White Nile	036	02 600	0 230 717
Sinnar	088	0 6 241	0 322 243
Gedarf	035	02 975	0 692 064
North Kordofan	142	18 500	0 682 321
S. kordofan	540	29 700	1 035 690
W. Kordofan	156	14 285	1 113 115
Darfur Region	n.a	n.a	0 692 989
<b>Total</b>			<b>6 006 114</b>

- Private forest owned by **rural individuals** and communities

State	Individual forests	Community forests	Total ha
Gedarif	07 990	45 526	053 246
Sinnar	00 768	02 534	003 302
Blue Nile	10 192	97 370	107 562
Gezira	0	00 045	000 045
North Darfur	00 132	04 110	004 242
West Darfur	00 284	0	000 284
South Darfur	0	00 158	000 158
Khartoum	00 004	n.a	000 004
North Kordofan	22 269	05 359	027 628
West Kordofan	0	0	0
South Kordofan	0	0	0
White Nile	13	01 775	1 788
Northern	0	0	00 059
Nile	0	00 048	00 048
Red Sea	0	0	0
<b>Total</b>	<b>41 652</b>	<b>156 714</b>	<b>198 366</b>

The table below explains the increase in private and community forests 2010,2011, 2012, 2013. These values will be added to provide the situation in 2013

Year	state	Community Forests Area fedd.	Number of CF	Private Forests Fed	Number PF
2010	Sinnar	115.92	7	23.99	2
2011	Sinnar	046.62	4	115.50	9
2012	Sinnar	076.44	5	034.02	8
2013	Sinnar	070.98	2	163.38	6
<b>Total</b>		<b>309.96</b>		<b>173.51</b>	

198 366+174=198 540

-Private forest owned by **companies**

<b>Agricultural Scheme</b>	<b>Planted Forests Before 2005 ha</b>	<b>New planted forests after 2005 ha</b>	<b>Total</b>
Gineid Sugar Company	199	25	224
Rahad Agric. Corporation	378	336	714
Gezira Agric. Scheme	429	76	505
Gezira Farmers Union	4202	863	5065
Kenana Sugar Company	2311	840	3151
Assalaya Sugar Company	420	210	630
New Halfa corporation	n.a	13	13
Agricultural Schemes 10%	n.a	126	126
Tree Belts	n.a	3668	3668

Rahad Irrigated planted forests	n.a	129	129
Saudi Scheme	n.a	1197	1197
Acacia Company (Gandeil)	12 773	13845	26618
Acacia Company (Gandeil)	084 034	n.a	84034
<b>Total</b>	<b>104 746</b>	<b>21 328</b>	<b>126 074</b>

**Protected Areas PA:**

No.	Reserve type	Area
<b>1</b>	<b>National Parks</b>	<b>4 740 300</b>
<b>2</b>	<b>The Reserved Areas</b>	<b>0 746 000</b>
<b>3</b>	<b>The Peripheral or Boundary Areas</b>	<b>0 095 000</b>
<b>4</b>	<b>The Proposed Areas</b>	<b>1 378 000</b>
<b>Total</b>		<b><u>6 959 000</u></b>

**12.3 Analysis and processing of national data**

## 12.3.1 Adjustment

12.3.2

## 12.3.2 Estimation and forecasting

**- Area of permanent forest estate:**

According to the national forest law, it is said that at least 25% of the total land area= (0.25x 187 955 312 ha= which means **46 988 828** ha) should be kept as permanent forests and other wooded lands. Though this

proportion has not been reached, and may not be reached, we state it as a policy. The area of permanent forest s and other wooded lands estate includes also the protected areas. Other wooded lands take a considerable proportion in the forest cover.

