

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Botswana

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

Botswana is endowed with the diversity of both the herbaceous and woody vegetation that provides a wide range of goods and services that satisfies the needs of the nation at large. The forests and woodlands cover about sixty percent (60%) of the land area of Botswana.

While some of the benefits derived from forest resources are obvious, the wider contribution of trees, forests and woodlands to the national economy in Botswana is extremely difficult to quantify. This is because forest and woodland resources often do not provide direct benefits, but are an essential foundation for other important sectors such as wildlife, tourism and livestock rearing. The complexity of these linkages makes quantification difficult. As a result these, benefits are often grossly underestimated in both the sectoral and national Gross Domestic Products context. This has resulted in limited allocation of financial and other resources by various stakeholders into this sector. Nevertheless, direct and indirect benefits are derived from forest resources. Fuel wood for instance, consistently supplies over fifty percent of domestic energy needs in Botswana, with over sixty percent of the population being dependent on this resource. Forests and woodlands provide numerous essential socio-economic, cultural, medicinal, ecological and environmental benefits, many of which are fundamental to the well being of the nation, both now and in the future.

It is broadly appreciated that forests contribute to:

1. Improvement of food security and nutrition at household level by providing wild foods such as honey, fruits, and game meat;
1. Meeting rural subsistence needs by providing construction and fencing materials, fuel wood and herbs for medicine;

1. Generation of income by providing materials for handicraft production, fruits and veldt products;
1. Agricultural productivity by providing habitat and nutrition for flora and fauna;
1. Eco-tourism by providing habitat for wildlife; and
1. Protection of the environment by reducing soil erosion and land degradation, conserving watersheds, sequestering carbon and allowing for the rehabilitation of the environment.

Whilst the benefits of forestry resources accrue to all members of society, those most dependent on such benefits and most likely to be affected by their destruction are the poor. This is true in both rural and urban areas. In the latter, poorer groups depend on fuel wood as an energy source because alternatives are too expensive for them. If this trend persists the situation is likely to continue into the foreseeable future. Botswana has never had a nationwide forest and range resources inventory study particularly outside protected areas such as Forest Reserves found in Chobe District, where most of the studies done in the 1930s and between 1990 and 1992 concentrated on assessing merchantable timber with very little regard for other important uses/values. This paper represents the country report for Botswana as part of an input to Global Forest Resources Assessment (FRA) process of FAO especially FRA 2010 which is an update to FRA 2005 (FAO 2005). The fortunate part is Botswana will now carry out a national forest inventory which hopefully will improve or avail appropriate information for resources monitoring. This will start in 2013 and run for a period of three years. There other initiatives on going for detailed biomass assessment conducted under UNFCCC umbrella.

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	Land Utilization Division, Ministry of Agriculture, Republic of Botswana. 1990. Land Systems Map of the Republic of Botswana.	Land Systems Map	1990	Primary Data source

2	FRA 2000. Botswana country report	Rate of deforestation	2005	Secondary data source
3	FAOSTAT	Land area	2005	Secondary data source
4	The Little Green Data Book, 2007. The World Bank	World Development Indicators	2007	Secondary data source
5	Department of Forestry & Range Resources, Assessment of Community Woodlots in Botswana.	- Costs and Revenue accrued from establishment of woodlots - Area planted	2003	This assessment was conducted to establish the viability of these community projects
6	Department of Forestry & Range Resources, Mature Eucalyptus Government Plantations.	- Assessment of production levels - Management options	2001	This assessment was conducted as a prerequisite to transforming these projects in viable entities.

1.2.2 Classification and definitions

National class	Definition
Dense Woodland	Characterized by well-developed tree canopy and a thicket-like shrubby under-storey. Floristically diverse and has been divided into a number of vegetation types by previous workers, it's classified as "Dry Deciduous Forest"
Open woodland	Floristically similar to dense woodland but with major differences in structure, particularly in more open canopy woodland.
Riparian woodland	Fringing forest along the edges of Okavango Delta, major rivers and Chobe valley. Floristically similar to dense woodland type. Typical tree species found Ficus sycomorus, Hyphaene spp (Palms), Combretum imberbe (Lead wood).
Fringing Palm Grassland & Woodland	Characterized by palm woodland, bushland and open grassland with the latter being interspersed with in places with tree belts. Shrub layer is poorly developed and overall structure of the community can be summarized as grassland supporting tree cover which increases in localized areas.
Bushland with scrubby woodland and bushy scrubland	Composed of small-to-medium height trees with well developed shrub layer. Its ecological structure is often influenced by clearance around settlements. Trees are usually less than 12m high with average heights ranging between 7 and 9m.
Shrubland and bushy shrubland	It has floristic affinities with the surrounding vegetation types (bushland & scrubland). Trees are always less than 7m tall (often much shorter), and widely spaced. Vegetation consists of relatively few species which appear in various combinations to form mosaics which are usually related to topographic features (e.g. ridges, pans, dune crests and troughs)

