



Food and Agriculture
Organization of the
United Nations

Global Forest Resources Assessment 2020

Report

Ghana

Rome, 2020



FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The Global Forest Resources Assessments (FRA) are now produced every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The FRA is a country-driven process and the assessments are based on reports prepared by officially nominated National Correspondents. If a report is not available, the FRA Secretariat prepares a desk study using earlier reports, existing information and/or remote sensing based analysis.

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Introduction

Report preparation and contact persons

The present report was prepared by the following person(s)

Name	Role	Email	Tables
Kofi Affum Baffoe	National correspondent	kab64baf@gmail.com	All

Introductory text

Place an introductory text on the content of this report

1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National data

Data sources

2000	References	PASCO Corporation (2013) Report on mapping of forests cover and carbon stocks in Ghana. Mapping Consultant's Services, the Forest Preservation Programme, Under a Japanese Grant Aid to the Republic of Ghana
	Methods used	National Forest Inventory
	Additional comments	PASCO work of 2013 only categorised the forest vegetation into close and open forest but Resource Management Support Centre (RMSC) of the Ghana Forestry Commission categorised it further into productive and non productive forests for forest management purposes.

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	Methods used	National Forest Inventory
	Additional comments	

PASCO work of 2013 only categorised the forest vegetation into close and open forest but Resource Management Support Centre (RMSC) of the Ghana Forestry Commission categorised it further into productive and non productive forests for forest management purposes

Classifications and definitions

	National class	Definition
2000	Closed Forest	Any dense forest land with crown cover exceeding 60%. It is sub-divided into Close Productive Forest, and Close Unproductive Forest
	Open Forest	Any natural forest land with crown cover between 15% and 60%. It is also sub divided into Open Productive Forest and Open Unproductive Forest
	Plantation Forests	Any planted forest land. It is sub divided in close plantation forest and open plantation forest

	National class	Definition
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	National class	Definition
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	Plantation Forests	

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Original data and reclassification

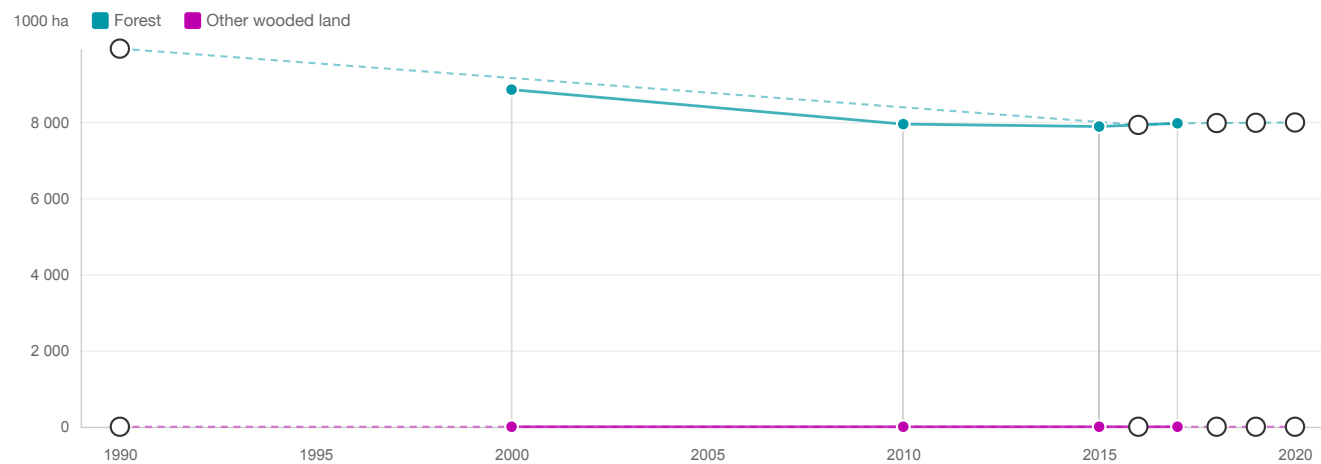
2000	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Closed Forest	2 207.17	100.00 %	0.00 %	0.00 %
	Open Forest	6 591.44	100.00 %	0.00 %	0.00 %
	Plantation Forests	50.00	100.00 %	0.00 %	0.00 %
	Total	8 848.61	8 848.61	0.00	0.00

2010	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Closed Forest	1 305.82	100.00 %	0.00 %	0.00 %
	Open Forest	6 417.13	100.00 %	0.00 %	0.00 %
	Plantation Forests	219.98	100.00 %	0.00 %	0.00 %
	Total	7 942.93	7 942.93	0.00	0.00

