Kenya

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

> This form was filled through a consultatitve process. The following institutions were involved; Kenya Forest Service, Department of Resource Surveys and Remote Sensing, Kenya Forest Research Institute, GreenBelt Movement , Kenya National Bureau of statistics and Kenya Agricultural Research Institute.
>
> This report builds on the FAO 2010 report. However the values reported here differ slightly. This is due to the methododlogies that were used during the wall to wall Remote Sensing based inventory that was carried out in 2010-2012. The 2010 report had only reported the gazetted forests. The 2015 report includes forests within public, private and community land rights.

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 *(sub-category)*	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 *(sub-category)*	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 *(sub-category)*	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 *(sub-category)*	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 *(sub-category)*	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	Kenya Forestry Master Plan 1994	1990 projections	1994	The data derived from a scenario of non implementation of the plan.

2	Kenya Forest Service Reports	Plantations	2008	The data is extracted from Kenya Forest Service tree planting reports and does not include tree planting by private tree farmers
3	Report on National Forest Resource Mapping and Capacity Development (NFRMCD) For The Republic of Kenya : Volume 2	Forest areas, Canopy cover changes (1990-2000, 2000-2010 and 1990-2010) Landuse and Landcover change (1990-2000, 2000-2010 and 1990-2010) using the six IPCC classes	2013	A wall to wall mapping of Kenya was done at 3 epochs (1990, 2000 and 2010) for all landuses using ALOS AVNIR and Landsat images. Ground truthing was also carried out to ascertain forest and other landuse classes. This shows spatial and temporal patterns of land cover change in Kenya, including deforestation, change in canopy cover and reforestation in public, community and private land.
4	N/A	N/A	N/A	N/A

1.2.2 Classification and definitions

National class	Definition
Public Natural forests	A group of trees whose crowns are largely contiguous and include the ecosystem that makes it up to a tree canopy cover of over 15% , minimum area of 0.5Hac and minimum height of 2m or with potential to reach 5m. The vegetation is predominantly of indigenous tree species growing under natural conditions and excludes planted indigenous plantation forests. The area includes Mangroves and bamboo ecosystems. The area is legally delineated through gazettement and includes Central government, County government forests National parks/Reserves or under National monuments Act.
Private Natural forests	A group of trees whose crowns are largely contiguous and include the ecosystem that makes it up to a tree canopy cover of over 15% , minimum area of 0.5Hac and minimum height of 2m or with potential to reach 2m. The vegetation is predominantly of indigenous tree species growing under natural conditions and excludes planted indigenous plantation forests. The area includes Mangroves and bamboo ecosystems. These are under private tenure of individuals, companies, government institutions or community conservation units.
Public Plantation Forests	All areas of systematically planted, man-managed tree resource composed of primarily exotic species. Categories include both young and mature plantations that have been established for commercial wood production. It includes clear felled areas within plantations and excludes all plantations of non-timber such as tea and coffee. It includes associated land cover/use such as roads, fire-breaks and building infrastructure if they are too small to be clearly mapped off the satellite imagery. The area is legally delineated through gazettement.

Private Forest Plantations	All areas of systematically planted, man-managed tree resource composed of primarily exotic species. Categories include both young and mature plantations that have been established for commercial wood production. It includes clear felled areas within plantations and excludes all plantations of non-timber such as tea and coffee. It includes associated land cover/use such as roads, fire-breaks and building infrastructure if they are too small to be clearly mapped off the satellite imagery. These are under private tenure of individuals, companies, government institutions or community conservation units.
Grasslands	Grasslands are vast natural landscapes dominated by grass and shrub comprising primarily of native vegetation. They may have a few scattered trees whose crown cover does not exceed 15% and the overall vegetation does not exceed 2m in height
Farmlands with Trees	These are areas with trees growing on privately owned farmlands.
Wetlands	These are areas predominantly under water includes lakes, swamps, deltas, creeks and dams
Settlements	All developed lands within a concentric of high density with minimum agricultural activities. This includes cities, municipalities, urban centers, and big market centers. This excludes all settled areas within farmlands and grasslands.
Other lands	These are areas that do not fit the definition of natural forest, plantations, farmlands, grasslands or settlements.
Bamboo	These are high altitude areas in montane forest regions dominated by continuous stands which comprise mainly of highland bamboo (Yushania alpina).
Mangroves Forest	These are areas along the coastline dominated by various mangrove tree species of medium height that grow in saline habitats.
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest mainly as forest plantation or restoration of deforested natural forest designated areas.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously degraded or deforested and currently grassland.

1.2.3 Original data

Name of variable	Area ('000Ha)			
	1990	**2000**	**2005**	**2010**
Natural Forest	4561	3437	3881	4037
Public Plantations	130	85	110	122

Private Plantations	33	35	56	71
Cropland	9 258	9 661	9 868	1 0072
Grassland	41 522	41 654	41 496	41 080
Settlements	57	87	109	126
Otherlands	1 004	1 574	1 035	1 044
Wetlands	1 472	1 504	1 482	1 485
Total Area for country	58 037	58 037	58 037	58 037

1.3 Analysis and processing of national data

1.3.1 Adjustment

National land area used	58,037
FAO land area for Kenya	58,037
Conversion factor	1

1.3.2 Estimation and forecasting

Name of variable	Area ('000Ha)				
	1990	**2000**	**2005**	**2010**	**2015**
Forestland	4 724	3 557	4 047	4 230	4413
Cropland	9 258	9 661	9 868	1 0072	10276
Grassland	41 522	41 654	41 496	41 080	40664
Settlements	57	87	109	126	143
Otherlands	1 004	1 574	1 035	1 044	1053

Wetlands	1 472	1 504	1 482	1 485	1488
Total Area for country	58 037	58 037	58 037	58 037	58037

The forecasted values for the FRA 2015 were based on the trend of change since 2000. Results from NFRMCD report show that this is the year when forest recovery was noted after a drop in the period 1990 to 2000. Based on the Kenya Vision 2030 forest cover is expected to increase towards 10% by 2030.

