

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Cambodia

Rome, 2014

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

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

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Introductory Text

Place an introductory text on the content of this report

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Desk Study?

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

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

Documents for this question:

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

1.1 Categories and definitions

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

1.2 National data

1.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Original data from Remote sensing	Forest cover 1992/93	1992/93	Little ground truthing to Remote Sensing Data
2	Original data from Remote sensing	Forest cover 1996/97	1996/97	Little ground truthing to Remote Sensing Data

3	Original data from Remote sensing	Forest cover 2002	2002	Based on Remote Sensing and adequate ground truthing
4	Original data from Remote sensing	Forest cover 2005	2005	Based on Remote Sensing and adequate ground truthing
5	Cambodia: Forestry Statistics 2002	N/A	2002	N/A
6	Cambodia: Forestry Statistics 2004	N/A	2004	N/A
7	Cambodia: Forestry Statistics 2006	N/A	2006	N/A

1.2.2 Classification and definitions

National class	Definition
2006 Evergreen forest with high cover density	Forest contains usually multi-storied forests where trees keep their leaves during the whole year. They are always seen on hills and along the course of streams and rivers. Evergreen forests appear dark red on the satellite images with a medium texture. They comprise the lowland tropical rain forests, the hill evergreen forests and the dry evergreen forests. A certain percentage of deciduous trees may be included as well and most moist deciduous forests may not be visible from the evergreen forests. The forest comprises of forest cover # 90% and crown cover #70%
Evergreen forest with medium and low cover density	< 90% and crown cover # 20 % - < 70% " /> Forests contain usually multi-storied forests where trees keep their leaves during the whole year. They are always seen on hills and along the course of streams and rivers. Evergreen forests appear dark red on the satellite images with a medium texture. They comprise the lowland tropical rain forests, the hill evergreen forests and the dry evergreen forests. A certain percentage of deciduous trees may be included as well and most moist deciduous forests may not be visible from the evergreen forests. The forests comprise of forest cover # 70% - < 90% and crown cover # 20 % - < 70%
Evergreen mosaic forest	< 70% and crown cover # 20%" /> Forests contain usually multi-storied forests where trees keep their leaves during the whole year. They are always seen on hills and along the course of streams and rivers. Evergreen forests appear dark red on the satellite images with a medium texture. They comprise the lowland tropical rain forests, the hill evergreen forests and the dry evergreen forests. A certain percentage of deciduous trees may be included as well and most moist deciduous forests may not be visible from the evergreen forests. The forests comprise of forest cover # 40% - < 70% and crown cover # 20%

Mixed evergreen and deciduous forest with high cover density	The forests contain a variable percentage of evergreen and deciduous trees. The percentage deciduous trees may vary from some 30 to some 70 percent. The variability of this class is high as it is stretching from the moist mixed deciduous forests to the mixed deciduous and to a more humid version of the dry deciduous forests. It can not be excluded that depending on the proportion of leaf shedding trees and on the overall appearance some parts of dry evergreen forests are mapped to this class as well. The forest comprises of forest cover # 90% and crown cover #70%
Mixed evergreen and deciduous forest with medium and low cover density	< 90% and crown cover # 20 % - < 70%" /> The forests contain a variable percentage of evergreen and deciduous trees. The percentage deciduous trees may vary from some 30 to some 70 percent. The variability of this class is high as it is stretching from the moist mixed deciduous forests to the mixed deciduous and to a more humid version of the dry deciduous forests. It can not be excluded that depending on the proportion of leaf shedding trees and on the overall appearance some parts of dry evergreen forests are mapped to this class as well. The forests comprise of forest cover # 70% - < 90% and crown cover # 20 % - < 70%
Mixed mosaic forest	< 70% and crown cover # 20%." /> The forests contain a variable percentage of evergreen and deciduous trees. The percentage deciduous trees may vary from some 30 to some 70 percent. The variability of this class is high as it is stretching from the moist mixed deciduous forests to the mixed deciduous and to a more humid version of the dry deciduous forests. It can not be excluded that depending on the proportion of leaf shedding trees and on the overall appearance some parts of dry evergreen forests are mapped to this class as well. The forests comprise of forest cover # 40% - < 70% and crown cover # 20%.
Deciduous forest	The forests contain the dry mixed deciduous forests and dry Dipterocarp forests. Deciduous forests drop their leaves more or less completely during the dry season. The signatures vary from reddish violet to yellowish brown at the end of wet season, and from brownish green to bluish grey during the dry season, with a medium to smooth texture. Human impact such as fire is usually much higher compared to other forest types. It was not possible to separate consistently the dry mixed deciduous forests from the dry Dipterocarp forests. Dry Dipterocarp forests have naturally an open character. Undisturbed they may have a crown cover of only 40%. The soil and the grass layer can have a significant impact on the reflection of these forests. It is impossible to separate crown cover differences consistently. The separation to deciduous shrub-land is difficult during the wet season and almost impossible during the dry season.
Deciduous mosaic forest	< 70% and crown cover # 20%." /> The characteristic of the forests is nearly the same as Deciduous forest, just different from the density of forest cover and crown cover. The forest cover varies from # 40% - < 70% and crown cover # 20%.
Forest regrowth	More or less dense layer of young trees belonging already to the 'forest cover' class. The spatial texture is usually homogenous. No differentiation in density classes foreseen. General re-growth of mixed vegetation would be assigned to 'Non-Forest Re-growth'