2015	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Closed Forest	1 021.84	100.00 %	0.00 %	0.00 %
	Open Forest	6 598.15	100.00 %	0.00 %	0.00 %
	Plantation Forests	260.45	100.00 %	0.00 %	0.00 %
	Total	7 880.44	7 880.44	0.00	0.00

2017	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Closed Forest	1 204.37	100.00 %	0.00 %	0.00 %

	Open Forest	6 484.24	100.00 %	0.00 %	0.00 %
	Plantation Forests	275.43	100.00 %	0.00 %	0.00 %
	Total	7 964.04	7 964.04	0.00	0.00



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	9 924.26	8 848.61	7 942.93	7 880.44	7 922.24	7 964.04	7 971.26	7 978.48	7 985.71
Other wooded land (a)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other land (c-a-b)	12 829.74	13 905.39	14 811.07	14 873.56	14 831.76	14 789.96	14 782.74	14 775.52	14 768.29
Total land area (c)	22 754.00	22 754.00	22 754.00	22 754.00	22 754.00	22 754.00	22 754.00	22 754.00	22 754.00

The FAOSTAT land area figure for the year 2015 is used for all reference years

Climatic domain	% of forest area 2015	Override value
Boreal	0.00	
Temperate	0.00	
Sub-tropical	0.00	
Tropical	100.00	

Comments

Differences to what was reported to FRA 2015 is because new and better data have become available. There are data from 1990, but as the forest definition changed between 1990 and 2000, these were eliminated and the 1990 value is an estimate based on linear extrapolation. For the years 2018 - 2020, it is assumed that the natural forest area is constant, while the plantations will increase by 7222 hectares per year, based on the average increase for previous years.

There are some areas of other wooded land, but the extent is unknown and is therefore reported as zero. Any other wooded land is included in the category Other land.

1b Forest characteristics

National data

Data sources

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	Plantation Forests	Any planted forest land. It is sub divided into Close Plantation Forest and Open Plantation Forest

Original data and reclassification

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2000	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Closed Forest	2 207.17	100.00 %	0.00 %	0.00 %
	Open Forest	6 591.44	100.00 %	0.00 %	0.00 %
	Plantation Forests	50.00	0.00 %	100.00 %	0.00 %
	Total	8 848.61	8 798.61	50.00	0.00

Plantation forest	Area (1000 ha)	...of which introduced
Plantation Forests	50.00	50.00 %
Total	50.00	25.00

2010	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Closed Forest	1 305.82	100.00 %	0.00 %	0.00 %
	Open Forest	6 417.13	100.00 %	0.00 %	0.00 %
	Plantation Forests	219.98	0.00 %	100.00 %	0.00 %
	Total	7 942.93	7 722.95	219.98	0.00

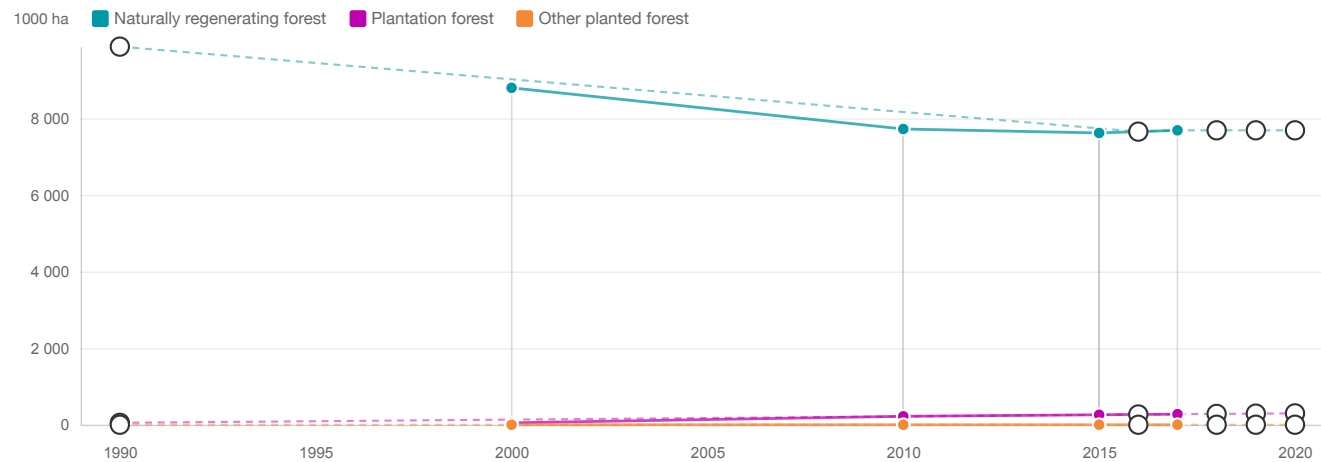
Plantation forest	Area (1000 ha)	...of which introduced
Plantation Forests	219.98	50.00 %
Total	219.98	109.99