1.2.3 Original data

Reference year: 1990

National Classification	Area ('000) ha
FL Forbland	170
GR Grassland	2 796
GR/SA Grassland/ Savanna	662
GR/ST Grassland/ Tree savanna	224
SS/GR Shrub savanna / grassland	93
GR/SA/W Grassland/ Savanna / woodland	1 304
SA Savanna	20 965
SS Shrub savanna	2 277
SA/SS Savanna / Shrub savanna	3 608
SS/SA Shrub savanna / Savanna	20 106
ST Tree Savanna	1 736
SS/ST Shrub savanna / Tree Savanna	76
ST/SA Tree Savanna / Savanna	76
SA/ST Savanna / Tree Savanna	693
SS/W Shrub savanna / woodland	272
W/SA Woodland / Savanna	520
SA/W Savanna / Woodland	1 296
S/SS/SA Swamp / Shrub savanna / Savanna	216
S/SA/W Swamp / Savanna / Woodland	625
Total	57 715

Reference year: 2000

FRA 2000 estimated the annual net change rate in Botswana to be – 118 345 ha, primarily based on rates from neighbouring countries.

Forest expansion, reforestation

Estimation based on data from expert assessment of all Government plantation and community plantation. Area under introduced species is equal to annual forest establishment.

1.3 Analysis and processing of national data

1.3.1 Adjustment

Forest area

From FAOSTAT

Total Country Area ('000)ha	58 173
Inland water ('000)ha	1 500
Land area ('000)ha	56 673

Reference year: 1990

Total country area according to source ('000) ha	57 715
Calibration factor	1.007944277

On calibration, the original data becomes:

National Classification	Area ('000) ha
FL Forbland	171
GR Grassland	2 818
GR/SA Grassland/ Savanna	667
GR/ST Grassland/ Tree savanna	226
SS/GR Shrub savanna / grassland	94
GR/SA/W Grassland/ Savanna / woodland	1 314
SA Savanna	21 132
SS Shrub savanna	2 295
SA/SS Savanna / Shrub savanna	3 637
SS/SA Shrub savanna / Savanna	20 265
ST Tree Savanna	1 750
SS/ST Shrub savanna / Tree Savanna	77
ST/SA Tree Savanna / Savanna	77
SA/ST Savanna / Tree Savanna	699
SS/W Shrub savanna / woodland	274
W/SA Woodland / Savanna	524
SA/W Savanna / Woodland	1 306
S/SS/SA Swamp / Shrub savanna / Savanna	218
S/SA/W Swamp / Savanna / Woodland	630
Total	58 173

1.3.2 Estimation and forecasting

Forest area

Due to lack of further information, estimation and forecasting has been done using the calibrated areas from 1990 and the estimated net change rate from FRA 2000. This was done after reclassification.

1.3.3 Reclassification

Forest area			
<u>Reference year: 1990</u>			
National Classification	Forest	Other wooded land	Other land
FL Forbland			100 %
GR Grassland			100 %
GR/SA Grassland/ Savanna	10 %	20 %	70 %
GR/ST Grassland/ Tree savanna	30 %		70 %
SS/GR Shrub savanna / grassland		60 %	40 %
GR/SA/W Grassland/ Savanna / woodland	40 %		60 %
SA Savanna	15 %	65 %	20 %
SS Shrub savanna	15 %	85 %	
SA/SS Savanna / Shrub savanna	25 %	75 %	
SS/SA Shrub savanna / Savanna	25 %	75 %	
ST Tree Savanna	100 %		
SS/ST Shrub savanna / Tree Savanna	50 %	50 %	
ST/SA Tree Savanna / Savanna	50 %	50 %	
SA/ST Savanna / Tree Savanna	50 %	30 %	20 %

SS/W Shrub savanna / woodland	40 %	30 %	30 %
W/SA Woodland / Savanna	80 %	20 %	
SA/W Savanna / Woodland	50 %	20 %	30 %
S/SS/SA Swamp / Shrub savanna / Savanna	10 %	30 %	60 %
S/SA/W Swamp / Savanna / Woodland	30 %	30 %	40 %

After reclassification, we get:

National Classification	Forest ('000 ha)	Other wooded land ('000 ha)	Other land('000ha)
FL Forbland			171
GR Grassland			2 818
GR/SA Grassland/ Savanna	67	133	467
GR/ST Grassland/ Tree savanna	68		158
SS/GR Shrub savanna / grassland		56	37
GR/SA/W Grassland/ Savanna / woodland	526		789
SA Savanna	3 170	13 736	4 226
SS Shrub savanna	344	1 951	
SA/SS Savanna / Shrub savanna	909	2 727	
SS/SA Shrub savanna / Savanna	5 066	15 199	

ST Tree Savanna	1 750		
SS/ST Shrub savanna / Tree Savanna	38	38	
ST/SA Tree Savanna / Savanna	38	38	
SA/ST Savanna / Tree Savanna	349	210	140
SS/W Shrub savanna / woodland	110	82	82
W/SA Woodland / Savanna	419	105	
SA/W Savanna / Woodland	653	261	392
S/SS/SA Swamp / Shrub savanna / Savanna	22	65	131
S/SA/W Swamp / Savanna / Woodland	189	189	252

On re-arranging:

FRA Categories	Area (1000 hectares)
	1990
Forest	13 718
Other wooded land	34 791

Then,

- For 2000, 2005 and 2010

Forest area in a reporting year X= Forest area in 1990 - (118 345 (rate of deforestation)* (X-1990)).

For Other Wooded Land, it is assumed that the area remain stable.

1.4 Data

Table 1a













Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	13718	12535	11943	11351	10840
	Other wooded land	34791	34791	34791	34791	34791
	Other land	8164	9347	9939	10531	11042
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	1500	1500	1500	1500	1500
	TOTAL	58173.00	58173.00	58173.00	58173.00	58173.00

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
	Forest expansion	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which afforestation	0.27	0.05	N/A	N/A	0.27	0.05	N/A	N/A
	... of which natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Deforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which artificial	N/A	N/A	N/A	N/A	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	N/A	N/A
Reforestation	N/A	N/A

Tier criteria

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

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	<p>The classification is based on the Land Systems Map of the Republic of Botswana for the year 1990 which was used or FRA 2000. There are a two biomass studies undertaken by Millington et al (for reference years 1984 and 1986); however, the exact forest area is not easily quantified from these studies. Use of the Land Systems Map has been preferred since the information for 2000 was validated by the country before publication. Reference for 1986: Millington, A. , R. Critcheley, T. Douglas & P Ryan 1994. Estimating woody biomass in sub-saharan Africa. Washington, IBRD / World Bank Reference for 1984: Millington, A., and Townsend, J. (eds.) 1989. Biomass assessment: Woody biomass in the SADC region. Earth scans Publication Ltd. London. UK</p>	<p>It is considered that the pressure on the forest between 2005 and 2010 is same as in 1990-2000.</p>
Other wooded land	<p>This classification includes all areas not classified as "Forest" and it includes all the areas classified under the different savannah vegetation types.</p>	<p>Situation for the last five years remain similar as before.</p>
Other land	<p>This classification relates to other land that can be categorized as fallow areas, swampy areas, salt pans etc</p>	N/A
Other land with tree cover	<p>This classification relates to other land that can be categorized as scrubland and bushy scrubland.</p>	N/A

Inland water bodies	This classification relates to other land that is under artificial water bodies such as dams, pans, inland deltas etc.	There has not been any change in the sizes of inland water bodies as new dams have only been proposed recently and their total capacities have not yet been determined.
Forest expansion	Data for the proportion of land under afforestation is not available for the years 2005. The country has adopted the same definitions used by FAO. Government accounts for 62% of the afforestation initiatives while communities account for the remaining 38%. Data for the proportion of land under natural expansion of forest is not available for the years between 1990 and 2005.	Planting has been declining significantly to almost zero (November 2008) as most people have switch to indigenous tree planting which are mostly used for landscaping purposes as opposed to large scale planting.
Deforestation	N/A	N/A
Reforestation	Data for the proportion of land under Reforestation is not available for the years between 1990 and 2005. Currently there are no reforestation program(s) in the country.	N/A

Other general comments to the table

It has not been easy to categorize the total area under #Other land with tree cover# as the agricultural statistics were not readily available to effectively give figures of the total areas that has been converted to arable land over time.