Inundated forest regrowth	Forest regrowth found in the inundated areas around the Tonle Sap Lake was mapped as a separate class.
Inundated forest	This forest type is found in Cambodia around the Tonle Sap Lake. Most of the forests are low and disturbed. In many cases there is only a mosaic remaining. Degradation was often caused by charcoal production.
Mangrove forest	Mangrove forests can only be found in the South Western part of Cambodia.
Forest plantation	Forest plantations are often visible due to their textures and geometric shapes, species should be assigned when the knowledge of the local conditions allows to do so, otherwise '0'.
Inundated mosaic forest	< 70% and crown cover # 20%." /> The characteristic of the forests is nearly the same as inundated forest, just different from the density of forest cover and crown cover. The forest cover varies from # 40% - < 70% and crown cover # 20%.
Wood and shrubland evergreen	Wood and shrub-land is a mixture of shrubs, grass and trees, the tree cover however remaining below 20 percent. This class can be found mainly on shallow soils, on the top of mountains under climax conditions or as a result of non-sustainable land use (degraded land, forest on fire frequently). The signature remains light red during the whole year. A sub-variant of this class represents the re-growth of forest, i.e., growing after shifting cultivation. There is usually a dense layer of shrubs and grass with some small trees and a significant proportion of bamboo. Other sub-variants diversely comprise land areas, trees, shrubs, grass and small paddy fields on lowland as long as the agriculture land is not cancelled.
Bamboo	Large areas of dense bamboo are usually discernible due to their pink and orange colour and their typical texture. After the field trips it was decided to map all bamboo visible into one class. A sparse bamboo coverage or small bamboo will not be discernible and will remain in one of the classes mentioned before. Small lots of bamboo as result of degradation of mixed deciduous or evergreen forests will also not be included in this class.
Wood and shrubland dry	Wood and shrub-land is a mixture of shrubs, grass and trees, the tree cover however remaining below 20 percent. This class can be found in the dry plains or on the plateaus of the southern part of the L.M.B, but also on dry and sun exposed slopes. The appearance often remains on a dry
Wood and shrubland inundated	Wood and shrub-land is a mixture of shrubs, grass and trees, the tree cover however remaining below 20 percent. This class was defined to cover the degraded inundated areas around the Tonle Sap Lake. There is often a dense layer of small trees, which can not be classified as forest.
Non forest	N/A
Grassland	In dry conditions grassland is displayed in bluish grey tones during the dry season showing a smooth texture. In the humid domain grassland looks light red with a component of yellow to white during the dry season.

< 30%" /> Mosaic of cropping where cropping area < 30%	This class contains a mixture of fields actually under cropping or in various stages of fallow with shrubs and re-growth. The pattern shows a mosaic of red, white, grey and black patches. Re-growth is found in shifting cultivation areas after the land has been abandoned and contains also young trees. If not cleared again, the chances of becoming forest are theoretically high. Small tree blocks can be found within this class as well, however the percentage of forest blocks should be below 40%, otherwise they would have to be classified as
30%" /> Mosaic of cropping where cropping area > 30%	< 30% except for the percentage of cropping area." /> The characteristic of this class is nearly the same as Mosaic of cropping where cropping area < 30% except for the percentage of cropping area.
Agriculture land	It is delineated as one class without further differentiation. It contains permanent fields, mainly paddy fields, or mixed agricultural land, as long as the agricultural component appears to be dominant. Additional knowledge of the area is often required for a good interpretation. Permanent mixed agriculture on slopes, as occurred frequently in the Central Highlands of Vietnam is difficult to separate from shifting cultivation.
Barren land	Not vegetated areas
Rock	Rock
Urban area	If a village can be found this class IS classified. Small villages contain fruit trees and trees without clear boundaries. The urban area of the village may be done afterwards by using GIS.
Water	Sea, lakes, rivers etc.
Other	This class belongs to unidentified class.
Wetland	Wetlands contain swamps and marshes. Due to the high water content the signatures are usually dark grey, in case of a grass layer the dark tones are mixed with light red to pink tones.
N/A	Forest
Evergreen forest	Forest contains usually multi-storied forests where trees keep their leaves during the whole year. They comprise the lowland tropical rain forests, the hill evergreen forests and the dry evergreen forests. It includes Evergreen forest classified as high cover density, medium and low density during earlier remote sensing efforts.
Semi- evergreen	The forests contain a variable percentage of evergreen and deciduous trees.. It includes mixed evergreen forest classified as high cover density, medium and low density and mixed mosaic forests during earlier remote sensing efforts.
Deciduous forest	The forests contain the dry mixed deciduous forests and dry Dipterocarp forests. It includes deciduous forest classified as deciduous and mosaic forests during earlier remote sensing efforts.
Other forests	The forests contain a variable percentage of following categories defined in earlier remote sensing efforts. Forest Re-growth, Inundated forests re-growth, Inundated forests Mangrove forests, Forest Plantation, and Inundated Mosaic forests

Bamboo	Large areas of dense bamboo are usually discernible due to their pink and orange colour and their typical texture. After the field trips it was decided to map all bamboo visible into one class. A sparse bamboo coverage or small bamboo will not be discernible and will remain in one of the classes mentioned before. Small lots of bamboo as result of degradation of mixed deciduous or evergreen forests will also not be included in this class.
Wood and shrub evergreen	Wood and shrub-land is a mixture of shrubs, grass and trees, the tree cover however remaining below 20 percent. It represents wood and shrub land evergreen category of earlier remote sensing efforts.
Wood and shrub dry	This category of wood and shrub-land can be found in the dry plains or on the plateaus of the southern part of the L.M.B, but also on dry and sun exposed slopes. It represents wood and shrub land dry category of earlier remote sensing efforts.
Non Forest	It contains a variable percentage of following categories of earlier remote sensing efforts. Grass land, Mosaic of cropping, Agriculture land, Barren land, Rock Urban Area, Water, Other, Wetland, and area that in satellite imagery were covered with Cloud.