2015	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
	Closed Forest	1 021.84	100.00 %	0.00 %	0.00 %
	Open Forest	6 598.15	100.00 %	0.00 %	0.00 %
	Plantation Forests	260.45	0.00 %	100.00 %	0.00 %
	Total	7 880.44	7 619.99	260.45	0.00

Plantation forest	Area (1000 ha)	...of which introduced
Plantation Forests	260.45	50.00 %
Total	260.45	130.23

	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Naturally regenerating forest	Plantation forest	Other planted forest
2017	Closed Forest	1 204.37	100.00 %	0.00 %	0.00 %
	Open Forest	6 484.24	100.00 %	0.00 %	0.00 %
	Plantation Forests	275.43	0.00 %	100.00 %	0.00 %
	Total	7 964.04	7 688.61	275.43	0.00

Plantation forest	Area (1000 ha)	...of which introduced
Plantation Forests	275.43	50.00 %
Total	275.43	137.72



FRA categories	Forest area (1000 ha)									
	1990	2000	2010	2015	2016	2017	2018	2019	2020	
Naturally regenerating forest (a)	9 874.26	8 798.61	7 722.95	7 619.99	7 654.30	7 688.61	7 688.61	7 688.61	7 688.61	7 688.61
Planted forest (b)	50.00	50.00	219.98	260.45	267.94	275.43	282.65	289.87	297.10	
Plantation forest	50.00	50.00	219.98	260.45	267.94	275.43	282.65	289.87	297.10	
...of which introduced species	25.00	25.00	109.99	130.23	133.97	137.72	141.33	144.94	148.55	
Other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total (a+b)	9 924.26	8 848.61	7 942.93	7 880.44	7 922.24	7 964.04	7 971.26	7 978.48	7 985.71	
Total forest area	9 924.26	8 848.61	7 942.93	7 880.44	7 922.24	7 964.04	7 971.26	7 978.48	7 985.71	

Comments

For the years 2018 - 2020, it is assumed that the natural forest area is constant, while the plantations will increase by 7222 hectares per year, based on the average increase for previous years.

1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

FAO The world's mangroves 1980-2005

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest	395.00	395.00	395.00	395.00	385.00
Temporarily unstocked and/or recently regenerated					
Bamboos					
Mangroves	16.80	13.80	11.00	11.00	11.00
Rubber wood	0.00	0.00	0.00	0.00	0.00

Comments

The mangrove area as well as the primary forest area is assumed to be constant since 2010.

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

PASCO Corporation (2013) Report on mapping of forests cover and carbon stocks in Ghana. Mapping Consultant's Services, the Forest Preservation Programme, Under a Japanese Grant Aid to the Republic of Ghana

Forestry Commission (2016) Ghana Forest Plantation Strategy: 2016-2040

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National classification and definitions

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Open Plantations	Any planted forest with crown cover between 15% and 60%

Original data

-

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Forest expansion (a)				
...of which afforestation				
...of which natural expansion				
Deforestation (b)				
Forest area net change (a-b)	-107.57	-90.57	-12.50	21.05

Comments

1e Annual reforestation

National Data

Data sources + type of data source eg NFI, etc

Forestry Commission (2016): Ghana Forest Plantation Strategy: 2016-2040

National classification and definitions

Since 2001 Ghana initiated a National Forest Plantation Development Programme to accelerate the the rate of establishment of forest plantations with a target of at least 20,000ha per annum. The objective was to restore the forest cover of degraded forest lands, create employment as a means of reducing rural poverty and addressing future wood deficit. These programmes are either initiated by the public sector or completely by private sector. They include the following:

The Modified Taungya System (MTS) 2002-2009: The MTS involved the establishment of forest plantations by the Forestry Commission (FC) in partnership with farmers in forest fringe communities.

Community Forestry Management Project (CFMP) 2005-2009: The Community Forestry Management Project (CFMP) was founded with a loan from the African Development Bank (AfDB) and adopted the MTS model for the establishment of forest plantations.

Government Plantation Development Project (GPDP) 2004-2009: The government Plantations Development Project (GPDP) utilized hired labour and contract supervisors to establish forest plantations.

Private Commercial Plantation Developers On-Reserve 2002 to Date: The Private Commercial Plantation Developers On-Reserve component involves the release of degraded forest reserve lands by Forestry Commission (FC) to private entities after vetting and endorsing their reforestation/business plans; and signing of Land Lease/Benefit Sharing Agreements (LL/BSAs).