#### - Area of permanent forest estate:

Reserved forests+ Protected areas+ Private, community, and institutional = Reserved forests 12 107 121+ PA 6 959 000+ private, community and institutional 6 396 331= **25 462 452** ha

#### 12.3.3

#### 12.3.3 Reclassification

### 12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	19209.938
	... of which permanent forest estate	19209.938

#### Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 1
Permanent forest estate	Tier 1

#### Tier Criteria

Category	Tier for status
Forest area intended to be in permanent forest land use	<b>Tier 3</b> : National or sub-national land use plans strategy documents or other reports within the past 10 years <b>Tier 2</b> : National or sub-national land use plans strategy documents or other reports within the past 20 years <b>Tier 1</b> : Other
Permanent forest estate	<b>Tier 3</b> : National or sub-national land use plans strategy documents or other reports within the past 10 years <b>Tier 2</b> : National or sub-national land use plans strategy documents or other reports within the past 20 years <b>Tier 1</b> : Other

### 12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	46 988.828 This number is an unattained dream stated by the Sudan Forest Policy.
Permanent forest estate	25 462.452 Where this number came from was explained in the tables related above. It seems exceeding the forest area, this figure includes in some way the influence of OWLs in the calculation. This is more explained that all the forest area with addition of other wooded lands.

Other general comments

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### 13. How does your country measure and report progress towards SFM at the national level?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

#### 13.1 Categories and definitions

Category	Definition
Forest area monitored under a national forest monitoring framework	Forest area monitored by a national monitoring framework or systems that provide measurement based periodic monitoring of forest extent and quality.
Forest reporting at national scale	National reporting of forest extent and characteristics that includes some measure of progress toward sustainable forest management.

#### 13.2 National data

##### 13.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	2000	N/A
2	NFI. 1995-1998. FAO/FNC	Extent Species Distribution Increment Loss	N/A	N/A
3	WB. 1983 and 1985. WB. Forest Administration and University of Khartoum and Kenya RSA.	1985	N/A	N/A
4	N/A	N/A	N/A	N/A

##### 13.2.2 Classification and definitions

National class	Definition
N/A	N/A

#### 13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/remote sensing sample based	Aerial/remote sensing full coverage
Forest inventory	30	2012	no	yes	no	yes	yes	no
Other field assessments	40	N/A	no	yes	no	yes	no	yes
Updates to other sources	11	N/A	no	yes				
Expert estimate	10	N/A						

Table 13b

Type of forest reporting used at national scale	Check boxes that apply
1 Criteria and Indicators reporting	yes
2 Periodic national state of the forest report	yes
3 Other (please document)	
4 None	yes

#### Other type of forest reporting

N/A

### 13.4 Comments

Category	Comments
1.Criteria and indicators reporting	has been exercised in FNC years ago, but I am not sure that it has been followed exactly.
2.Periodic national state of the forest report	Has been regarded after the results from specific surveys
N/A	N/A

#### Other general comments

Note to table 13a: For 2015 & 2015 the 11% refers to N. Sudan only, while the remaining years refer to the old colonial Sudan

**Note** : Provide the % of forest from NFI, WB Forest Sector Review 1983/1985, updates to LCCS 2012, and FRA 2015 in column 2 of the above table.

## 14. What is the area of forest under a forest management plan and how is this monitored?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 14.1 Categories and definitions

Category	Definition
Forest area with management plan	Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revised
...of which for production ( <i>sub-category</i> )	Forest management plan mainly focused on production
...of which for conservation ( <i>sub-category</i> )	Forest management plan mainly focused on conservation
Monitoring of forest management plans	Government monitoring of forest management plan implementation conducted through field visits or audits of forest management plan performance

### 14.2 National data

#### 14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	14855
... of which for production	7896
... of which for conservation	6959

Table 14b

Indicate which (if any) of the following are required in forest management plans in your country	
1 Soil and water management	yes

2 High conservation value forest delineation	yes
3 Social considerations community involvement	yes

Table 14c

<b>Percent of area under forest management plan that is monitored annually</b>	<b>7</b>
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## Tiers

Category	Tier for status
Forest area with management plan	Tier 1
Percent of area under forest management plan that is monitored annually	Tier 1

## Tier criteria

Category	Tier for status
Forest area with management plan	<b>Tier 3</b> : Reports that describe national records 5 years old or less that contain long-term forest monitoring plans <b>Tier 2</b> : Industry or other records indicating the presence of a long-term forest management plan <b>Tier 1</b> : Other
Percent of area under forest management plan that is monitored annually	<b>Tier 3</b> : Government documentation of monitoring extent <b>Tier 2</b> : Reports from forest managers or other documental sources <b>Tier 1</b> : Other