1.3.3 Reclassification

National Classes	Forests	OWL	OL	OLWTC	ILWB
Forestland	100%				
Other wooded land		100%			
Other lands			100%		
In land water bodies					100%

1.4 Data
Table 1a

Categories		Area (000 hectares)				
		1990	**2000**	**2005**	**2010**	**2015**
CFRQ	Forest	4724	3557	4047	4230	4413
CFRQ	Other wooded land	10035	9843	9939	9652	9365
CFRQ	Other land	42155	43514	42928	43032	43136
CFRQ	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
CFRQ	Inland water bodies	1123	1123	1123	1123	1123
	TOTAL	58037.00	58037.00	58037.00	58037.00	58037.00

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
CFRQ	Forest expansion	N/A	N/A	88.8	31.2	N/A	N/A	N/A	N/A
CFRQ	... of which afforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which natural expansion of forest	N/A	N/A	88.8	31.2	N/A	N/A	N/A	N/A
CFRQ	Deforestation	N/A	112.4	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which human induced	N/A	112.4	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	Reforestation	N/A	N/A	9.2	5.4	N/A	N/A	9.2	5.4
CFRQ	... of which artificial	N/A	N/A	9.2	5.4	N/A	N/A	9.2	5.4

Tiers

Category	Tier for status	Tier for reported trend
Forest	Tier 2	Tier 2
Other wooded land	Tier 2	Tier 2
Forest expansion	Tier 2	Tier 2
Deforestation	Tier 2	Tier 2
Reforestation	Tier 2	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
• Forest • Other wooded land • Afforestation • Reforestation • Natural expansion of forest • Deforestation	**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	**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

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends

Forest	A group of trees whose crowns are largely contiguous and a tree canopy cover of over 15%. This includes natural and planted plantation forests in state and private land.	There is general trend of decline of forest land from 1990 to 2000 due to degazettement of forestland to open up areas for agriculture especially Mau ecosystem. From 2000 to 2010 there is an increase in forest area both in gazetted and non gazetted areas due to rehabilitation of degraded forest, increased farm forestry, peoples attitude due to sensitization and tree planting became economically viable
Other wooded land	Land not classified as forest spanning more than 0.5 ha with trees higher than 5m and canopy cover of 5-10 percent. Excludes land predominantly agricultural	There is general trend of decline due to conversion from previously wooded grasslands to croplands in the Arid and Semi Arid areas.
Other land	All other land not classified as forest or woodland	Slight fluctuations in areas may be attributed to seasonal changes in land use.
Other land with tree cover	Other land with tree cover includes agricultural land with tree growing mixed with crop	The increase shows positive impact of farm forestry and extension efforts
Inland water bodies	Includes lakes and water reservoirs	The has been almost constant as there is no major dam that has been constructed during the period
Forest expansion	There is increased tree planting in areas that were not forest areas. More resources are put towards reforestation	There has been a gentle increase in farm forestry
Deforestation	Deforestation occurs when forests have been clear felled or degraded such that the land no longer fits the definition of a forest.	Deforestation occurred in the period 1990 and 2000. Since 2000 forest rehabilitation and afforestation have superseded deforestation levels.
Reforestation	Planting mainly done on forest plantation designated areas that have been cleared or enrichment planting in degraded natural forest areas. The data is extracted from Kenya Forest Service tree planting reports and does not include tree planting by private tree farmers.	The increased trend in reforestation areas is due to public awareness, increased financial support from government and development partners.

Other general comments to the table
Sources of Data: 1. Year 1990: Land cover data was derived from Image Processing of LANDSAT Thematic Mapper (TM) (34 SCENES) of 25th. February 1987 to 18th. May 1990. 2. Year 2000: Land cover data was derived from Image Processing of LANDSAT Thematic Mapper (TM) (34 SCENES) of 25th. October 1999 to 17th December 2000. 3. Year 2005: Land cover data was derived from Image Processing of LANDSAT Enhanced Thematic Mapper (ETM) (34 SCENES) of 27th. March 2004 to 20th. May 2006. 4. Year 2010: Advanced Land Observing Satellite; The Advanced Visible and Near Infrared Radiometer type 2(ALOS AVNIR-2) (189 SCENES of 20th. March 2009 to 15th. February 2011 and Disaster Monitoring Constellation (DMC) (9SCENES of 6th. September 2010 to 13th. April 2011) with ground truthing 5. Base map : Survey of Kenya (Scale 1 : 1, 000, 000 Kenya Route Map) Grid : U.T.M. Zone 37 Projection : Transverse Mercator Datum : New (1960) Arc Published by Kenya Forestry Service, 2012 Ministry of Environment and Natural Resources. Copyright Kenya Government

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 *(sub-category)*	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized *(sub-sub category)*	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 *(sub-category)*	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 *(sub-category)*	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	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya : Volume 2	Forest Characteristics of natural forest and plantations	1990, 2000, 2005, 2010	A wall to wall mapping of Kenya was done at 3 epochs (1990, 2000 and 2010) for all landuses using ALOS AVNIR and Landsat images. Ground truthing was also carried out to ascertain forest and other landuse classes. This shows spatial and temporal patterns of land cover change in Kenya, including deforestation, change in canopy cover and reforestation in public, community and private land.
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
Natural forest	The vegetation is predominantly of indigenous tree species growing under natural conditions and excludes planted indigenous plantation forests. The area includes Mangroves and bamboo ecosystems. Natural forest have crowns of over 15% Crown Cover. These areas have not lost any of their ecosystem services
Plantations	A forests that has been established using tree species that are not native to Kenya through Afforestation or reforestation for commercial purposes
N/A	N/A
N/A	N/A

2.2.3 Original data

Original data				
Year	**1990**	**2000**	**2005**	**2010**
Plantation forest	163	120	166	193
……of which public	130	85	110	122
…….of which private	33	35	56	71