Public Private Partnership (PPP): 2003 to Date: The arrangement is similar to the Private Developers on-reserve but with the FC taking up costs of survey and demarcation, registration of agreements and fire education within fringe communities,

Model Plantation component: 2007-2009: In 2007 the Model Plantation Component, a purely research based scheme was introduced to offer the Forest Services Division of FC the opportunity to undertake mixed species trials and experiment with various planting designs and tree spacing.

Expanded Plantation Program (EPP) 2010-2012: Under EPP, forest plantations were established on private lands located outside forest reserves in addition to degraded forest reserve lands.

FC/Timber Industry Plantation Development Fund Plantations 2010 to Date: The Forestry Commission – Timber Industry Plantation Development Fund Committee (FC/Timber Industry Fund Committee) contracted the Forestry Research Institute of Ghana (FORIG) to establish Best Practice commercial forest plantations of fast growing indigenous and exotic timber species with funding from the FC/Timber Industry Fund for the Government of Ghana.

Original data

Year	MTS	CFMP	HIPC	PD	FSD	EXPANDED	FC/INDUSTRY	TOTAL
2002	17,341.00			1,609.00				18,950.00
2003	17,541.00			1,609.00				19,150.00
2004	16,090.00		5,509.84	1,609.00				23,208.84
2005	9,105.00	1,136.00	3,341.93	1,609.00				15,191.93
2006	9,401.00	2,298.00	2,708.50	1,609.00				16,016.50
2007	8,711.00	2,731.00	2,947.82	1,613.00	78.50			16,081.32
2008	111.00	2,930.00	1,806.67	5,986.65	160.00			10,994.32
2009	2,427.30	4,293.00	902.84	3,894.35	140.00			11,657.49
2010				4,612.84		14,008.84	106.82	18,728.50
2011				4,439.88		6,719.71	270.77	11,430.36
2012				3,549.89		5,854.34	95.30	9,499.53
2013				4,309.52	2,857.61		180.74	7,347.87

2014				7,795.51			487.56	8,283.07
2015				3,802.20	108.00			5,495.00
2016								11,055.00
2017								3,927.00
2018								
2019								
2020								
TOTAL	80,727.30	13,388.00	17,217.60	48,048.84	3,344.11	26,582.89	1,141.19	207,016.73

Estimated area (ha) of the various plantation programmes established since 2002 (Source Ghana Forest Plantation Strategy 2016-2040)

2016 and 2017 figures were obtained from the Plantation Directorate of Forest Services Division Of Forestry Commission

Analysis and processing of national data

Estimation and forecasting

Plantations established in the last five years i.e. between 2013 and 2017 for all programmes were summed up, the average was calculated to be 7221.59 ha. This figure was used as annual projection for 2018, 2019 and 2020

Pockets of plantations were established between 1990 and 2000 but figures are not available. Again, plantations established within the period were too small and scattered across the country. the assumption is that no plantations were established over the period.

In the 1970s about 50,000 ha of plantations (mainly Teak) were established within Forest Reserves of Ghana

However, most of the plantations mentioned above are afforestation, and there is no data on the area of already existing forest land that has been reforested. The reporting table on reforestation is therefore left blank.

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Reforestation				

Comments

1f Other land with tree cover

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)					
Tree orchards (b)					
Agroforestry (c)					
Trees in urban settings (d)					
Other (specify in comments) (e)					
Total (a+b+c+d+e)	–	–	–	–	–
Other land area	12 829.74	13 905.39	14 811.07	14 873.56	14 768.29

Comments

2 Forest growing stock, biomass and carbon

2a Growing stock

National Data

Data sources + type of data source eg NFI, etc

Baytas A, Rezvani F, Forest Resource Accounting in Ghana, 1970-1987., Centre for Economic Research on Africa. School of Business, Montclair State University. Upper Montclair, New Jersey

Resource Management Support Centre Mensuration and Inventory Unit Kumasi Report on 2001 Multi Resource Inventory (2001MRI)

Report on mapping of forest cover and carbon stock in Ghana, 2013. Mapping consultants Services, The Forest Preservation Programme (FPP).