1.2.3 Original data

Forest area					
Code	Land Cover Types	1992/93	1996/97	2002	2005
		Area (ha)			
Forest					
11	Evergreen forest with high cover density	656,582	627,219	3,720,507	3,668,891
12	Evergreen forest with medium and low cover density	3254,204	3,185,603		
13	Evergreen mosaic forest	131,651	178,150		

17	Mixed evergreen and deciduous forest with high cover density	98,851	95,322	1,455,095	1,362,638
18	Mixed evergreen and deciduous forest with medium-low cover density	1,309,010	1,286,649		
19	Mixed mosaic forest	110,103	125,331		
20	Deciduous forest	4,026,133	3,931,292	4,833,135	4,692,098
22	Deciduous mosaic forest	342,851	350,193		
40	forest regrowth	435,353	374,178	1,065,706	866,811
41	Inundated forest regrowth	21,623	20,819		
52	Inundated forest	229,093	219,896		
56	Inundated mosaic forest	98,587	94,582		
53	Mangrove forest	77,244	72,457		31,037
54	Forest plantation	72,354	82,472		73,493
61	Wood and shrubland evergreen	558,864	544,753	150,017	96,390
65	Wood and shrubland inundated	377,401	348,959		
64	Wood and shrubland dry	1,267,281	1,164,743	138,935	37,028

63	Bamboo	32,209	33,715	28,951	35,802
Non-forest					
62	Grassland	478,486	488,919	6,768,325	7,296,484
81	Mosaic of cropping where cropping area < 30%	198,908	285,227		
82	Mosaic of cropping where cropping area > 30%	104,428	143,756		
91	Agriculture land	3,698,464	3,903,605		
92	Barren land	14,973	18,022		
93	Rock	2,149	2,323		
94	Urban area	26,606	27,638		
95	Water	446,317	469,294		
96	Other	1,756	1,756		
97	Wetland	87,351	83,458		
99	Clouds	1,497	0,000		
	Grand Total	18,160,331	18,160,331		

Forest expansion, reforestation

Summary of Forest Plantation(ha), 1988-2007

1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
576	867	504	226	909	732	853	677	611	485

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
2	502	984	869	1,303	2,013	1,416	11,860	4,766	9,220

1.3 Analysis and processing of national data

1.3.1 Adjustment

Forest area

The total country area has been calibrated to match with FAOSTAT figure of 18104 (000 ha). Similarly the area of inland water bodies has been calibrated to match FAOSTAT figure of 452 (000 ha). All differences have been adjusted only in the area of other lands.

1.3.2 Estimation and forecasting

Forest area

Bamboo has been grouped together with Forests as in FRA 2000. All types of wood and Shrub lands have been grouped together as Wood and Shrub lands.

A. Segregation of 2002 and 2005 figures.

The 2002 figures provide aggregated figures for some of the categories that make it difficult to estimate and forecast and classify figures for FRA. Specifically, 2002 provides an aggregated figure of 1,065,706 ha for area of forest regrowth, inundated forest regrowth, inundated forests, Mangrove forests, and forest plantations and inundated forest mosaic.

This figure has been segregated in following steps.

1. Forecasting 2002 area 314,288 of inundated (forests +mosaic+regrowth) based on 1992 and 1996
2. Forecasting 2002 area 65,277 of Mangrove forests based on 1992 and 1996 figures

3. Using figure 76,486 ha of productive plantations base on interpolation figures 1996 and 2005

The remainder area 609,655 ha out of 1,065,706 ha has been treated as area of forest re-growth.

The 2005 figures provides an aggregated figure of 866,811 ha for area of forest regrowth, inundated forest regrowth, inundated forests and inundated forest mosaic.

1. Forecasting 2005 area 303,783 ha of inundated (forests +mosaic+ regrowth) based on 1996 and 2002

The remainder area 563,028 ha out of 866,811 ha has been treated as area of forest re-growth.

B. Summary information for 1992, 1996, 2002 and 2005 after above steps

Categories	Area in hectares			
	1992	1996	2002	2005
Evergreen	4,042,435	3,990,972	3,720,507	3,668,891
Mixed	1,517,964	1,507,302	1,455,095	1,362,638
Deciduous	4,368,984	4,281,485	4,833,135	4,692,098
Bamboo	32,209	33,715	28,951	35,802
Inundated (Forest + Re-growth+ Mosaic)	349,303	335,297	314,288	303,783
Mangrove	77,244	72,457	65,277	31,037
Forest Plantation	72,354	82,472	76,486	73,493
Forest Regrowth	435,353	374,178	619,142	563,028
Total Forests	10,895,846	10,677,878	11,112,881	10,730,770
Total Wood and Shrub land	2,203,546	2,058,455	288,952	133,418

Total Forest and Other Wooded Land	13,099,392	12,736,333	11,401,833	10,864,188
Total Other land	4,552,608	4,915,667	6,250,167	6,787,812
Inland water bodies	452,000	452,000	452,000	452,000
Total	18,104,000	18,104,000	18,104,000	18,104,000

C. Calibration of figures for certain categories of landuse

The above figures show abnormal trends in 1992 and 1996 under certain categories like “wood and shrub land”, “Deciduous forests” and “Forest Regrowth”. This is mainly due to the fact that apart for 2002 figures, very little ground truthing (field checking) of satellite interpreted data was done for 1992 and 1996 due to war and economy reasons of the country. Therefore, for the purposes of this table for “wood and shrub land” equalling the FRA category “other wooded land” were calibrated in following manner: All the forest categories were grouped into one than the percentage 2.5342592% of “wood and shrub land” and percentage 97.4657408% of "forest" to total of “forests” and “wood and shrub land” in 2002 were applied to respective figures in 1992 and 1996 to estimate “wood and shrub land” and “forests” in these years. However, in 2005 attribute table keep remaining the same.