Natural forest	4,561	3,437	3,881	4,037
…...Of which indigenous mixed trees	4,443	3,327	3,747	3,928
…..Of which bamboo	56	73	86	59
…..Of which Mangroves	62	37	49	49
Total Forestland	4,724	3,557	4,047	4,230

2.3 Analysis and processing of national data

2.3.1 Adjustment

2.3.2 Estimation and forecasting

Data for 1990, 2000,2005 and 2010 were calculated from Remore Sensing surveys which were ground truthed. Data for 2015 was extrapolated using the 2005 and 2010 figures

2.3.3 Reclassification

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	4561	3437	3881	4037	4193
	... of which of introduced species	0	0	0	0	0
	... of which naturalized	23	17	35	14	0
	Planted forest	163	120	166	193	220

CFRQ	... of which of introduced species	163	120	166	193	220
	TOTAL	4724.00	3557.00	4047.00	4230.00	4413.00

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)	61	37	49	49	49
... 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	**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 **Tier 2** : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) **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

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend

Primary forest	A forest that is relatively undisturbed and whose crown cover is continuous and exceeds 65%. The vegetation is predominantly of indigenous tree species growing under natural conditions and excludes planted indigenous plantation forests. The area includes Mangroves and bamboo ecosystems	The area of primary forest has been increasing since 2000 when the general recovery of forest was noted.
Other naturally regenerating forest	This is a forest whose canopy cover is below 65%. These are generally disturbed forest with a lot of regeneration or forest growing after a disturbance either in public or private areas and does not include planted forest	The area of other naturally regenerating forests has been increasing since 2000 when the general recovery of forest was noted.
Planted forest	The forest plantation data refers to areas with standing trees and other designated forest plantation areas which might be non stocked after clear felling.	The area of planted forest has been increasing since 2000 when the general recovery of forest was noted.
Mangroves	These are forests along the coastline dominated by various mangrove tree species of medium height that grow in saline habitats.	The area have been constant over the period 2000-2010.

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	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya : Volume 2	Forest stocks for Mau forest and wall to wall forest area changes.	2013	Shows the spatial temporal changes in the forests since 1990.
2	Forest Inventory Surveys	Volume computed from sample plot data from forest inventory surveys in natural and plantation forests.	Continuous.	Volumes are computed for different species at various ages
3	N/A	N/A	N/A	N/A

4	N/A	N/A	N/A	N/A

3.2.2 Classification and definitions

National class	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 10 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
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.

3.2.3 Original data

Growing stock

From the previous tables, the following data are available:

	Area (1000 hectares)

	1990	**2000**	**2005**	**2010**
Forest	4724	3557	4047	4230
of which of natural forest	*4561*	*3437*	*3881*	*4037*
of which of forest plantation	*163*	*120*	*166*	*193*
Other wooded land	10035	9843	9939	9652

Values obtained from intergrated Analysis from the National Forest Resource Mapping and Capacity Development For The Republic of Kenya 2013, The natural resouce mapping project (World Bank) and the AFRICOVER data 2000 and 2010.

	Average volume m3/ha			
	1990	**2000**	**2005**	**2010**
per hectare indigenous forest/ Natural Forest	176	176	175	180
Average volume per hectare for other wooded land	32	32	32	32
Average volume per hectare for plantations	280	280	280	280

3.3 Analysis and processing of national data

3.3.1 Adjustment

The woodland values were derived from the AFRICOVER data and the National Forest Resource Mapping and Capacity DevelopmentFor The Republic of Kenya (NFRMC) by making an expert opinion that between the 10%-15% adopted by the AFRICOVER classification accounted for 16% of the country total area

Biomass stock

Applying the following formula:

1- Above-ground biomass

AGB = GS x BCEF

GS =Growing stock

AGB=Above-ground biomass

BCEF= Biomass Conversion Expansion Factor = 1.3

2- Below-ground biomass

BGB = AGB x R

Root shoot ratio (R) = 0.24

Carbon stock

A conversion factor of 0.47 for converting biomass to carbon has been used as suggested by IPCC 2006 good practice guidelines.

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

- Soil carbon has been estimated, based on the factor of 65 t/ha (tropical moist).

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

3-Wood volumeSample plot data was collected in natural and plantation forest areas. Parameters measured were DBH and Height of individual trees. These were used to compute the volume per sample plot and extrapolated for the whole forest.

3.3.2 Estimation and forecasting

	GS 1000 m3				
	1990	**2000**	**2005**	**2010**	**2015**

Natural forest	*802 736*	*604 912*	*679 175*	*726 660*	*774145*
Forest plantation	*45640*	*33600*	*46480*	*54040*	*61600*
Total Forest	848376	638512	725655	780700	835745
Other wooded land	321 120	314 976	318 048	308 864	299680

3.3.3 Reclassification

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
CFRQ Total growing stock	849	639	725	781	836	321	315	318	309	300
CFRQ ... of which coniferous	46	34	46	54	62	0	0	0	0	0
CFRQ ... of which broadleaved	803	605	679	727	774	321	315	318	309	300

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	Cupressus lusitanica	Cypress	30	23	30	32
2 nd	Other conifers	Pines, Casuarina,	16	11	16	22
3 rd	N/A	N/A	0	0	0	0
4 th	N/A	N/A	0	0	0	0
5 th	N/A	N/A	0	0	0	0

6 th	N/A	N/A	0	0	0	0
7 th	N/A	N/A	0	0	0	0
8 th	N/A	N/A	0	0	0	0
9 th	N/A	N/A	0	0	0	0
10 th	N/A	N/A	0	0	0	0
Remaining			803	605	679	727
TOTAL			849.00	639.00	725.00	781.00

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)	10 cm	Above Ground
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	10 cm	Above Ground
Minimum diameter (cm) of branches included in growing stock (W)	10cm	Above Ground
Volume refers to above ground (AG) or above stump (AS)	m3	Above Ground