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 outside 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	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

2.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

2.2.3 Original data

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2.3 Analysis and processing of national data

2.3.1 Adjustment

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2.3.2 Estimation and forecasting







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2.3.3 Reclassification

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2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	0	0	0	0	0
	Other naturally regenerated forest	13718	12535	11943	11351	10840
	... 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	0	0	0	0	0
	... of which of introduced species	0	0	0	0	0

TOTAL	13718.00	12535.00	11943.00	11351.00	10840.00
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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
0	0	0	0	0	0	0	0	0

Table 2c

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Mangroves (forest and OWL)	0	0	0	0	0
... 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>Tier 3 : 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>Tier 2 : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) Tier 1 : Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p>

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
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Primary forest	No comprehensive information about the primary forest. All forest area (including possible patches of primary forest) has been classified under "Other naturally regenerated forest" category.	N/A
Other naturally regenerating forest	See above	N/A
Planted forest	N/A	N/A
Mangroves	The country does not have this category of forests.	N/A

Other general comments to the table

N/A

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	Millington, A. , R. Critcheley, T. Douglas & P Ryan 1994. Estimating woody biomass in sub-saharan Africa. Washington, IBRD / World Bank	Woody biomass	1986	Primary Data source
2	Millington A., J. Townsend 1989, Biomass Assessment, Woody Biomass in the SADC Region.	Woody Biomass	1989	Primary Data Source
3	N/A	N/A	N/A	N/A

4	N/A	N/A	N/A	N/A
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3.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

3.2.3 Original data

Total woody biomass = 463.603 million tonnes. This refers to all land categories.

3.3 Analysis and processing of national data

3.3.1 Adjustment

3.3.2 Estimation and forecasting

3.3.3 Reclassification

Growing stock

It is assumed that the woody biomass as presented by Millington mainly refers to forest and Other wooded land. It is further assumed that the data from 1986 is valid for 1990.

All calculations refer to Forest and Other wooded land together.

Total Growing stock 1990 (Forest and other wooded land together) = Total woody biomass / basic density

Where basic density = 0.58

Growing stock 1990 (Forest and other wooded land together) (m³/ha) = Total Growing stock 1990 (Forest and other wooded land together) / (Area of forest + other wooded land) = 16.478 m³/ha

This is then applied to the areas in T1 to give values for 2000, 2005 and 2010 reporting years.

Biomass stock

All calculations refer to Forest and Other wooded land together.

It is assumed that the biomass of 1986 is the same in 1990. Furthermore, the total woody biomass is assumed to refer to stem biomass. The following conversion factors are then used:

	Forest	OWL
Biomass expansion factor	2.00	2.00

This gives the following estimates

Above-ground biomass (1000 tons)	927 206
Area of Forest+OWL 1990 (1000 ha)	48 509
Above-ground biomass (tons/ha)	19.1

Below-ground biomass is estimated by multiplying the Above-ground biomass by the Root-shoot ratio (0.56)

Below-ground biomass (1000 tons)	519 235
Below-ground biomass (tons/ha)	10.69

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

Year	1990	2000	2005	2010
Total Forest and OWL area (1000 ha)	48 509	47 326	46 734	46 142

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)			
	Forest			
	1990	2000	2005	2010
Above-ground biomass	927	904	893	881
Below-ground biomass	519	506	500	493

Note: The figures refer to Forest and Other wooded land together.

Carbon stock

A/- Based on the results of table 7 (Biomass), the assumption of Carbon stock could be estimated using the standard factor of 0.47

B/- Carbon in the litter has been estimated, based on the standard factor of 2.8 (subtropical) and

- Soil carbon has been estimated, based on the factor of 31(Using 2006 IPCC Guidelines as the country has a tropical dry climate and 61% of the soils are sandy)

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

Year	1990	2000	2005	2010
Total Forest and OWL area (1000 ha)	48 509	47 326	46 734	46 142
Carbon in the litter (1000 t. C)	101 869	99 385	98 141	96 898

3.4 Data

Table 3a




Category		Growing stock volume (million m ³ over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	799	780	770	735	725	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	799	780	770	735	725	N/A	N/A	N/A	N/A	N/A

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	N/A	N/A	N/A	N/A	N/A	N/A
2 nd	N/A	N/A	N/A	N/A	N/A	N/A
3 rd	N/A	N/A	N/A	N/A	N/A	N/A
4 th	N/A	N/A	N/A	N/A	N/A	N/A
5 th	N/A	N/A	N/A	N/A	N/A	N/A
6 th	N/A	N/A	N/A	N/A	N/A	N/A
7 th	N/A	N/A	N/A	N/A	N/A	N/A