Percentage of wood and shrubland : 2.5342592%

Categories	1992	1996	2002	2005
Forests	12767419	12413561	11,112,881	10,730,770
Wood and Shrub land	331973	322772	288,952	133,418
Total Other land	4,552,608	4,915,667	6,250,167	678,7812
Inland water bodies	452,000	452,000	452,000	452,000
Total	18,104,000	18,104,000	18,104,000	18,104,000

D. Estimation and Forecasting

Estimation and forecasting has been done for 1990, 2000, 2005 and 2010 using linear-inter or linear-extrapolation method and with all adjustments in “Other land”.

Categories	Area in hectares			
	1990	2000	2005	2010
Forests	12,944,348	11,546,441	10,730,770	10,093,918
Wood and Shrub land	335,040	300,225	133,418	133,418
Other land	4,372,612	5,805,334	6,787,812	7,424,664
Inland water bodies	452,000	452,000	452,000	452,000
Total	18,104,000	18,104,000	18,104,000	18,104,000

For the avoiding of negative estimation in year 2010 of Wood and Shrub land, the value of 2005 will be used.

1.3.3 Reclassification

National Categories	Percentage allocation to FRA categories			
	Forests	Other Wooded lands	Other land	Inland Water bodies
Forests	100			
Wood and Shrub land		100		
Other land			100	
Inland water bodies				100

1.4 Data

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	12944	11546	10731	10094	9457
	Other wooded land	335	300	133	133	133
	Other land	4373	5805	6788	7425	8062
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	452	452	452	452	452
	TOTAL	18104.00	18103.00	18104.00	18104.00	18104.00

Table 1b

Categories		Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
		1990	2000	2005	2010	1990	2000	2005	2010
	Forest expansion	0	0	0	0	N/A	N/A	N/A	N/A
	... of which afforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Deforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reforestation	0.616	0.732	5.855	5.855	N/A	N/A	N/A	N/A
	... of which artificial	0.616	0.732	5.855	5.855	N/A	N/A	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Forest	Tier 3	Tier 3
Other wooded land	Tier 1	Tier 1
Forest expansion	N/A	N/A
Deforestation	N/A	N/A
Reforestation	Tier 2	Tier 2

Tier criteria

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

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	N/A	The difference in forest area in FRA 2000 and FRA 2005 is mainly caused by the different definition (reclassification) and estimation process. It may also be mentioned that the former definition of forest of Forestry Administration, a land is classified as forest when it has a forest cover more than 20% where as FAO's definition, only 10% of forest cover is necessary for this purpose.
Other wooded land	N/A	The 1992, 1996, 2002 and 2005 presents unexplainable trends in some categories like "wood and shrub land", "Deciduous forests" and "Forest Re-growth" . This is attributed mainly to the fact that except for 2002 and 2005 figures very little ground truthing (field checking) of satellite interpreted data was done for 1992 and 1996 due to war and economy reasons. Therefore, for the purposes of this table figures for "other wooded lands for 1990 and 2000 were estimated by applying percentage of "other wooded land" in 2002 to 1992 and 1996 data.
Other land	The reason for differences in national figures for total country area may be because now the country is using boundaries defined by its Department of Geography while for FRA 2000 boundaries defined by MRC (Mekong River Commission) were used. The calibration has been done only for the purposes of the FRA report otherwise country wishes to maintain its figures from Department of Geography.	N/A
Other land with tree cover	N/A	N/A
Inland water bodies	N/A	N/A
Forest expansion	N/A	N/A

Deforestation	N/A	N/A
Reforestation	N/A	N/A

Other general comments to the table		
N/A		

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

Documents for this question:

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

2.1 Categories and definitions

Term	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Naturalized introduced species	Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time.
Introduced species	A species, subspecies or lower taxon occurring <i>outside</i> its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Category	Definition
Primary forest	Naturally regenerated forest of native species where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
...of which of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized (<i>sub-sub category</i>)	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species (<i>sub-category</i>)	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted (<i>sub-category</i>)	Mangroves predominantly composed of trees established through planting.

2.2 National data

2.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	World Bank, 1996. Cambodia Forest Policy Assessment. Report No 15777-KH. The World Bank.	Concession Areas	Before 1996	N/A
2	KC. 2004. National Report to the fifth session of the United Nations Forum on Forests. Kingdom of Cambodia	Concession Areas	2004	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
Not available	FRA definitions are being used to derive the required information
N/A	N/A
N/A	N/A
N/A	N/A

2.2.3 Original data

The area of primary forest was estimated through GIS where the forest cover density is higher than 90% and access roads are not clearly visible. Area of productive plantations for 1992, 1996 and 2002 is from Question 1..

National Categories	Area (1000 hectares)						
	Forest				Other wooded land		
	1992	1996	2002	2005	1992	1996	2002
Primary	755	723	322	n.a	n.a.	n.a.	n.a.
Productive plantations	72	83	77	74	n.a.	n.a.	n.a.

2.3 Analysis and processing of national data

2.3.1 Adjustment

--

2.3.2 Estimation and forecasting

Primary forest:

The forest areas where the forest cover density is higher than 90% and access roads are not clearly visible on GIS . Since linear interpolation was providing too low figure for 2005, therefore the figure of 2002 has been assumed for 2005 and 2010.

National Categories	Area (1000 hectares)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Primary	766	456	322	322	n.a.	n.a.	n.a.	n.a.
Productive plantations	67	79	74	69	n.a.	n.a.	n.a.	n.a.