## 14.4 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

## Other general comments

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## 15. How are stakeholders involved in the management decision making for publicly owned forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 15.1 Categories and definitions

Category	Definition
Stakeholder involvement	Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	yes
2. Operations phase	yes
3. Review of operations	yes

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 3

Tier criteria

Category	Tier for status
Type of stakeholder inputs	<b>Tier 3</b> : Government (national or sub-national) documentation of stakeholder inputs <b>Tier 2</b> : Government (national or subnational) requirement but stakeholder inputs not documented <b>Tier 1</b> : Other

### 15.2 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

--

## 16. What is the area of forest under an independently verified forest certification scheme?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 16.1 Categories and definitions

Category	Definition
FSC certification	Forest area certified under the Forest Stewardship Council certification scheme
PEFC certification	Forest area certified under the Programme for the Endorsement of Forest Certification scheme
Other international forest management certification	Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification.
Certified forest area using a domestic forest management certification scheme	Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a thirdparty

### 16.2 Data

Table 16a

International forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	FSC	0	0	0	0	0	0	0
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	0	0	0	0	0	0	
	PEFC	0	0	0	0	0	0	
	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	1.Name	0	0	0	0	0	0	0
	2.Name	0	0	0	0	0	0	0
	3.Name	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
	1.Name	0	0	0	0	0	0	
	2.Name	0	0	0	0	0	0	
	3.Name	0	0	0	0	0	0	

## Tier criteria

Category	Tier for status
<b>International</b> forest management certification	Tier 3: International forest management scheme records maintained by the certifying organization for the reporting year Tier 2: International forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other
<b>Domestic</b> forest management certification	Tier 3: National registry reports for domestic forest management certification maintained by the certifying organization for the reporting year Tier 2: Domestic forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other

## Tiers

Category	Tier for status
<b>International</b> forest management certification	Tier 3
<b>Domestic</b> forest management certification	Tier 1

## 16.3 Comments

Category	Comments related to data definitions etc
Certified forest area using an international forest management certification scheme	N/A
Domestic forest management certification	N/A

## Other general comments

**Check about the meaning of domestic certification. Is this case we have in the country?**

## 17. How much money do governments collect from and spend on forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 17.1 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 revenue include: <ul style="list-style-type: none"> <li>• <b>Goods</b> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products.</li> <li>• <b>Services</b> : including concession fees and royalties, stumpage payments, public timber sales revenue taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities.</li> </ul>
Public expenditure on forestry	All government expenditure on forest related activities.

### 17.2 National data

#### 17.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Annual reports. 2001, 2006, 2011. FNC.	Forest revenue Forest expenditure	2000 2005 2010	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	24203	2207995	33900
Public expenditure on forestry	98162	2209221	34800

	2000	2005	2010
Name of Local Currency	Sudanese Gineih	N/A	N/A

**17.4 Comments**

Category	Comments related to data definitions etc
Forest revenue	N/A
Public expenditure on forestry	N/A
Other general comments	N/A

Other general comments

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## 18. Who owns and manages the forests and how has this changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 18.1 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.
...of which owned by the state at national scale ( <i>sub-category</i> )	Forest owned by the State at the national scale or administrative units of the public administration or by institutions or corporations owned by the public administration.
...of which owned by the state at the sub-national government scale ( <i>sub-category</i> )	Forest owned by the State at the sub-national government scale 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 cooperatives corporations and other business entities, private, religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
...of which individuals ( <i>sub-category</i> )	Forest owned by individuals and families.
...of which private business entities and institutions ( <i>sub-category</i> )	Forest owned by private corporations cooperatives companies and other business entities as well as private nonprofit organizations such as NGOs nature conservation associations, and private religious and educational institutions etc.
...of which local tribal and indigenous communities ( <i>sub-category</i> )	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people The community members are coowners that share exclusive rights and duties and benefits contribute to the community development.
Unknown ownership	Forest area where ownership is unknown includes areas where ownership is unclear or disputed.
Categories related to management rights of public forests	Definition
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 companies	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities private cooperatives, private nonprofit 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.