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
CFRQ	Net annual increment	3.5	3.4	3.3	2.8	3.3
CFRQ	... of which coniferous	2	2	2	2	2
CFRQ	... of which broadleaved	1.5	1.4	1.3	1.8	1.3

Table 3d

Category	Biomass (million metric tonnes oven-dry weight)	
	Forest	Other wooded land

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		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
CFRQ	Above ground biomass	1103	830	943	1015	1086	417	409	413	402	390
CFRQ	Below ground biomass	265	199	226	244	261	100	98	99	96	94
CFRQ	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		1368.00	1029.00	1169.00	1259.00	1347.00	517.00	507.00	512.00	498.00	484.00

Table 3e

	Category	Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
CFRQ	Carbon in above ground biomass	518	390	443	477	511	196	192	194	189	183
CFRQ	Carbon in below ground biomass	124	94	106	114	123	47	46	47	45	44
CFRQ	*Subtotal Living biomass*	642	484	549	591	634	243	238	241	234	227
CFRQ	Carbon in dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRQ	Carbon in litter	10	7	8	9	10	21	20	20	20	20
CFRQ	*Subtotal Dead wood and litter*	10	7	8	9	10	21	20	20	20	20
CFRQ	Soil carbon	302	228	259	271	282	642	630	636	618	599
TOTAL		954.00	719.00	816.00	871.00	926.00	906.00	888.00	897.00	872.00	846.00

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
• 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	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya: Volume 2 was used to derive forest areas. Forest stocking obtained from KEFRI	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Growing stock of broadleaved coniferous	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya: Volume 2 was used to derive forest areas. Forest stocking obtained from KEFRI	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Growing stock composition	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya: Volume 2 was used to derive forest areas. Forest stocking obtained from KEFRI	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Net annual increment	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya: Volume 2 was used to derive forest areas. Forest stocking obtained from KEFRI	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Above-ground biomass	Default factors were used to estimate the biomass above ground. The above ground biomass was a product of the growing stock multiplied with the Biomass Conversion Expansion Factor of 1.3 tonnes/m3.	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Below-ground biomass	Default factors were used to estimate the biomass below ground. The below ground biomass is a product of above ground biomass multiplied by default root-shoot ratio of (R) = 0.24	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Dead wood	Default factor of Proportion of dead wood in standing biomass = 0.0177 was used	N/A
Carbon in above-ground biomass	Default factors were used to estimate the biomass and carbon. The default facto for carbon to biomass = 0.47 was used	There has been a decline between 1990 and 2010 which is projected to continue to 2015.
Carbon in below-ground biomass	The below ground biomass is a product of above ground biomass multiplied by default root-shoot ratio of (R) = 0.24. then a carbon factor of 0.47 was used	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015
Carbon in dead wood	National data on carbon in dead wood are not available and therefore submit nil return.	N/A
Carbon in litter	Default value of 2.1 t/ha of carbon in litter was used	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015.
Soil carbon	Default factor of 65t/ha f carbon in soils was used	There has been a decline between 1990 and 2000. From 2000 to 2010 there is a gradual increase which is projected to continue to 2015

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	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya : Volume 2	Areas of different categories of forests Stocking in indigenous forest	2013	Used IPCC land cover classification system which have further been categorized based on management and canopy closure
2	Plantation Forest Inventory under National Resource Management Inventory Report for Kenya	Stocking in different plantations	2009	N/A
3	FAO statistics year book	Production rates	2011	N/A
4	N/A	N/A	N/A	N/A

4.2.2 Classification and definitions

National class	Definition

Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
N/A	N/A
N/A	N/A

4.2.3 Original data

FRA Categories	Area in 1000 hectares			
	1990	**2000**	**2005**	**2010**
Productive	163	120	166	193
Conservation of biodiversity	4561	3437	3881	4037
Protection of soil and water	4561	3437	3881	4037
Total	**4724**	**3557**	**4047**	**4230**

4.3 Analysis and processing of national data

4.3.1 Adjustment

4.3.2 Estimation and forecasting

National Classes	Production forests	Biodiversity and Water protection
Forest		
of which of natural forest		100%
of which of forest plantation	100%	

4.3.3 Reclassification

4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	**2000**	**2005**	**2010**	**2015**
CFRQ	Production forest	163	120	166	193	166
CFRQ	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	Resins and gums	Commiphoras and Acacias	N/A	1
2 nd	Tannings and Barks	Acacias	N/A	4
3 rd	Honey	Various trees	N/A	1
4 th	Herbs	Various trees	N/A	1
5 th	Fodder	Agroforestry trees	N/A	2
6 th	Bamboo and Fibers	Bamboo and rattans	N/A	5
7 th	Wildlife products	Wildlife	N/A	12
8 th	Forest fruits and seeds	Various trees	N/A	1
9 th	Mushrooms	Forest Ecosystems	N/A	1
10 th	Vertebrates	Birds	N/A	1
TOTAL			.00	

2010	
Name of local currency	Kenya Shilling

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	18535.61	16792.61
1991	19022.7	17247.7
1992	19557.66	17753.66
1993	20050.62	18217.62
1994	20416.48	18555.48
1995	20753.38	18866.38
1996	21032.53	19120.53

1997	21334.05	19399.05
1998	21342.78	19386.78
1999	21497.85	19520.85
2000	21635.25	19658.25
2001	21697.9	19826.9
2002	21843.53	20001.53
2003	21942.35	20182.35
2004	22161.62	20369.62
2005	26714	25600
2006	27646	26400
2007	27646	26400
2008	27646	26400
2009	27646	26400
2010	27646	26400
2011	27646	26400

Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 1	Tier 1
Multiple use forest	Tier 1	Tier 1

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	Forest area designated primarily for production of wood, fibre, bio-energy and/ or non-wood forest products.	The decline in forest area between 1990 and 2000 and was recovered between 2000 and 2010.
Multiple use forest	Though some forests have this function, there are no designated forest areas for multiple uses.	N/A
Total wood removals	This includes all removal from 1988 to 2011	There is a general increase in total removals from 2000 to 2011
Commercial value of NWFP	N/A	N/A

Other general comments to the table
There are no designated natural forest functions but most of the indigenous and woodland have more than one function and no delineation has been done at the national level for specific single functions.