National classification and definitions

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Close Plantations	Any planted forest with crown cover exceeding 60%
Open Plantations	Any planted forest with crown cover between 15% and 60%

Original data

Designation	Mean Volume m ³ /ha	Area (Ha)								
		1990	2000	2010	2015	2016	2017	2018	2019	2020
Closed Natural Forest	136	3,108,508	2,207,166	1,305,824	1,021,838	1,113,105	1,204,372	1,204,372	1,204,372	1,204,372
Open Natural Forest	28	6,765,748	6,591,441	6,417,134	6,598,149	6,541,193	6,484,236	6,484,236	6,484,236	6,484,236
Close Plantations	175	50,000	50,000	219,977	201,250	228,101	254,952	262,174	269,396	276,618
Open Plantations	31	0	0	0	59,197	39,837	20,477	20,477	20,477	20,477
Total		9,924,256	8,848,607	7,942,935	7,880,434	7,922,236	7,964,037	7,971,259	7,978,481	7,985,703

Ghana has mean volume (m³/ha) estimates for Close Natural Forest, Open Natural Forest, Close Plantation Forest and Open Plantation Forest as shown in Table Above.

Analysis and processing of national data

Estimation and forecasting

The mean volume per ha estimates were used to generate Total Growing Stocks per Land Cover/Land use type (i.e. Close Natural Forest, Open Natural Forest, Close Plantation Forest and Open Plantation Forest) for the various reporting years. Thus, the Total Growing Stock for a particular year is obtained by first multiplying the mean volume and the estimated land cover for that year. Individual growing stocks estimates were then sum up to produce the growing stock for the reporting year.

Growing stock (million m ³)	1990	2000	2010	2015	2016	2017	2018	2019	2020
Natural forest	612.20	484.73	357.27	323.72	334.54	345.35	345.35	345.35	345.35
Plantations	8.75	8.75	38.50	37.05	41.15	45.25	46.52	47.78	49.04

Reclassification into FRA 2020 categories

FRA 2020 Classification	National Classification
Natural Regenerating Forest	Close Natural Forest
	Open Natural Forest
Planted Forest	Close Plantation Forest
	Open Plantation Forest

FRA categories	Growing stock m ³ /ha (over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	62.00	55.09	46.26	42.48	43.71	44.92	44.92	44.92	44.92
Planted forest	175.00	175.00	175.02	142.25	153.58	164.29	164.59	164.83	165.06
...of which plantation forest	175.00	175.00	175.02	142.25	153.58	164.29	164.59	164.83	165.06
...of which other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forest	62.57	55.77	49.83	45.78	47.42	49.05	49.16	49.27	49.39
Other wooded land									

FRA categories	Total growing stock (million m ³ over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	612.20	484.73	357.27	323.72	334.54	345.35	345.35	345.35	345.35
Planted forest	8.75	8.75	38.50	37.05	41.15	45.25	46.52	47.78	49.04
...of which plantation forest	8.75	8.75	38.50	37.05	41.15	45.25	46.52	47.78	49.04
...of which other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forest	620.95	493.48	395.77	360.77	375.69	390.60	391.87	393.13	394.40
Other wooded land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Comments

2b Growing stock composition

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

-

FRA categories	Scientific name	Common name	Growing stock in forest (million m ³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#1 Ranked in terms of volume	<i>Triplochiton scleroxylon</i>	WAWA	59.84	42.86	25.28	15.71	12.92
#2 Ranked in terms of volume	<i>Celtis mildbraedii</i>	ESA	51.95	40.00	23.71	15.19	12.62
#3 Ranked in terms of volume	<i>Piptadeniastrum africanum</i>	DAHOMA	35.99	20.93	12.25	8.03	6.61
#4 Ranked in terms of volume	<i>Ceiba pentandra</i>	ONYINA	29.97	20.64	12.08	7.93	6.52
#5 Ranked in terms of volume	<i>Terminalia superba</i>	OFRAM	23.30	12.51	7.20	4.88	3.96
#6 Ranked in terms of volume	<i>Celtis zenkeri</i>	ESAKOKO	19.12	11.02	6.30	4.32	3.49
#7 Ranked in terms of volume	<i>Petersianthus macrocarpus</i>	ESIA	17.13	11.09	6.34	4.35	3.52
#8 Ranked in terms of volume	<i>Nesogordonia papaverifera</i>	DANTA	16.62	10.27	5.85	4.04	3.26
#9 Ranked in terms of volume	<i>Psycanthus angolensis</i>	OTIE	15.23	10.30	5.87	4.05	3.27
#10 Ranked in terms of volume	<i>Antiaris toxicaria</i>	KYENKYEN	14.26	10.09	5.75	3.98	3.21
Remaining native tree species			337.54	303.77	285.14	288.29	335.02
Total volume of native tree species			620.95	493.48	395.77	360.77	394.40
Introduced tree species							
#1 Ranked in terms of volume	<i>Tectona grandis</i>						