### 18.2 National data

## 18.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	FNC annual reports. 2002, 2003, 2004, 2005. FNC.	Community Forests	2000 2005 2010	FNC annual reports. 2002, 2003, 2004, 2005. FNC.
2	Gum Arabic Producer's Union. Reports and interviews	Report, area, population	2005 2010	Gum Arabic Producer's Union. Reports and interviews
3	Sudan by States-2002. Bureau of Statistics	% of rural and urban population	2002 2008	Sudan by States-2002. Bureau of Statistics. Bureau of statistic 2008.
4	Gum Arabic Records	Report	1980 -2002	Arabic Records
5	National forestry statistics	Private forest areas	2005 2010	N/A

## 18.2.2 Classification and definitions

National class	Definition
Central Forests	Forests owned by the Central Government (Federal) Institution FNC.
Community forests (Social Forests)	Forests owned by groups of rural population(villagers)
Regional (State forests)	Forests owned by state governments and administrated by the central government
Individual private forests (Community)	Forests owned by individuals (one or many)
Institution forests	Forests owned by agricultural schemes, farmer unions, companies. They may be private or public.

## 18.2.3 Original data

2002, Source : Sudan population data sheet 2002 (Check pop. Data sheet 2008)					
- Private ownership by regions					
Region	State(s)	Rural population number	Rural population %	Private forests in hectares	Remarks
North	Nothern Nile	n.a	n.a	n.a	
Khartoum	Khartoum	n.a	n.a	n.a	

Kordofan	North Kordofan, South Kordofan and West Kordofan	3 087 080	71	808 020	Est.
Dar fur	North Darfur, South Darfur and West Darfur	5 055 300	82	646 416	Est.
Eastern	Gedaref, Kassala and Red Sea	2 116 820	68	848 421	Est.
Central	Gezira, Sennar, Blue Nile and White Nile.	2 10 060	68	428 416	Est.
Total 1				<b>2 731 273</b>	

## Private ownership by forest type

Type of Forest	Private forests in hectares	Remarks
Community forests	053 965	
Social forests	010 602	
Other private forests	001 210	
<b>Total 2</b>	<b>065 777</b>	

2005. Source: States and FNC statistics

**- Private forest owned by gum farmers (societies)**

State	No. of societies	Membership	Forest area (ha)
-------	------------------	------------	------------------

Blue Nile	347	24 795	1 236 975
White Nile	036	02 600	0 230 717
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S. kordofan	540	29 700	1 035 690
W. Kordofan	156	14 285	1 113 115
Darfur Region	n.a	n.a	0 692 989
<b>Total</b>			<b>6 006 114</b>

- Private forest owned by **rural individuals** and communities

State	Individual forests	Community forests	Total ha
Gedarif	07 990	45 526	053 246
Sinnar	00 768	02 534	003 302
Blue Nile	10 192	97 370	107 562
Gezira	0	00 045	000 045
North Darfur	00 132	04 110	004 242
West Darfur	00 284	0	000 284
South Darfur	0	00 158	000 158
Khartoum	00 004	n.a	000 004
North Kordofan	22 269	05 359	027 628
West Kordofan	0	0	0
South Kordofan	0	0	0
White Nile	13	01 775	1 788
Northern	0	0	00 059
Nile	0	00 048	00 048
Red Sea	0	0	0

Total	41 652	156 714	198 366
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Private forests owned by **rural individuals (Private)** and communities (CF) 2010-2013.

The table below explains the increase in private and community forests 2010,2011, 2012, 2013. These values will be added to provide the situation in 2013

Year	state	Community Forests Area fedd.	Number of CF	Private Forests Fed	Number PF
2010	Sinnar	115.92	7	23.99	2
2011	Sinnar	046.62	4	115.50	9
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2013	Sinnar	070.98	2	163.38	6
Total		<b>309.96</b>		<b>173.51</b>	

Private forest owned by **companies**

Agricultural Scheme	Planted Forests Before 2005 ha	New planted forests after 2005 ha	Total
Gineid Sugar Company	199	25	224
Rahad Agric. Corporation	378	336	714
Gezira Agric. Scheme	429	76	505
Gezira Farmers Union	4202	863	5065
Kenana Sugar Company	2311	840	3151
Assalaya Sugar Company	420	210	630
New Halfa corporation	n.a	13	13