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 *(sub-category)*	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 *(sub-category)*	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control *(sub-category)*	Forest area primarily designated or managed for desertification control.
...of which avalanche control *(sub-category)*	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 *(sub-category)*	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 *(sub-category)*	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 *(sub-category)*	Forest area designated or managed for public recreation.
...of which carbon storage or sequestration *(sub-category)*	Forest area designated or managed for carbon storage or sequestration.
...of which spiritual or cultural services *(sub-category)*	Forest area designated or managed for spiritual or cultural services.
...of which other *(sub-category)*	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	Kenya Forestry Master Plan 1994	Projections	1994	N/A

2	Kenya Forest Service Reports	Plantations	2008	N/A
3	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya : Volume 2	Areas of forest	2013	N/A
4	N/A	N/A	N/A	N/A

5.2.2 Classification and definitions

National class	Definition
Protection of soil and water	N/A
... of which production of clean water	These are forest primarily protected for production of clean water. They are also referred to as water towers
... of which coastal stabilization	These are forests found in the coastal areas primarily protected for coastal stabilization. They are mainly composed of the mangroves.
... of which desertification control	These are forests found in marginal areas and protected for controlling desertification.
... of which erosion, flood protection or reducing flood risk	These are forests protected for erosion control, reducing flood risk

5.2.3 Original data

Original data				
Year	**1990**	**2000**	**2005**	**2010**
Plantation forest	163	120	166	193
Natural forest	4,561	3,437	3,881	4,037
…...Of which indeginous mixed trees	4,443	3,327	3,747	3,928
…..Of which bamboo	56	73	86	59
…..Of which Mangroves	62	37	49	49
Total Forestland	4,724	3,557	4,047	4,230

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
CFRQ	Protection of soil and water	4724	3557	4047	4230	4413
CFRQ	... of which production of clean water	0	0	0	0	0
CFRQ	... of which coastal stabilization	0	0	0	0	0
CFRQ	... of which desertification control	0	0	0	0	0
CFRQ	... of which avalanche control	0	0	0	0	0
CFRQ	... of which erosion, flood protection or reducing flood risk	0	0	0	0	0
CFRQ	... 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	4724	3557	4047	4230	4413
...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
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
• 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	All plantations have soil and water protection functions	There was a decrease in forest area between 1990 and 2000 resulting in loss of soil and water protection functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
Production of clean water	Parts of Indigenous mixed and bamboo forests have water production functions	There was a decrease in forest area between 1990 and 2000 resulting in loss of production of clean water functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
Coastal stabilization	All mangroves are for coastal stabilization	There was a decrease in forest area between 1990 and 2000 resulting in loss of coastal stabilization functions. From 2000 to 2010 the mangrove area has gradually been constant and has not attained the values of 1990.
Desertification control	Some Natural forests are for desertification control	There was a decrease in forest area between 1990 and 2000 resulting in loss of desertification control functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
Avalanche control	N/A	N/A
Erosion, flood protection or reducing flood risk	Some natural forests and mangroves are for erosion and flood control	There was a decrease in forest area between 1990 and 2000 resulting in loss of erosion, protection or reducing flood risk functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	Natural forests have Ecosystem services, cultural or spiritual functions	There was a decrease in forest area between 1990 and 2000 resulting in loss of ecosystem services, cultural or spiritual values functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
Public recreation	Natural forests have public recreation functions	There was a decrease in forest area between 1990 and 2000 resulting in loss of public recreation functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
Carbon storage or sequestration	All forests have carbon storage and sequestration functions	There was a decrease in forest area between 1990 and 2000 resulting in loss of carbon storage or sequestration functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.

Spiritual or cultural services	Some Natural forests have cultural or spiritual functions	There was a decrease in forest area between 1990 and 2000 resulting in loss of spiritual and cultural services functions. From 2000 to 2010 the forest area has gradually been increasing but has not attained the values of 1990.
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	Report on National Forest Resource Mapping and Capacity development for the Republic of Kenya Vol 2	N/A	2013	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
Conservation of biodiversity	These are forest protected primarily for the conservation of biodiversity
Forest area within protected areas	These are forests that occur within gazetted National parks and National reserves and marine reserves
N/A	N/A
N/A	N/A

6.2.3 Original data

Original data				

Year	1990	2000	2005	2010
Plantation forest	163	120	166	193
Natural forest	4,561	3,437	3,881	4,037
…...Of which indeginous mixed trees	4,443	3,327	3,747	3,928
…..Of which bamboo	56	73	86	59
…..Of which Mangroves	62	37	49	49
Total Forestland	4,724	3,557	4,047	4,230

6.3 Analysis and processing of national data

6.3.1 Adjustment

National land area used	58,037
FAO land area for Kenya	58,037
Conversion factor	1

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

CFRQ	Conservation of biodiversity	N/A	N/A	N/A	N/A	N/A
CFRQ	Forest area within protected areas	411	315	412	522	583

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
• 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	Natural forests are for biodiversity conservation.	The trend is typical of the general changes in forests of Kenya
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	Prediction of prosopis species invasion in Kenya by Muturi et al, 2010	N/A	2010	African journal of ecology; Vol 48 page 628-636
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
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.
N/A	N/A
N/A	N/A
N/A	N/A

7.2.3 Original data

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
Prosopis juliflora	N/A	N/A
Lantana camara	N/A	N/A
Leucaena leucocephala	N/A	N/A
Eichornia crassipes	N/A	N/A
Salvinnia molesta	N/A	N/A
Allium vineale	N/A	N/A
Opuntia spp	N/A	N/A
Tagetes minuta	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
Total	N/A	N/A