FRA categories	Scientific name	Common name	Growing stock in forest (million m ³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#2 Ranked in terms of volume	Gmelina arborea						
#3 Ranked in terms of volume	Broussonetia papyrifera						
#4 Ranked in terms of volume							
#5 Ranked in terms of volume							
Remaining introduced tree species							
Total volume of introduced tree species			-	-	-	-	-
Total growing stock			620.95	493.48	395.77	360.77	394.40

Comments

2c Biomass stock

National Data

Data sources + type of data source eg NFI, etc

For deadwood carbon, litter carbon and soil carbon, the estimates were obtained for only 2015 from Report on mapping of forest cover and carbon stock in Ghana, 2013. Mapping consultants Services, The Forest Preservation Programme (FPP).

National classification and definitions

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Original data

Estimates done using the provided biomass calculator with IPCC default values, and with data from tables 1b and 2a as input.

Analysis and processing of national data

Estimation and forecasting

Insert the percentages of Growing stock by IPCC forest type for each of the FRA forest categories									
IPCC forest types	FRA forest categories								
	Naturally regenerating forest	Plantation forest	Other planted forest						
	% of Growing stock								
Broadleaved humid	100%	100%							
Broadleaved dry	0%	0%							
Coniferous	0%	0%							
	100%	100%	0%	Must add up to 100%					
Insert Carbon fraction used by country (IPCC default = 0.47)									
Carbon Fraction	47%								
Biomass conversion and expansion factors (BCEF)									
Naturally regenerating forest	1990	2000	2010	2015	2016	2017	2018	2019	2020
Broadleaved humid	1.70	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
Broadleaved dry	1.70	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
Coniferous	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Plantation forest									
Broadleaved humid	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Broadleaved dry	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Coniferous	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Other planted forest									
Broadleaved humid	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Broadleaved dry	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Coniferous	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Weighted BCEF									
Naturally regenerating forest	1.70	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
Plantation forest	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Other planted forest									
Root-shoot ratios									
Naturally regenerating forest	1990	2000	2010	2015	2016	2017	2018	2019	2020
Broadleaved humid	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Plantation forest									
Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Other planted forest									
Broadleaved humid	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Broadleaved dry	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Coniferous	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Weighted RS ratio									
Naturally regenerating forest	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Plantation forest	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Other planted forest									

Above-ground biomass (t/ha)									
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	105.40	112.93	94.83	87.08	89.61	92.09	92.09	92.09	92.09
Plantation forest	227.50	227.50	227.53	184.93	199.65	213.58	213.97	214.28	214.58
Other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	106.02	113.58	98.51	90.32	93.33	96.29	96.41	96.53	96.64
Below-ground biomass (t/ha)									
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	21.08	22.59	18.97	17.42	17.92	18.42	18.42	18.42	18.42
Plantation forest	54.60	54.60	54.61	44.38	47.92	51.26	51.35	51.43	51.50
Other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	21.25	22.77	19.95	18.31	18.94	19.55	19.59	19.62	19.65

Reclassification into FRA 2020 categories

-

FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	106.02	113.58	98.51	90.32	93.33	96.29	96.41	96.53	96.64
Below-ground biomass	21.25	22.77	19.95	18.31	18.94	19.55	19.59	19.62	19.65
Dead wood									

Comments

2d Carbon stock

National Data

Data sources + type of data source eg NFI, etc

Baytas A, Rezvani F, Forest Resource Accounting in Ghana, 1970-1987., Centre for Economic Research on Africa. School of Business, Montclair State University. Upper Montclair, New Jersey

Resource Management Support Centre Mensuration and Inventory Unit Kumasi Report of Multi Resource Inventory

Report on mapping of forest cover and carbon stock in Ghana, 2013. Mapping consultants Services, The Forest Preservation Programme (FPP).

National classification and definitions

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Original data

Estimates done using the provided biomass calculator with IPCC default values, and with data from tables 1b and 2a as input

Analysis and processing of national data

Estimation and forecasting

See table 2c.