Planted forest:

Estimation for Planted forest was done for:

1990: using extrapolation of 1992-1996 figures

2000: using interpolation of 1996-2002 figures

2005: using 2005 figures directly

2010: using forecast based on 2002-2005 figures

Planted forest (1000 ha)			
1990	2000	2005	2010
67	79	74	69

The rest of the forest area was considered as other naturally regenerated forest.

2.3.3 Reclassification

2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	766	456	322	322	322
	Other naturally regenerated forest	12111	11011	10335	9703	9066
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
	... of which naturalized	N/A	N/A	N/A	N/A	N/A
	Planted forest	67	79	74	69	69
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
TOTAL		12944.00	11546.00	10731.00	10094.00	9457.00

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)	80	68	62	56	50
... of which planted	N/A	N/A	N/A	N/A	N/A

Tiers

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

Tier Criteria

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

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	Some parts of primary forest are disturbed by human activities; therefore, the primary forest area is reduced.
Other naturally regenerating forest	N/A	N/A
Planted forest	All the planted forest area are considered as rubber plantation.	N/A
Mangroves	N/A	N/A

Other general comments to the table

N/A

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

Documents for this question:

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

3.1 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net Annual Increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
Above-ground biomass	All living biomass above the soil including stem stump branches bark seeds and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter either standing lying on the ground or in the soil. Dead wood includes wood lying on the surface dead roots and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in above-ground biomass	Carbon in all living biomass above the soil including stem stump branches bark seeds and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm) lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a soil depth of 30 cm.

3.2 National data

3.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	No information is available except from growing stock per hectare estimates from an old FAO inventory.
2	FAO. 2008. Guidelines for Country Reporting to FRA 2005. Global Forest Resources Assessment 2010	N/A	N/A	Biomass conversion and expansion factor (BCEF) and root-shoot ratio from Appendix 5 FRA guidelines
3	FAO. 2008. Guidelines for Country Reporting to FRA 2005. Global Forest Resources Assessment 2010	N/A	N/A	Carbon conversion factor of 0.47

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

National class	Definition
Growing stock	No information on national definitions or classes is available.
Biomass stock	Not available
Carbon stock	Not available
N/A	N/A

3.2.3 Original data

Growing stock	
<p>Estimate of per hectare growing stock for three major forest types (evergreen, Mixed and Deciduous) are only available from old FAO supported inventory and no new estimates are available. (Email of National Correspondent of December 18th, 2005).</p>	
National class	Growing Stock (m ³ /ha)
Evergreen forest with high cover density	230
Evergreen forest with medium and low cover density	165 (average of 230 and 100)
Evergreen mosaic forest	100
Mixed evergreen and deciduous forest with high cover density	145 (average of 230 and 60)
Mixed evergreen and deciduous forest with medium and low cover density	80 (average of 100 and 60)
Mixed mosaic forest	50 (average of 40 and 60)
Deciduous forest	60
Deciduous mosaic forest	60 (assumed same as deciduous)
Forest regrowth	Not considered

Inundated forest regrowth	Not considered
Inundated forest	20
Mangrove forest	20
Forest plantation	
Inundated mosaic forest	20
Bamboo	20
Wood and shrub land evergreen	Data not available
Wood and shrub land dry	Data not available
Wood and shrub land inundated	Data not available

Biomass stock

No national data on biomass were available so IPCC default values were applied to the growing stock.

Carbon stock

No original data on carbon were available, so the carbon conversion factor of 0.47 recommended in the FRA guidelines has been applied to the biomass.

3.3 Analysis and processing of national data

3.3.1 Adjustment

Growing stock

This step is not necessary as area estimates are taken from Question 1.

3.3.2 Estimation and forecasting

Growing stock

Weighted Growing stock per hectare for three major forest types

ForestTypes	Area (ha)	GS/ha	Volume (m3)	Weighted GS/ha
A. Evergreen				
For 1992				
Evergreen Dense	656,582	230	151,013,860	
Evergreen Disturbed	3,254,202	165	536,943,330	
Evergreen Mosaic	131,651	100	13,165,100	
Total	4,042,435		701,122,290	173.44
For 1996				
Evergreen Dense	627,219	230	144,260,370	
Evergreen Disturbed	3,185,603	165	525,624,495	
Evergreen Mosaic	178,150	100	17,815,000	
Total	3,990,972		687,699,865	172.31
B. Mixed				
For 1992				
Mixed Dense	98,851	145	14,333,395	
Mixed Disturbed	1,309,010	80	104,720,800	
Mixed Mosaic	110,103	50	5,505,150	
Total	1,517,964		124,559,345	82.06
For 1996				
Mixed Dense	95,322	145	13,821,690	
Mixed Disturbed	1,286,649	80	102,931,920	
Mixed Mosaic	125,331	50	6,266,550	
Total	1,507,302		123,020,160	81.62
C. Deciduous				60.00

D. Inundated, Mangrove and Bamboo Forests

20.00

B. Weighted Growing stock per hectare for Plantations

The estimates for growing stock of plantations are not available. Therefore following method has been followed.

- Grouping plantation area by species and age

Information about area by age of plantations is totally only for 43,000 ha from combination of

country information collected for FRA 2000 (More than 40 year and about 20 year) with table5.2.3 (1990 to 2007). An average net MAI of about 1 cubic meter/ha/annum is being assumed for net area under plantations to estimate weighted GS/ha in plantations. Further, it is assumed that the estimated weighted average will be applicable to all the forest areas under plantations.