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

| 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 |

7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	Some invasive species have been known to overwhelm local species and to cause harm to animals or humans e.g the prosopis invasion plant has been been reported to damage goat's teeth	N/A

Other general comments to the table
The data that exist is not on a national scale

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	FAO	Area of burned forest	2013	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
Burned areas	Area of forest burned per year in thousand hactares
N/A	N/A
N/A	N/A
N/A	N/A

8.2.3 Original data

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	352.34	148.04	148.04	N/A	162.66	N/A	73.01	N/A	412.65	N/A
CFRQ	... of which forest area burned	4.53	N/A	2.51	N/A	8.94	N/A	5.18	N/A	2.48	N/A
	Category	2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
CFRQ	Total land area burned	146.24	N/A	107.79	N/A	72.81	N/A	112.7	N/A	878.37	N/A
CFRQ	... of which forest area burned	5.16	N/A	3.51	N/A	0.77	N/A	8.5	N/A	18.44	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
• 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
• 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

Burned area	The data used was from FAO	The trend fluctuates with local weather conditions in the various years reported. The highest area reported was 2012 due to a fire in Mt. Kenya forest reserve.
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	350

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 3

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	These are forest areas that have undergone degradation resulting to a decrease in crown cover from dense canopy cover >65% to moderate cover (40%-65%) or to open forest (15%-40%) or to No forest. Calculations are based on the Natural Resource Mapping of 2013 using Landsat imagery of 1990 (30m) and ALOS AVNIR 2 2010 (10m). Ground truthing was conducted at a national level.

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	Kenya constitution 2010	Policies	2010	N/A
2	Forests Act 2005	Policies	2005	N/A
3	Water Act 2002	Policies	2002	N/A
4	EMCA 1999	Policies	1999	N/A
5	Charcoal rules 2009	Policies	2009	N/A
6	National Forest Bill 2013	Policies	2013	N/A
7	The Land Act 2012	Policies	2012	N/A
8	Master Plan for conservation of Water Catchments 2013	Policies	2013	N/A
9	Legal Notice No 27 of 2012 for the establishment of the Water towers Agency	Policies	2012	N/A

10.2.2 Classification and definitions

National class	Definition
Sustainable forest management (SFM)	Is the management of forests according to principles of sustainable development

Policy	A principle or protocol to guide decisions and achieve rational outcomes
Legislation	The act of making and enacting laws
Subsidiary legislation	Any proclamation, rule, regulation, order, resolution, notice, rule of court, by law or other instruments made under or by virtue of any ordinance and having legislative effect
Forest types (Public, community and Private)	Classification of forests based on tenure systems that have been specified by the Kenya constitution 2010

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	yes	yes
... of which, in publicly owned forests	yes	yes	yes	yes
... of which, in privately owned forests	yes	yes	yes	no
Legislation and regulations supporting sustainable forest management	yes	yes	yes	yes
... of which, in publicly owned forests	yes	yes	yes	yes
... of which, in privately owned forests	yes	yes	yes	no

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

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	Strategic Environmental Assessment of the Kenya Forests Act 2005	2007	N/A
2	The forests Act 2005	2005	N/A
3	The Kenya Forest Master Plan	1994	N/A
4	EMCA 1999	1999	N/A
5	The Vision 2030	2010	N/A
6	The Non-Governmental Organizations Coordination Act 2012	2012	N/A
7	Analysis of Stakeholder Power and Responsibilities in Community Involvement in Forest Management in Eastern and Southern Africa by Edmund Barrow, Jeanette Clarke, Isla Grundy, Kamugisha-Ruhombe Jones Social Sciences › Miscellaneous Papers	2002	N/A
8	Ecosystem Services for Poverty Alleviation: Marine & Coastal Situational Analysis	2008	N/A
9	KIPRA documents	several years	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 | Participatory forest management is functional in Kenya |

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 *(sub-category)*	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	Kenya Forestry Master Plan 1994	Projections of forest area	1994	N/A
2	Kenya Constitution 2010	Projections of forest area	2010	N/A
3	Kenya Vision 2030	Projections of forest area	2010	N/A
4	The National Land Policy	Sustainable use of land	2009	N/A

12.2.2 Classification and definitions

National class	Definition
Public Natural forests	A group of trees whose crowns are largely contiguous and include the ecosystem that makes it up to a tree canopy cover of over 15% , minimum area of 0.5Hac and minimum height of 2m or with potential to reach 2m. The vegetation is predominantly of indigenous tree species growing under natural conditions and excludes planted indigenous plantation forests. The area includes Mangroves and bamboo ecosystems. The area is legally delineated through gazettement and includes Central government, County government forests National parks/Reserves or under National monuments Act.

Private Natural forests	A group of trees whose crowns are largely contiguous and include the ecosystem that makes it up to a tree canopy cover of over 15% , minimum area of 0.5Hac and minimum height of 2m or with potential to reach 2m. The vegetation is predominantly of indigenous tree species growing under natural conditions and excludes planted indigenous plantation forests. The area includes Mangroves and bamboo ecosystems. These are under private tenure of individuals, companies, government institutions or community conservation units.
Public Plantation Forests	All areas of systematically planted, man-managed tree resource composed of primarily exotic species. Categories include both young and mature plantations that have been established for commercial wood production. It includes clear felled areas within plantations and excludes all plantations of non-timber such as tea and coffee. It includes associated land cover/use such as roads, fire-breaks and building infrastructure if they are too small to be clearly mapped off the satellite imagery. The area is legally delineated through gazettement.
Private Forest Plantations	All areas of systematically planted, man-managed tree resource composed of primarily exotic species. Categories include both young and mature plantations that have been established for commercial wood production. It includes clear felled areas within plantations and excludes all plantations of non-timber such as tea and coffee. It includes associated land cover/use such as roads, fire-breaks and building infrastructure if they are too small to be clearly mapped off the satellite imagery. These are under private tenure of individuals, companies, government institutions or community conservation units.
Farmlands with Trees	These are areas with trees growing on privately owned farmlands.
Bamboo	These are high altitude areas in montane forest regions dominated by continuous stands which comprise mainly of highland bamboo (Yushania alpina).
Mangroves Forest	These are areas along the coastline dominated by various mangrove tree species of medium height that grow in saline habitats.