Agricultural Schemes 10%	n.a	126	126
Tree Belts	n.a	3668	3668
Rahad Irrigated planted forests	n.a	129	129
Saudi Scheme	n.a	1197	1197
Acacia Company (Gandeil)	12 773	13845	26618
Acacia Company (Gandeil)	084 034	n.a	84034
<b>Total</b>	<b>104 746</b>	<b>21 328</b>	<b>126 074</b>

### 18.3 Analysis and processing of national data

#### 18.3.1 Adjustment

#### 18.3.2 Estimation and forecasting

**For 2005:**(2005, Source: States and FNC statistics)

Forests owned by individuals = **41 652**ha plus **173.5** for the years after 2005

Forests owned by gum Arabic farmers in societies = **6 006 112**ha

Total individual forests = 41 652 + 6 006 112 = **6 047 764**ha

Forests owned by groups (Community) = 156 714 ha plus **310**ha added for the years after 2005

Private forest owned by companies = 126 074 ha

Private ownership owned by individuals = 6 047 764 ha

Private ownership owned by private business entities and institutions = 126 074 ha

Private ownership owned by local communities = 156 714 ha

Total private ownership = **6 330 552**

Public ownership = Total Forest Area – Private ownership = **63 889 000** ha

**For the years 2010-2013:**New additions after 2005

Individual forests =  $41\,652 + 173.5 = \mathbf{41\,825.5}$  ha

Total individual forests =  $41\,825.5 + 6\,006\,112 = \mathbf{6\,047\,937.5}$  ha new

Forests owned by groups (Community) =  $156\,714 + 310 = \mathbf{157\,024}$  ha new

Private forest owned by companies =  $\mathbf{126\,074}$  ha

### For the year 2010:

Records of 2010-2013 taken.

For the year 2015:

Change (increase in) total private forests =  $309.96 + 173.51 = 483.47$  ha

$\mathbf{309.96}$  ha of which for community forests, and  $\mathbf{173.51}$  ha

### 18.3.3 Reclassification

## 18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	21942.313	20062.163	14623.536	13750.978
	... of which owned by the state at national scale	21942.313	20062.163	14623.536	13750.978
	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
	Private ownership	1628	1764	6330.552	6331.034
	... of which owned by individuals	N/A	N/A	6047.764	6047.938
	... of which owned by private business entities and institutions	N/A	N/A	126.074	126.074
	... of which owned by local, tribal and indigenous communities	N/A	N/A	156.714	157.024

	Unknown ownership	0	0	0	0
TOTAL		23570.31	21826.16	20954.09	20082.01

## Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 3	Tier 3
Private ownership	Tier 3	Tier 3
Unknown ownership	N/A	N/A

## Tier criteria

Category	Tier for status	Tier for reported trend
Ownership	Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	23570.313	21826.163	20954.088	20082.012
Individuals	N/A	N/A	N/A	N/A
Private companies	N/A	N/A	N/A	N/A
Communities	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A
TOTAL	23570.31	21826.16	20954.09	20082.01

Category	Tier for reported trend	Tier for status
Public Administration	Tier 3	Tier 3
Individuals	N/A	N/A
Private companies	N/A	N/A

Communities	N/A	N/A
Other	N/A	N/A

### 18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	n.a	n.a
Private ownership	n.a	n.a
Unknown ownership	n.a	n.a
Management rights	n.a	The government or public administration is the only prevailing and gripping the forest resource. The collaboration between the individuals, community and institutions did not involve management rights on public forests, it only provide technical assistance to all parties and in some instances cooperate with the individuals communities to grow crops and trees in short contracts (taungya). Involvement of companies and institutions takes the form of facilities of offering land to plant trees and provision of technical assistance.

#### Other general comments to the table

The status of the public ownership as regards national and sub-national levels of ownership in Sudan is actually agreed upon through Letters of Agreements LoAs to govern the forests without any conflicts between the Federal Government and the State Governments. The responsibility towards the resource and the benefits and services gained are agreed upon to be divided justly (F.G 60% and S.G 40%). In the past two decades some forests had been put aside as state forests and that did not work because the federal experience, the national nature of the institute FNC, and the difficulties for the states to manage the forests, imposed the closeness between the two rule authorities. That means FNC manages the forests without antagonizing the state government and always seeks for compromise with the states . So in table 18a we shall regard the ownership as one public ownership.