Category by age of (forest species) plantations	Area 000 ha	Assumed GS/ha	Volume (000 cubm)	Weighted GS/ha
More than 40 years	3	40	120	
About 20 years	2	20	40	
Less than 20	38	10	380	
Total	43		540	13

C. Weighted Growing Stock per hectare of “forests”

The percentage composition of forests in 2002 has been used to calculate following weighted average of growing stock of forests per ha in 1992 and 1996 because only 2002 provide figures with reasonable ground verification.

Type of forests	Percentage Composition (2002)	1992		1996		
		GS/ha	Weighted GS/ha	GS/ha	Weighted GS/ha	
Evergreen	33.48	173.44		172.31		
Mixed	13.09	82.06		81.62		
Deciduous	43.49	60		60		
Bamboo	0.26	20		20		
Inundated (Forest +Mosaic +Regrowth)	2.83	20		20		
Mangrove	0.59	20		20		
Forest Plantation	0.69	20		20		
Forest Regrowth	5.57	20		20		
Total Forests	100.00		96.89		96.46	

D. Weighted Growing Stock per ha of forests for FRA reference years

Category	Weighted Growing Stock cubic meter per hectare					
	1992	1996	1990	2000	2005	2010
Growing stock per ha in Forests	96.89	96.46	97.11	96.03	95.49	94.96

D. Estimation of Growing Stock and Commercial Growing Stock

Variable	Unit	1990	2000	2005	2010
Forest Area	000 ha	12,944	11,546	10,731	10,094
GS/ha	cubic meter per ha	97	96	95	95
Growing Stock	million cubic meter	1,257	1,109	1,025	959

Biomass stock

Above ground biomass:

Following recommendations from FRA guidelines the following assumptions and calculations have been made:

From appendix 5, table 5.4 pag 6 of the FRA guidelines and considering an ecological zone corresponding to the mostly tropical dry forest (open deciduous forest) the biomass conversion and expansion factor (BCEF) of 0.66 have been applied to the growing stock:

Above ground biomass=growing stock*BCEF

1990= 1257 m³*0.66 t/m³= 830 t

2000= 1109 m³*0.66 t/m³= 732 t

2005= 1025 m³*0.66 t/m³= 676 t

2010= 959 m³*0.66 t/m³= 633 t

Below ground biomass :

From appendix 5, table 5.3 pag 5 of the FRA guidelines, considering an above ground biomass>20t/ha and a tropical dry forest biome, the root-shoot ratio of 0.56 has been chosen.

1990= 830 m³*0.56 t/m³= 465 t

2000= 732 m³*0.56 t/m³= 410 t

2005= 676 m³*0.56 t/m³= 379 t

2010= 633 m³*0.56 t/m³= 354 t

Carbon stock

The soil carbon is estimated from the forest area multiply by the HAC soils of Tropical, dry (38) found in Table 5.10 FRA Guidelines.

3.3.3 Reclassification

Growing stock

This step is not necessary.

3.4 Data

Table 3a

Category		Growing stock volume (million m ³ over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	1257	1109	1025	959	893	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	<i>Dipterocarpus dyeri</i>	N/A	N/A	N/A	N/A	N/A
2 nd	<i>Dipterocarpus costatus</i>	N/A	N/A	N/A	N/A	N/A
3 rd	<i>Dipterocarpus alatus</i>	N/A	N/A	N/A	N/A	N/A
4 th	<i>Anisoptera cochinchinensis</i>	N/A	N/A	N/A	N/A	N/A
5 th	<i>Tarritia javanica</i>	N/A	N/A	N/A	N/A	N/A
6 th	<i>Anisoptera costata</i> , Korth	N/A	N/A	N/A	N/A	N/A
7 th	<i>Hopea pierrei</i>	N/A	N/A	N/A	N/A	N/A

8 th	Dipterocarpus obtusifolius	N/A	N/A	N/A	N/A	N/A
9 th	Dipterocarpus tuberculatus	N/A	N/A	N/A	N/A	N/A
10 th	Dipterocarpus intricatus	N/A	N/A	N/A	N/A	N/A
Remaining			N/A	N/A	N/A	N/A
TOTAL			.00	.00	.00	.00

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

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

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

Table 3c

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

Table 3d

Category		Biomass (million metric tonnes oven-dry weight)								
		Forest					Other wooded land			
		1990	2000	2005	2010	2015	1990	2000	2005	2010

	Above ground biomass	830	732	676	633	590	N/A	N/A	N/A	N/A	N/A
	Below ground biomass	465	410	379	354	329	N/A	N/A	N/A	N/A	N/A
	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		1295.00	1142.00	1055.00	987.00	919.00	.00	.00	.00	.00	.00

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Carbon in above ground biomass	390	344	318	298	278	N/A	N/A	N/A	N/A	N/A
	Carbon in below ground biomass	219	193	177	166	155	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Living biomass</i>	609	537	495	464	433	N/A	N/A	N/A	N/A	N/A
	Carbon in dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Soil carbon	492	439	408	384	360	N/A	N/A	N/A	N/A	N/A
TOTAL		1101.00	976.00	903.00	848.00	793.00	.00	.00	.00	.00	.00

Tiers

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

Below ground biomass	Tier 1	Tier 1
Dead wood	N/A	N/A
Carbon in above-ground biomass	Tier 1	N/A
Carbon in below ground biomass	Tier 1	N/A
Carbon in dead wood and litter	N/A	N/A
Soil carbon	Tier 1	Tier 1

Tier criteria

Category	Tier for status	Tier for reported trend
Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other
Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other
Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> Carbon in above ground biomass Carbon in below ground biomass Carbon in dead wood and litter Soil carbon 	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
Total growing stock	N/A	N/A