12.2.3 Original data

Original data				
Year	**1990**	**2000**	**2005**	**2010**
Plantation forest	163	120	166	193
Natural forest	4,561	3,437	3,881	4,037

…...Of which indeginous mixed trees	4,443	3,327	3,747	3,928
…..Of which bamboo	56	73	86	59
…..Of which Mangroves	62	37	49	49
Forestland	4,724	3,557	4,047	4,230
Grassland	41896	42037	41600	41502

12.3 Analysis and processing of national data

12.3.1 Adjustment

12.3.2 Estimation and forecasting

12.3.3 Reclassification

No reclassification was necessary for forests as the national Classes and FRA definitions were compatible.

12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
CFRQ	Forest area intended to be in permanent forest land use	1934
CFRQ	... of which permanent forest estate	1821

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	Based fact that all state forests are permanent forest estate Figures projected based on Vision 2030
Permanent forest estate	Based fact that all state forests are permanent forest estate.

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	Forests Act 2005	N/A	2005	N/A
2	FAO guideline on criteria and indicators for SFM	N/A	N/A	N/A
3	Various forest management plans	N/A	Several years	N/A
4	Participatory forest management plans, development, implementation, review and proposed monitoring framework by KFWG and MMMB	N/A	2013	N/A
5	Reports from forest inventory	N/A	Several years	N/A
6	Good wood project	N/A	N/A	N/A
7	Forest stewardship council certification guidelines	N/A	N/A	N/A

13.2.2 Classification and definitions

National class	Definition
Forest inventory	This is an activity that involves a systematic collection of data on forest resources with the objective of estimating the stocking and value of the resource. It primarily involves measurements of forest parameters like species composition, diameter sizes, and heights.

Other field assessments	These are activities that involve a variety of assessments for specific objectives.
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	10	2010	no	yes	yes	yes	no	no
Other field assessments	100	2012	yes	yes	yes	yes	yes	yes
Updates to other sources	50	2010	yes	yes				
Expert estimate	N/A	N/A						

Table 13b

Type of forest reporting used at national scale	Check boxes that apply
1 Criteria and Indicators reporting	no
2 Periodic national state of the forest report	yes
3 Other (please document)	yes
4 None	

Other type of forest reporting
N/A

13.4 Comments

Category	Comments
Compartment register	This is a continuous field assessment that captures new plantations and clear felled areas.
Forest Management plans	This is a periodic assessment to develop plans for conservation and management. The period is five years.

Forest Research	This is a continuous assessment done by a variety of forest research institutions for specific objectives

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 *(sub-category)*	Forest management plan mainly focused on production
...of which for conservation *(sub-category)*	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	Since 2005 (at least), Mt Kenya, Aberdares and Arabuko Sokoke forests have long term strategic management plans. According to expert knowledge, forest area with management plan is 149 421 ha in 2005 and may reach 824 684 ha in 2010.	Species and stocking	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

14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	828
... of which for production	121

... of which for conservation	707

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

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	**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 under sustainable forest management	All state plantations are assumed to be under sustainable forest management.
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 3

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
Planning phase	CFAS as stakeholders are involved in the development of management plans for respective forest stations. Other stakeholders (e.g. line ministries and NGOS) are also involved in the management planning team
Operations phase	Once developed, Management plans are approved by the KFS. This is followed by development of forest management agreements between CFAs and KFS. Respective parties in implementation develop an annual implementation plan and have regular meetings to monitor progress. Government, Other stakeholders like, NGOS and Development partners dealing in forest issues contribute to the operationalization of the management plans

Review of operations	Each management plan has an M&E system in place to oversee implementation. KFS has developed a monitoring framework

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
CFRQ	FSC	0	0	0	0	0	2.63	2.63
CFRQ	PEFC	0	0	0	0	0	0	0
CFRQ	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
CFRQ	FSC	1.83	1.83	2.44	0.19	2.99	0.63	
CFRQ	PEFC	0	0	0	0	0	0	
CFRQ	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
CFRQ	N/A	0	0	0	0	0	0	0
CFRQ	N/A	0	0	0	0	0	0	0
CFRQ	N/A	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
CFRQ		0	0	0	0	0	0	
CFRQ		0	0	0	0	0	0	
CFRQ		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	FSC records as of July 1 each year.
Domestic forest management certification	N/A

Other general comments

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: • Goods : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • Services : 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	GOK, printed estimates/ audited accounts and annual financial reports	N/A	1990-2011	N/A
2	Annual reports - KFS	N/A	Various years	N/A
3	Annual Reports - KWS	N/A	Various years	N/A
4	GOK, Public expenditure reviews	N/A	Various years	N/A

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	**2005**	**2010**
Forest revenue	1150	2289	6550
Public expenditure on forestry	1193	2536	6389

	2000	2005	2010

Name of Local Currency	Kenya shillings	N/A	N/A

17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	Revenue collection measures were put into place after KFS became a parastatal.
Public expenditure on forestry	When KFS became a parastatal previous expenditure met by the Ministry of Forestry and Wildlife were offloaded to KFS.
Other general comments	N/A

Other general comments

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 *(sub-category)*	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 *(sub-category)*	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 *(sub-category)*	Forest owned by individuals and families.
...of which private business entities and institutions *(sub-category)*	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 *(sub-category)*	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	Kenya Forest Master plan	Ownership	1994	N/A
2	Report on National Forest Resource Mapping and Capacity Development For The Republic of Kenya : Volume 2	Forest areas, Canopy cover changes (1990-2000, 2000-2010 and 1990-2010) Landuse and Landcover change (1990-2000, 2000-2010 and 1990-2010) using the six IPCC classes	2013	A wall to wall mapping of Kenya was done at 3 epochs (1990, 2000 and 2010) using ALOS AVNIR and Landsat images. Ground truthing was also carried out. This shows spatial and temporal patterns of land cover in Kenya.
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