Reclassification into FRA 2020 categories

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FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass	49.83	53.38	46.30	42.45	43.86	45.26	45.31	45.37	45.42
Carbon in below-ground biomass	9.99	10.70	9.38	8.60	8.90	9.19	9.20	9.22	9.23
Carbon in dead wood									
Carbon in litter									
Soil carbon									

Soil depth (cm) used for soil carbon estimates	
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Comments

3 Forest designation and management

3a Designated management objective

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)	3 471.42	2 373.19	2 823.58	5 575.67	5 907.51
Protection of soil and water (b)	352.50	352.50	352.50	352.50	352.50
Conservation of biodiversity (c)	1 413.00	1 352.00	1 487.00	1 469.00	1 425.00
Social Services (d)	89.01	72.83	57.04	53.67	53.67
Multiple use (e)	4 598.33	4 698.09	3 222.81	429.60	247.03
Other (specify in comments) (f)	0.00	0.00	0.00	0.00	0.00
None/unknown (g)	0.00	0.00	0.00	0.00	0.00
Total forest area	9 924.26	8 848.61	7 942.93	7 880.44	7 985.71

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production					
Protection of soil and water					
Conservation of biodiversity					
Social Services					
Other (specify in comments)					

Comments

The area designated for production refer to the the areas managed for harvesting of timber resources. These were traditionally in the high forests but have since 2010 expanded into the savanna forests - which is the reason for the increas in 2015 and 2020.

Conservation of biodiversity correspond to the forest area in protected areas (table 3b).

3b Forest area within protected areas and forest area with long-term management plans

National Data

Data sources + type of data source eg NFI, etc

Agyarko. T. Forestry Outlook Study for Africa. Ghana, Ministry of Land and Forestry,

Reserve Management Plans for 30 Globally Significant Biodiversity Areas (GSBAs) in Ghana. Environmental Conservation Unit of Resource Management Support Centre, Forestry Commission

Report on Management Plans covering 20 priority Forest Reserves in Ghana. Resource Management Support Centre, Forestry Commission

Management Plans for 10 Forest Reserves in the High Forest Zone of Ghana

Forest Services Division of Forestry Commission Database on Management Plans

Wildlife Division of Forestry Commission Database on Management Plans

Resource Management Support Centre of Forestry Commission Database on Active Management Plans

National classification and definitions

Protected areas within forest and wildlife reserves in Ghana are as follows

Designation	Definition
Wildlife Protected Areas	These are protected areas solely managed by Wildlife Division of Ghana Forestry Commission for the production of wildlife and conservation of faunal species
Globally Significant Biodiversity Area (GSBA)	These are nationally identified sites of global significance and extraordinarily biological importance
Hill Sanctuary (HS)	These are forest areas with slopes greater than 15 degrees
Swamp Area (SA)	These are extensive swamp areas which logging cannot be easily accomplished
Provenance Protected Area (PPA)	These are gene banks where timber trees are protected completely from exploitation
Convalescence Protection Areas (CPA)	These are temporal protected timber production areas where timber exploitation is prohibited because of overlogging and or frequent bushfires. These areas are allowed to rest from any logging activities until the forest has recovered from past

Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas	1 413.00	1 352.00	1 487.00	1 469.00	1 456.00	1 432.00	1 425.00	1 425.00	1 425.00
Forest area with long-term forest management plan	1 212.00	1 212.00	2 250.04	1 990.04	1 990.04	1 990.04	1 990.04	1 990.04	1 990.04
...of which in protected areas	1 212.00	1 212.00	1 375.02	1 375.02	1 245.00	1 245.00	1 245.00	1 245.00	1 245.00

Comments

1. The new definition of a forest in Ghana using the three main criteria i.e. forest extent (minimum of 1 ha), extent of canopy cover b(15% or more) and the minimum vertical height of the trees (5 meters) has resulted in the inclusion of some vegetation cover particularly the savannah woodland ecosystem as forest. This has also led to the recalculation of Table 3b

2. Again, according to Environmental Conservation Department of Resource Management Support Centre (RMSC) of Ghana Forestry Commission, a recent assessment of the status of some Globally Significant Biodiversity Areas (GSBAs) revealed that there have been some heavy illegal encroachment by farmers for farming purposes and illegal chain saw operators leading to forest degradation and therefore affecting biodiversity in some of these areas. However the status of all these areas as GSBA remain unchanged. The status maybe reviewed and may affect the forecast for 2019 and 2020 in case it is reviewed.

4 Forest ownership and management rights

4a Forest ownership

National Data

Data sources + type of data source eg NFI, etc

Article 267 of the Constitution of the Republic of Ghana

National classification and definitions

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Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)	0.00	0.00	0.00	0.00
...of which owned by individuals	0.00	0.00	0.00	0.00
...of which owned by private business entities and institutions	0.00	0.00	0.00	0.00
...of which owned by local, tribal and indigenous communities	0.00	0.00	0.00	0.00
Public ownership (b)	9 924.26	8 848.61	7 942.93	7 880.43
Unknown/other (specify in comments) (c)	0.00	0.00	0.00	0.01
Total forest area	9 924.26	8 848.61	7 942.93	7 880.44