Growing stock of broadleaved coniferous	N/A	N/A
Growing stock composition	N/A	N/A
Net annual increment	N/A	N/A
Above-ground biomass	N/A	N/A
Below-ground biomass	N/A	N/A
Dead wood	N/A	N/A
Carbon in above-ground biomass	N/A	N/A
Carbon in below-ground biomass	N/A	N/A
Carbon in dead wood	N/A	N/A
Carbon in litter	N/A	N/A
Soil carbon	N/A	N/A

Other general comments to the table

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	World Bank, 1996. Cambodia Forest Policy Assessment. Report No 15777-KH. The World Bank.	Concession Areas	Before 1996	N/A
2	KC. 2004. National Report to the fifth session of the United Nations Forum on Forests. Kingdom of Cambodia	Concession Areas	2004	N/A
3	Royal Decree, 1993. Government of Cambodia	Protected Area	1993	N/A
4	Royal Decree, 2004. Government of Cambodia	Protected Area	2004	N/A
5	Original GIS data source	Protected Areas	N/A	N/A
6	Gov't Sub Degree	Protected Forest	N/A	N/A

7	Law on Forestry	N/A	2002	N/A
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4.2.2 Classification and definitions

National class	Definition
Permanent Forest Estate	Consist of Permanent Forest Reserves and Private Forests
Permanent Forest Reserves	Consist of Production forest, Protection Forest and Conversion Forestland for other Development Purpose Note: Conversion Forest land for other development purpose is idle land, comprised mainly of secondary vegetation, not yet designated for use by any sector that shall be classified as Permanent Forest Reserves until the Royal Government decide to use and develop the land for another purpose
N/A	N/A
N/A	N/A

4.2.3 Original data

A. Concession Areas (Production Areas)

These are identified for promoting forest based development and are considered as production forests as defined by FRA. The area of forest under concession prior to 1994 (World Bank, 1996) and in 1996 was about 2.244 million hectares and 6.464 million hectares respectively. Since 1999, fifteen (15) forest concession have been cancelled to ensure the sustainability of forests, the area has reduced to about 3.374 million hectares (KC, 2004).

B. Protection Areas and Protected Forest

Types of Protected Forest and Protected Area	Name (Year)	Area (1000 ha)			
		Royal Decree 1993	Royal Decree 2004	Gov't Sub Degree 2004	GIS Data
Watershed Protection	Kbal Chay (1997)	0		6	6

Watershed and Biodiversity Conservation	Central Cardamom (2002)	0		401	401
	Southern Cardamom (2004)	0		144	144
Zoo	Phnom Ta Moa (1997)	0		1	2
Biodiversity Conservation	Seima FA (2004)	0		305	298
	Preah Vihear_FA (2002)	0		190	190
	Mondul Kirri (2002)	0		429	429
	Oyadav Protected Forest for Recreation Sport Game Hunting (2009)			101	101
Bird Conservation	Ang Trapeng Thmor (2000)		13	0	13
	Beoung Prek Lpov(2007)	0	0	8	8
National Park* ¹	Virachey (1993)	333	333	0	338
	Phnom Kulen (1993)	38	38	0	38
	Botum Sakor (1993)	171	171	0	183
	Kirirom (1993)	35	35	0	28
	Phnom Bokor (1993)	140	140	0	142
	Ream (1993)	21	21	0	15
	Kep (1993)	5	5	0	7

Wildlife Sanctuary* ¹	Kulen Promtep (1993)	403	403	0	407
	Lomphat (1993)	250	250	0	251
	Beng Per (1993)	243	243	0	249
	Phnom Prich (1993)	223	223	0	222
	Phnom Nam Lyr (1993)	48	48	0	54
	Phnom Samkos (1993)	334	334	0	331
	Phnom Aural (1993)	254	254	0	257
	Snoul (1993)	75	75	0	74
	Peam Krasop (1993)	24	24	0	25
	Roniem Daun Sam (1993)	179	40	0	40
Protected Landscape* ¹	Preah Vihear (1993)	5	5	0	5
	Banteay Chhmar (1993)	81	81	0	82
	Angkor (1993)	11	11	0	14
Multiple Landuse*	Tonle Sap (1993)	316	316	0	322
	Samlaut (1993)	60	60	0	60
	Dong Peng (1993)	28	28	0	29
Total		3277	3151	1585	4765

The differences between the area in Royal Decree and the area in GIS data caused by the boundaries and area of the protected areas were drawn and calculated by hand

and then were transferred into GIS format in 1997. All figures are processed based on forest cover data and protected area data through GIS spatial analysis with resolution 50 meters grid cell.

* The area in Protected Area was stated by Royal Degree 1993

4.3 Analysis and processing of national data

4.3.1 Adjustment

4.3.2 Estimation and forecasting

A. Concession Areas

It is assumed that figure 2.244 million ha of areas under concession prior to 1994 reflects the state in 1990. The figure 4.919 million ha for 2000 has been derived by linear interpolation of 1996 figure of 6.464 million ha and 2004 figure 3.374 million ha. The figure for 2004 is assumed for 2005. The 2006 figure 3.374 million ha is assumed for 2010.

B. Protection of Soil and Water

The area of 551,000 ha specifically designated for watershed conservation in 1997, 2002 and 2004 are considered as area under protection for soil and water in 2010.

C. Multiple Purposes

Area of about 404,000 ha designated for multiple land use since 1993 (and before) is being considered as area under multiple purposes for 1990, 2000 and 2005 and 2010.

D. Social Services

Area of about 97,000 ha of designated for protected landscapes since 1993 (and before) is being considered as area under social services for 1990, 2000 and 2005 and 2010.

E. Conservation of Biodiversity

Since this is the largest proportion of the protected areas, the calibration from the original data to the actual size of 4,735 million ha in 2004 is done through reduction of Royal degree and Gov't sub-degree classes.