8 th	N/A	N/A	N/A	N/A	N/A	N/A
9 th	N/A	N/A	N/A	N/A	N/A	N/A
10 th	N/A	N/A	N/A	N/A	N/A	N/A
Remaining			N/A	N/A	N/A	N/A
TOTAL			.00	.00	.00	.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 ³ 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	927	904	893	881	868	N/A	N/A	N/A	N/A	N/A
	Below ground biomass	519	506	500	493	485	N/A	N/A	N/A	N/A	N/A
	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		1446.00	1410.00	1393.00	1374.00	1353.00	.00	.00	.00	.00	.00

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	436	425	420	414	407	N/A	N/A	N/A	N/A	N/A
	Carbon in below ground biomass	244	238	235	232	229	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Living biomass</i>	680	663	655	646	636	N/A	N/A	N/A	N/A	N/A
	Carbon in dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	102	99	98	97	96	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Soil carbon	425.26	388.59	370.23	351.88	336.04	N/A	N/A	N/A	N/A	N/A
TOTAL		1207.26	1150.59	1123.23	1094.88	1068.04	.00	.00	.00	.00	.00

Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 1	Tier 1
Net annual increment	Tier 1	Tier 1
Above ground biomass	Tier 1	Tier 1

Below ground biomass	Tier 1	Tier 1
Dead wood	Tier 1	Tier 1
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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Carbon in above ground biomass • Carbon in below ground biomass • Carbon in dead wood and litter • Soil carbon 	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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : 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	The above estimates refer to the combined area of forests and other wooded land.	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	Above -ground biomass is calculated for both forest area and other woodland combined together.	N/A
Below-ground biomass	Existing data did not include this component as the study used satellite data and ground data to derive biomass data without any root assessments to determine below-ground biomass.	No baseline data available
Dead wood	Except for a few localized studies, there is no data on the biomass of dead wood nationally.	No baseline data available
Carbon in above-ground biomass	N/A	N/A
Carbon in below-ground biomass	N/A	N/A
Carbon in dead wood	N/A	N/A
Carbon in litter	N/A	N/A
Soil carbon	N/A	N/A

Other general comments to the table

I do understand the comments made as above relating to the growing stock this is not available as no inventory has been conducted recently. Botswana is to conduct a national inventory in the next two years.the figures quote include for both forest area and other woodland areas combined.

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	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

4.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A

N/A	N/A
N/A	N/A

4.2.3 Original data

Forests are now under multiple use in the form of consumptive use such as hunting, photographic safari, game drives to see wild animals, biological conservation and so on.

4.3 Analysis and processing of national data

4.3.1 Adjustment

4.3.2 Estimation and forecasting

4.3.3 Reclassification

4.4 Data

Table 4a



Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	420	0	0	0	0
	Multiple use forest	13298	12535	11943	11351	10840

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	N/A	N/A	N/A	N/A
2 nd	N/A	N/A	N/A	N/A
3 rd	N/A	N/A	N/A	N/A

4 th	N/A	N/A	N/A	N/A
5 th	N/A	N/A	N/A	N/A
6 th	N/A	N/A	N/A	N/A
7 th	N/A	N/A	N/A	N/A
8 th	N/A	N/A	N/A	N/A
9 th	N/A	N/A	N/A	N/A
10 th	N/A	N/A	N/A	N/A
TOTAL			.00	

2010	
Name of local currency	N/A

Category
Plant products / raw material
1 Food
2 Fodder
3 Raw material for medicine and aromatic products
4 Raw material for colorants and dyes
5 Raw material for utensils handicrafts construction
6 Ornamental plants
7 Exudates
8 Other plant products
Animal products / raw material
9 Living animals
10 Hides skins and trophies
11 Wild honey and beewax
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 ³ u.b.)	
	Total wood removals	...of which woodfuel
1990	687.13	603.13
1991	689.13	602.13
1992	691.83	602.83
1993	704.87	612.87
1994	712.33	617.33
1995	720.6	623.6
1996	726.47	627.47
1997	731.9	629.9
1998	730.9	627.9
1999	735.89	630.89
2000	740.45	635.45
2001	744.81	639.81
2002	749.52	644.52
2003	754.57	649.57
2004	759.98	654.98
2005	765.75	660.75
2006	770.03	665.03
2007	774	669
2008	778.9	673.9
2009	783.56	678.56
2010	788.3	683.3

2011	791.4	686.4
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Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 2	Tier 2
Multiple use forest	Tier 2	Tier 2