18.2.2 Classification and definitions

National class	Definition
State forest	- Any forest declared by the Minister to be a central forest, a forest area or nature reserve as per Forests Act 2005.
Community forest	- Any forest found on community land as defined in section 63 of Kenya Constitution 2010.
Private forest	- Forest owned by individuals or corporate bodies.
N/A	N/A

18.2.3 Original data

Category	Area ('000 ha)			
	1990	2000	2005	2010
Public	1,310	1,372	1,363	1,365
Private	3,414	2,185	2,684	2,865
Total	4,724	3,557	4,047	4,230

18.3 Analysis and processing of national data

18.3.1 Adjustment

18.3.2 Estimation and forecasting

Category	Area ('000 ha)				
	1990	2000	2005	2010	2015
Public	1,310	1,372	1,363	1,365	1,367
Private	3,414	2,185	2,684	2,865	3,046
Total	4,724	3,557	4,047	4,230	4,413

18.3.3 Reclassification

National category	FRA Categories
State forest	Public ownership
Local Authority forest	Local communities
Private forest	Local communities of which owned by
	... private business entities and institutions
	.....Individuals, and Private business entities and institutions

18.4 Data
Table 18a

Categories			Forest area (1000 hectares)			
			1990	2000	2005	2010
	CFRQ	Public ownership	1310	1372	1363	1365
	CFRQ	... of which owned by the state at national scale	N/A	N/A	N/A	N/A
	CFRQ	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
	CFRQ	Private ownership	3414	2185	2684	2865
	CFRQ	... of which owned by individuals	1	2	5	10
	CFRQ	... of which owned by private business entities and institutions	67	76	78	78
	CFRQ	... of which owned by local, tribal and indigenous communities	2150	2100	2075	2075
	CFRQ	Unknown ownership	0	0	0	0
TOTAL			4724.00	3557.00	4047.00	4230.00

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 3	Tier 3
Private ownership	Tier 3	Tier 3
Unknown ownership	Tier 3	Tier 3

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	1310	1372	1363	1265
Individuals	0	0	0	0
Private companies	0	0	0	0
Communities	0	0	0	100
Other	0	0	0	0
TOTAL	1310.00	1372.00	1363.00	1365.00

Category	Tier for reported trend	Tier for status
Public Administration	Tier 3	Tier 3
Individuals	Tier 3	Tier 3
Private companies	Tier 3	Tier 3
Communities	Tier 3	Tier 3
Other	Tier 3	Tier 3

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	Forest owned by state and gazetted as forest reserve	The decline of public forest area between 1990 and 2000 attributed to conversion to agriculture through excision and deforestation. However this trend was reversed after 2000 due to concerted efforts to rehabilitate degraded forests
Private ownership	Forest owned by individuals, companies and group ranches.	Private forest increasing due to increased interest in commercial tree farming using short rotation crops like eucalypts for poles and fuel wood.
Unknown ownership	N/A	N/A
Management rights	Most public forests are managed by the government in collaboration with Community Forest Associations .	Participatory management plans have been developed and management agreements have been signed between the Government and Forest Communities.

Other general comments to the table

Management rights include the right to utilize the resource in consultation with the Kenya Forest Service , the regulatory body. The management rights are wholly with the forest owner. However the Forest Act 2005 gives Kenya Forest Service the right to regulate the harvesting and observance of good management practices. The Forest Act 2005 provided for community participation through Community Forest Associations. So far, about 50 CFAs have developed Participatory Forest Management Plans.

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	Trends and current status of the contribution of the forest sector to national economies"(FAO, 2003)	1990 and 2000	N/A	N/A
2	Kenya National Bureau of statistics: statistical abstract 2006, Kenya Forest service IPPD	N/A	Integrated Payroll and Personnel Database	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
Public sector	Number of employees in public institutions involved in forestry and logging.
Private sector	Number of employees by industry and employment groups. These are directly employed in forestry and logging for primary production and excludes sawmills, woodmills, manufacture of wooden and cane containers, wood and core products, furniture and fixtures among others.
N/A	N/A
N/A	N/A

19.2.3 Original data

19.3 Data
Table 19

Category		Employment (000 years FTE)			
		1990	**2000**	**2005**	**2010**
CFRQ	Employment in forestry	21.5	20.1	20.6	27.3
CFRQ	... of which female	N/A	N/A	N/A	N/A

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	Number of employees by industries excluding central Government, private households and dormant establishments.	There is a fluctuation of reduction and increase of employment of staff.

Other general comments to the table
The figure 27300 was derived from the Kenya National Bureau of Statistics.

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)	24080	Kenya Shillings	2012

20.3 Comments

Category	Comments
Gross value added from forestry (at basic prices)	N/A

Other general comments

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	Kenya constitution 2010	N/A	2010	N/A
2	Kenya Vision 2030	N/A	2010	N/A
3	Kenya forests Master Plan	N/A	1994	N/A
4	Kenya Water Catchments Master Plans for the conservation of Water Catchment areas	N/A	2013	N/A

21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	**2030**
Government target/aspiration for forest area	4970	5804

Table 21b

Category	Forest area (000 ha)
	2013
Forests earmarked for conversion	0

21.4 Comments

Category	Comments

Government target/aspiration for forest area	The government targets a minimum forest cover of 10% of the national land area by the year 2030. By 2010 the percentage forest cover was 6.99%.
Forests earmarked for conversion	No forest areas have been earmarked for conversion. The Government is actually targeting at converting non forest areas into forests through rehabilitating degraded areas and outreach farmer tree planting programmes.

Other general comments