## 19. How many people are directly employed in forestry?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 19.1 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

### 19.2 National data

#### 19.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	FNC. Annual reports 2002-2007.	Employment	2002-2007	N/A
2	Knowledge of the national FRA 2010 team	Employment	2002-2007	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 19.2.2 Classification and definitions

National class	Definition
N/A	N/A

#### 19.2.3 Original data

No.	Activity/Production of	FNC (paid) years FTE	Other/Contractor (Self) years FTE

1	Industrial round wood	1 000	3 000 000
2	Wood-fuel	200	1 000 000
3	Non-wood forest products	n/a	1 111 100
4	Silvicultural activities	1 000	n/a
5	Support services(1)	300	n/a
Total		2 500	5 111 100

(1) Support services include: **Forest inventories , forest management consulting services , timber value assessment , forest fire fighting and protection , forest pest control , harvesting and transport of logs within the forest .**

table

Year	Employment			Employment in management of protected areas
	Paid employment Salary/ wage(casual labour	Self-employment	Primary employment	
2002	4876			
2003	4804			
2004	2395			
2005	<b><u>2805</u></b>			

2006	4770			
2007	3198			
2008	3184			
2009	4774			
2010	<b>3100</b>			

Source: Annual Reports 2002-2010

### 19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	4.87	4.876	2.805	3.1
	... of which female	0.195	0.487	0.586	0.62

### 19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	N/A	The employment in forestry in Data for 19 in this table refers to that employed by FNC the official governmental forest agency. No other type of employment (self or else is mentioned here). The record for 2010 and 2005 is directly obtained from the annual reports. Could not get that for 2000 and we considered the record for the year 2002. Records not available for the year 1990 and we take an estimate. Females represent less than 5% of the employment in 1990, 10% in 2000, 15% in 2005, 20% in 2010 Are less than 10% in 1990.

#### Other general comments to the table

N/A

## 20. What is the contribution of forestry to Gross Domestic Product (GDP)?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 20.1 Categories and definitions

Category	Definition
Gross value added from forestry (at basic prices)	This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

### 20.2 Data

Table 20 (Pre-filled data from UNdata/EUROSTAT)

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	45	Sudanese Gineih SDG	2012

### 20.3 Comments

Category	Comments
Gross value added from forestry (at basic prices)	Forests support livelihoods, provide employment generate income that lead to settlement of the communities, provide fuel-wood beside the direct wood and non-wood products and fodder, social and environmental services ... etc.The GDP represents 5% of the Gross Value of the country. But this estimate is under the true GDP value and the expert foresters concerned estimated it as 12% adding the unseen indirect values forests provide to environment, society settlement of the community. Hence the estimate is conservative and they work to get the actual or close to the real GDP.

Other general comments

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## 21. What is forest area likely to be in the future

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 21.1 Categories and definitions

Category	Definition
Government target/aspiration for forest area	Government target/aspiration for forest area for a specific year.
Forests earmarked for conversion	Forest area that is allocated/classified or scheduled to be converted into non-forest uses.

### 21.2 National data

#### 21.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Policy.	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	19000	18591

Table 21b

Category	Forest area (000 ha)
	2013
Forests earmarked for conversion	N/A

### 21.4 Comments

Category	Comments
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Government target/aspiration for forest area	These targets have been stated by the forest policy. The degree of fulfilment of the target in the future is unknown, that the target will be rendered as an aspiration.
Forests earmarked for conversion	There is no intension in the Forest Policy of Sudan to convert any reserved forest except when a national need to de-reserve a forest show (very rare cases). The natural forests are always subject to competition between familiar land users. Therefore the conversion into other land uses takes place in the un used natural forests and actually it is a loss to forests at least from the foresters point of view.Result: There are no forests officially earmarked for conversion.

#### Other general comments

<p><i>National data</i></p> <p>Land area = 187 955 575 ha</p> <p>20% of country area (Aspiration/target) = 37 591 115 ha</p> <p>Aspiration for 2020 =19 000 000 ha</p> <p>Aspiration for 2030 = 18 591 115 ha</p>
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