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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	The area under this category was restricted to Forest Reserves only (419 800 ha).	The area under this category fell to zero due to the suspension of all commercial timber harvesting activities in the northern part of the country.
Multiple use forest	There is no production purpose since 1992 due to moratorium suspending roundwood trade in Botswana. Forests are now under multiple use in the form of consumptive use such as hunting, photographic safari, game drives to see wild animals, biological conservation and so on.	This area under this category is reported as not changing as data on the conversion of other land use to this category is not readily available at the moment.
Total wood removals	N/A	N/A
Commercial value of NWFP	N/A	N/A

Other general comments to the table

N/A

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	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

5.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

5.2.3 Original data

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5.3 Analysis and processing of national data

5.3.1 Adjustment

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5.3.2 Estimation and forecasting




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5.3.3 Reclassification

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5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
	Protection of soil and water	0	0	0	0	0
	... of which production of clean water	0	0	0	0	0
	... of which coastal stabilization	0	0	0	0	0

	... of which desertification control	0	0	0	0	0
	... of which avalanche control	0	0	0	0	0
	... of which erosion, flood protection or reducing flood risk	0	0	0	0	0
	... of which other (please specify in comments below the table)	0	0	0	0	0

Other

N/A

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	0	0	0	0	0
...of which public recreation	0	0	0	0	0
...of which carbon storage or sequestration	0	0	0	0	0
...of which spiritual or cultural services	0	0	0	0	0
...of which other (please specify in comments below the table)	0	0	0	0	0

Tiers

Category	Tier for reported trend	Tier for status
Protection of soil and water	Tier 2	Tier 2
Ecosystem services, cultural or spiritual values	Tier 2	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
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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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Cultural or spiritual values • Public recreation • Spiritual or cultural services • Other 	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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

5.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Protection of soil and water	N/A	N/A
Production of clean water	N/A	N/A
Coastal stabilization	N/A	N/A
Desertification control	N/A	N/A
Avalanche control	N/A	N/A
Erosion, flood protection or reducing flood risk	N/A	N/A
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A
Public recreation	N/A	N/A
Carbon storage or sequestration	N/A	N/A
Spiritual or cultural services	N/A	N/A
Other ecosystem services	N/A	N/A

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
N/A	N/A
N/A	N/A
N/A	N/A

6.2.3 Original data

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6.3 Analysis and processing of national data



6.3.1 Adjustment

6.3.2 Estimation and forecasting

6.3.3 Reclassification

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	0	0	0	0	0
	Forest area within protected areas	13718	12535	11943	11351	10840

Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 2	Tier 2
Forest area within protected areas	Tier 2	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> Conservation of biodiversity Forests within protected areas 	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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	N/A
Forest area within protected areas	This includes areas under National Parks, Game Reserves, Sanctuaries etc.	No detailed data available

Other general comments to the table
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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	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

7.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

7.2.3 Original data

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7.3 Analysis and processing of national data

7.3.1 Adjustment

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7.3.2 Estimation and forecasting

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7.3.3 Reclassification

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7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
Prosopis species	5	5
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	N/A
N/A	N/A	N/A
Total	5	5

Tiers

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

Tier Criteria

Category	Tier for status	Tier for reported trend
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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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
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7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	N/A	Information/survey conducted by the Department of Forestry and range Resources

Other general comments to the table

There are other invasive species which are not yet surveyed such as *Cenchrus bioflora* as well as other potential invasive species such as *Tecoma stans*, *Lantana camara*

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
N/A	N/A
N/A	N/A
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	#
	Total land area burned	417.06	N/A	766.18	N/A	436.69	N/A	3698.84	N/A	1131.48	N/A
	... of which forest area burned	5.58	N/A	0.4	N/A	0.84	N/A	1.23	N/A	2.55	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	4034.26	N/A	1195.02	N/A	5950.95	N/A	6426.88	N/A	2383.48	N/A
	... of which forest area burned	0.48	N/A	0.81	N/A	2.61	N/A	0.94	N/A	0.33	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
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	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 2	Tier 2
<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	N/A	N/A

Tier criteria

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

8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
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Burned area	N/A	N/A
Insects	N/A	N/A
Diseases	N/A	N/A
Severe weather events	N/A	N/A

Other general comments to the table
N/A

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	61.37

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 2

Tier criteria

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

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	The information generated from the amount of deforestation over the years using the deforestation factor of 0.9%

Other general comments

--

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	Agricultural Resources Conservation Act	N/A	1972	An Act to make provision for the conservation and improvement of the agricultural resources of Botswana; to establish an Agricultural Resources Board and to define its powers and functions; to provide for conservation committees and subordinate conservation committees and prescribe their functions; and to provide for matters incidental to the foregoing.
2	Agricultural Resources Conservation (Utilization of Veld Products) Regulations	N/A	2006	This regulations regulates the harvesting and / or utilisation of timber and non-timber forest products.
3	Forest Act	N/A	2005	An Act to provide for the better regulation and protection of forests and forest produce in Botswana and to provide for matters incidental thereto.