Comments

4b Holder of management rights of public forests

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)				
Individuals (b)				
Private business entities and institutions (c)				
Local, tribal and indigenous communities (d)				
Unknown/other (specify in comments) (e)	9 924.26	8 848.61	7 942.93	7 880.43
Total public ownership	9 924.26	8 848.61	7 942.93	7 880.43

Comments

5 Forest disturbances

5a Disturbances

National Data

Data sources + type of data source eg NFI, etc

Dr. P. Bosu Forest Research Institute Of Ghana (FORIG

National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insects (a)						2.00												
Diseases (b)						2.00												
Severe weather events (c)																		
Other (specify in comments) (d)																		
Total (a+b+c+d)	-	-	-	-	-	4.00	-	-	-	-	-	-	-	-	-	-	-	-
Total forest area	8 848.61	-	-	-	-	-	-	-	-	-	7 942.93	-	-	-	-	7 880.44	7 922.24	7 964.04

Comments

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

FAOSTAT

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total land area affected by fire				5 814.75	3 421.11	6 022.27	5 882.63	4 140.79	5 352.31	5 623.09	4 221.52	4 666.39	3 258.95					
...of which on forest				33.21	2.80	13.78	7.23	10.94	43.65	16.98	5.89	6.06	4.64					

Comments

5c Degraded forest

Does your country monitor area of degraded forest		Yes
If "yes"	What is the national definition of "Degraded forest"?	
	Describe the monitoring process and results	

Comments

6 Forest policy and legislation

6a Policies, Legislation and national platform for stakeholder participation in forest policy

National Data

Data sources + type of data source eg NFI, etc

Ghana Government Policy Document, Ministry of Lands and Natural Resources

Forest Lands of Ghana

National classification and definitions

-

Original data

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Indicate the existence of	Boolean (Yes/No)	
	National	Sub-national
Policies supporting SFM	Yes	No
Legislations and regulations supporting SFM	Yes	No
Platform that promotes or allows for stakeholder participation in forest policy development	Yes	No
Traceability system(s) for wood products	Yes	No

Comments

6b Area of permanent forest estate

National Data

Data sources + type of data source eg NFI, etc

Agyarko. T. Forestry Outlook Study for Africa. Ghana, Ministry of Land and Forestry

Forest Reserves and National Parks of Ghana, GIS & Remote Sensing Unit, Resource Management Support Centre, Forestry Commission Kumasi Ghana

National classification and definitions

-

Original data

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FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate	Yes					

Comments

7 Employment, education and NWFP

7a Employment in forestry and logging

National Data

Data sources + type of data source eg NFI, etc

Ghana Timber Association (G.T.A),Ghana Timber Millers Organization (G.T.M.O),Forestry Commissions presentation to Ghana Fair Wages and Salaries Commission

National classification and definitions

-

Original data

-

FRA 2020 categories	Full-time equivalents (1000 FTE)											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Employment in forestry and logging	2.50			2.00						3.55		
...of which silviculture and other forestry activities												
...of which logging												
...of which gathering of non wood forest products												
...of which support services to forestry												

Comments

7b Graduation of students in forest-related education

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

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FRA 2020 categories	Number of graduated students											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Doctoral degree												
Master's degree												
Bachelor's degree												
Technician certificate / diploma												
Total												

Comments

7c Non wood forest products removals and value 2015

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

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Original data

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	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1						
#2						
#3						
#4						
#5						
#6						
#7						
#8						
#9						
#10						
All other plant products						
All other animal products						
Total					-	

Name of currency	Ghana Cedis
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Comments

8 Sustainable Development Goal 15

8a Sustainable Development Goal 15

SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

Indicator	Percent							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area as proportion of total land area 2015	38.89	34.91	34.63	34.82	35.00	35.03	35.06	35.10

Name of agency responsible	
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SDG Indicator 15.2.1 Progress towards sustainable forest management

Sub-Indicator 1	Percent						
	2000-2010	2010-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Forest area annual net change rate	-1.07	-0.16	0.53	0.52	0.09	0.09	0.09

Name of agency responsible	
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Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	113.58	98.51	90.32	93.33	96.29	96.41	96.53	96.64

Name of agency responsible	
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Sub-Indicator 3	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area located within legally established protected areas	17.16	18.87	18.64	18.48	18.17	18.08	18.08	18.08

Name of agency responsible	
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Sub-Indicator 4	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area under long-term forest management plan	15.38	28.55	25.25	25.25	25.25	25.25	25.25	25.25

Name of agency responsible	
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Sub-Indicator 5	Forest area (1000 ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area under independently verified forest management certification schemes	0.00	1.78	3.37	3.37	3.45	12.15	-	-