4	Forest Policy	N/A	2011	The policy provides guidance and facilitation in the management of forests and range resources of the country through coservation, development and sustainable use.
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10.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

10.2.3 Original data

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10.3 Data

Table 10

Category				
	National	Sub-national		
		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes	yes	yes	yes
... of which, in <u>publicly</u> owned forests	yes	yes	yes	yes
... of which, in <u>privately</u> owned forests	yes	yes	yes	yes
Legislation and regulations supporting sustainable forest management	yes	yes	yes	yes
... of which, in <u>publicly</u> owned forests	yes	yes	yes	yes
... of which, in <u>privately</u> owned forests	yes	yes	yes	yes

10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	N/A
Legislation and regulations supporting sustainable forest management	N/A

Other general comments

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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	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

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

11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	stakeholders are consulted through workshops, kgotla meetings etc

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	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

12.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

12.2.3 Original data

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12.3 Analysis and processing of national data



12.3.1 Adjustment

12.3.2 Estimation and forecasting

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	409
	... of which permanent forest estate	409

Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3
Permanent forest estate	Tier 3

Tier Criteria

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

12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	This area only includes the forest reserves and the provided area should not be added together with (000ha) its a flat figure
Permanent forest estate	This data includes areas under Forest Reserves.

Other general comments

--

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	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

13.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
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	1	1992	no	yes	yes	no	no	no
Other field assessments	N/A	N/A	no	no	no	no	no	no
Updates to other sources	N/A	N/A	no	no	no	no	no	no
Expert estimate	100	2014						

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)	no
4 None	no

Other type of forest reporting
N/A

13.4 Comments

Category	Comments
Forest inventory	the inventory was conducted in 1992 in forest reserves which cover only one % total land arear
N/A	N/A
N/A	N/A

Other general comments

--

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	409
... of which for production	N/A
... of which for conservation	409

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

Percent of area under forest management plan that is monitored annually	0.1
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Tiers

Category	Tier for status
Forest area with management plan	Tier 3
Percent of area under forest management plan that is monitored annually	Tier 3

Tier criteria

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

14.4 Comments

Category	Comments
Forest area with management plan	This category includes areas for Forest Reserves as most CBNRM projects have only started preparing management plans for areas under their jurisdiction. The Forest area is as stated in Table 14a do not add (000ha) to the recorded figure.
N/A	N/A
N/A	N/A

Other general comments

--

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 1

Tier criteria

Category	Tier for status
Type of stakeholder inputs	Tier 3 : Government (national or sub-national) documentation of stakeholder inputs Tier 2 : Government (national or subnational) requirement but stakeholder inputs not documented Tier 1 : 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
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
		0	0	0	0	0	0	
		0	0	0	0	0	0	
		0	0	0	0	0	0	

Tier criteria

Category	Tier for status
International 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
Domestic 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
International forest management certification	Tier 3
Domestic 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

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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"> • <u>Goods</u> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • <u>Services</u> : 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.
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	Government Accounting & Budgeting System (GABS)	Budget allocations for both recurrent and development	2006	The system captures and records all money collected by governments from forests products and services.
2	Departmental quarterly financial reports	N/A	2010 - 2013	The reports captures all revenue spent forest management by the department.
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	N/A	569	581
Public expenditure on forestry	N/A	N/A	80545
	2000	2005	2010

Name of Local Currency	Pula	Pula	Pula
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17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	The conclusive data on forest revenue is only available for reported periods stated as proper records have been kept since the introduction of GABS in 2006. Unfortunately the system retains records for only 2 years. Revenue data includes forest nursery sales, sales of tenders and non-wood forest products permit sales. Note: The provided figures are not suppose to be added with (000)
Public expenditure on forestry	The conclusive data on forest revenue is only available for reported periods stated as proper records have been kept since the introduction of GABS in 2006. Unfortunately the system retains records for only 2 years. Operational expenditure includes funds for staff field travel claims (subsistence allowance), Indigenous woodland management, nursery upgrading etc. Note: Information of 2008 be used for 2005. The Department currently does not have an arrangement for direct financial incentives paid to non-government and private-sector institutions, enterprises, communities or individuals
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	EU/FAO 1998. Data Collection and Analysis for Sustainable Forest Management in ACP Countries. Linking National and International Efforts: Proceedings of sub-regional workshop on forestry statistics-SADC region. FAO,Rome	Land ownership	1998	Primary data source since it contains a country report
2	Environmental Statistics – Central Statistics Office, 2000	Environmental Statistics	2000	N/A
3	Forest Act, Chapter 38:04, 1968	- Declaration of protected trees - Declaration of forest reserves	1968	N/A
4	Department of Crop Production & Forestry, Chobe Forestry Inventory and Management Plan. 1992	Area coverage for each State Land	1992	N/A

18.2.2 Classification and definitions

National class	Definition
Forest Reserves	Any area or piece of land declared as a forest reserve by the President in pursuance of the terms of the National Forest Act of 1968
Wildlife Management Areas	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.
Communal Land	Other forests/woodlands outside the Forest Reserves are mostly in Tribal land and are governed by the Tribal Land Act. Their ownership is not clear as the tribes have no exclusive rights to them, because the land they sit on is controlled by the State.
Tribal/Communal Land	That portion of tribal land allocated by the Land boards under the Tribal Land Grazing Policy (TGLP) of 1975 for communal use by people of that locality e.g. for grazing, small scale arable agriculture and residential sites. No person owns any part of this land. They are only given user rights through 99 years leases.
Freehold Land/Farms	Land that contains forest/woodlands owned by individuals, families or companies, mostly for the purpose of cattle ranching. Forest management rights and responsibilities are transferred from the Public Administration to these individuals, families or companies, through long-term leases or management agreements

18.2.3 Original data

Based on the FRA 2005 report (which had used the **EU/FAO 1998**, as source), there are basically three types of land tenure in Botswana:

- State: This type constitutes 24% of Botswana.
- Freehold: This makes up 5% of the total land area of Botswana.
- Tribal: This land covers 71% of the country.

18.3 Analysis and processing of national data

18.3.1 Adjustment

18.3.2 Estimation and forecasting

	Area (1000 hectares)		
FRA 2005 Categories	Forest		
	1990	2000	2005
Public ownership	3292	3008	2866
Private ownership	686	627	597
Other ownership	9740	8900	8480
TOTAL	13718	12535	11 943









18.3.3 Reclassification

Due to lack of other information, the above percentages have been applied to the forest area of Question 1. This assumption is correct, according to knowledgeable people of Department of Forestry & Range Resources/ Botswana.

National Classification	FRA Classification
State	100% public
Freehold	100% private
Tribal	100% other

18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	3292	3008	2416	1824
	... of which owned by the state at national scale	N/A	N/A	N/A	N/A
	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
	Private ownership	10426	9527	9527	9527
	... of which owned by individuals	686	627	597	8627
	... of which owned by private business entities and institutions	N/A	N/A	N/A	N/A
	... of which owned by local, tribal and indigenous communities	8900	8900	8900	8900
	Unknown ownership	0	0	0	0
TOTAL		13718.00	12535.00	11943.00	11351.00

Tiers

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

Public ownership	Tier 1	Tier 1
Private ownership	Tier 1	Tier 1
Unknown ownership	Tier 1	Tier 1

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	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	3292	3008	2416	1824
Individuals	0	0	0	0
Private companies	0	0	0	0
Communities	0	0	0	0
Other	0	0	0	0
TOTAL	3292.00	3008.00	2416.00	1824.00

Category	Tier for reported trend	Tier for status
Public Administration	Tier 1	Tier 1
Individuals	Tier 1	Tier 1
Private companies	Tier 1	Tier 1
Communities	Tier 1	Tier 1
Other	Tier 1	Tier 1

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
----------	--	--------------------------------

Public ownership	N/A	A decline in the total area is reported as some of the area under conservation was delimited for infrastructural development such as residential areas, roads, clinics, primary schools etc. (a total of 10 260 ha has been removed for this purpose).
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A
Management rights	N/A	N/A

Other general comments to the table

All forests under public ownership are managed by the public administration.

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	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

19.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A



19.2.3 Original data

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19.3 Data

Table 19

Category	Employment (000 years FTE)
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		1990	2000	2005	2010
	Employment in forestry	N/A	N/A	0.637	0.623
	... of which female	N/A	N/A	0.135	0.199

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	N/A	N/A

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)	581.787	PULA	2010

20.3 Comments

Category	Comments
N/A	N/A

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	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

21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	N/A	N/A

Table 21b

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

21.4 Comments

Category	Comments
Government target/aspiration for forest area	N/A

Forests earmarked for conversion	N/A
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Other general comments

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