The figure 3,277,000 ha(97,000 ha under Social Services and 404,000ha under multiple purposes were included) of areas under “Protection areas” in 1993 is assumed for 1990. The figure 4,735,000 ha (404,000 ha under multiple land use,97,000 ha under Social Services and 551,000 ha under protection to soil and water were included) of protected forest and protected areas for 2004 are assumed for 2005. The figure 3,381,000 ha for 2000 is derived by linear interpolation of above derived figures for 1990 and 2005. The figure 3,985,000 ha for 2010 is derived by linear interpolation of above derived figures for 2000 and 2005.

4.3.3 Reclassification

Primary Function						
Forest	Production	Protection of Soil and Water	Conservation of Biodiversity	Social Service	Multiple Purpose	No or Unknown Function
Concession Areas	100%					
Watershed Protection		100%				
Zoo, Biodiversity Conservation, Crane Conservation, National Park, Wildlife Sanctuary			100%			

Protected Landscape				100%		
Multiple Landuse					100%	
Unknown						100%

4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	2244	4919	3374	3374	3374
	Multiple use forest	404	404	404	404	404

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	N/A	N/A	N/A	N/A
2 nd	N/A	N/A	N/A	N/A
3 rd	N/A	N/A	N/A	N/A
4 th	N/A	N/A	N/A	N/A
5 th	N/A	N/A	N/A	N/A
6 th	N/A	N/A	N/A	N/A
7 th	N/A	N/A	N/A	N/A
8 th	N/A	N/A	N/A	N/A
9 th	N/A	N/A	N/A	N/A
10 th	N/A	N/A	N/A	N/A
TOTAL			.00	

2010

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

Table 4c Pre-filled data from FAOSTAT

Year	FRA 2015 category (1000 m ³ u.b.)	
	Total wood removals	...of which woodfuel
1990	11795.2	11228.23
1991	11916.5	11176.52
1992	11842.8	11107.76

1993	11756.8	11061.84
1994	12056.6	11097.63
1995	12026.6	10986.63
1996	11863.1	10823.08
1997	11807.7	10767.75
1998	11560.5	10520.54
1999	11236.6	10315.64
2000	10298.4	10119.41
2001	10047.3	9924.32
2002	9862.3	9737.33
2003	9683	9558.05
2004	9511.1	9386.08
2005	9334.1	9221.07
2006	9165.6	9052.64
2007	9009	8891
2008	8853.4	8735.4
2009	8704	8586.01
2010	8525.2	8442.34
2011	8614.3	8442.34

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	N/A	N/A
Multiple use forest	N/A	Multiple use is under jurisdiction of Ministry of Environment.
Total wood removals	N/A	N/A
Commercial value of NWFP	N/A	N/A

Other general comments to the table

N/A

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

Documents for this question:

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

5.1 Categories and definitions

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

5.2 National data

5.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Royal Decree, 1993 and 2004. Government of Cambodia	Protected area	1993-2004	N/A

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

5.2.2 Classification and definitions

National class	Definition
N/A	N/A

5.2.3 Original data

Protection Areas and Protected Forest					
Types of Protected Forest and Protected Area	Name (Year)	Area (1000 ha)			
		Royal Decree 1993	Royal Decree 2004	Gov't Sub Degree 2004	GIS Data
Watershed Protection	Kbal Chay (1997)	0		6	6
Watershed and Biodiversity	Central Cardamom (2002)	0		401	401
Conservation	Southern Cardamom (2004)	0		144	144

5.3 Analysis and processing of national data

5.3.1 Adjustment

5.3.2 Estimation and forecasting

5.3.3 Reclassification

5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
CFRQ	Protection of soil and water	11589	10320	9591	9022	8449
CFRQ	... of which production of clean water	0	6	551	551	551
CFRQ	... of which coastal stabilization	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which desertification control	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which avalanche control	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which erosion, flood protection or reducing flood risk	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

Other

Area for protection of soil and water was estimated using natural forest area *.9

Table 5b

Categories	Forest area (1000 hectares)
------------	-----------------------------

	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	N/A	N/A	N/A	N/A	N/A
...of which public recreation	N/A	N/A	N/A	N/A	N/A
...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...of which spiritual or cultural services	N/A	N/A	N/A	N/A	N/A
...of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

Tiers

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

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

5.5 Comments

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

Other general comments to the table

N/A

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

Documents for this question:

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

6.1 Categories and definitions

Category	Definition
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

6.2 National data

6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Royal Decree, 1993. Government of Cambodia	Protected Area	1993	N/A
2	Royal Decree, 2004. Government of Cambodia	Protected Area	2004	N/A
3	Original GIS data source	Protected Areas	N/A	N/A
4	Gov't Sub Degree	Protected Forest	N/A	N/A
5	Law on Forestry	N/A	2002	N/A

6.2.2 Classification and definitions

National class	Definition
N/A	N/A

6.2.3 Original data

See 4.2.3.

6.3 Analysis and processing of national data

6.3.1 Adjustment

6.3.2 Estimation and forecasting

See 4.3.2.

E. Conservation of Biodiversity

Since this is the largest proportion of the protected areas, the calibration from the original data to the actual size of 4,735 million ha in 2004 is done through reduction of Royal degree and Gov't sub-degree classes.

The figure 3,277,000 ha(97,000 ha under Social Services and 404,000ha under multiple purposes were included) of areas under “Protection areas” in 1993 is assumed for 1990. The figure 4,735,000 ha (404,000 ha under multiple land use,97,000 ha under Social Services and 551,000 ha under protection to soil and water were included) of protected forest and protected areas for 2004 are assumed for 2005. The figure 3,381,000 ha for 2000 is derived by linear interpolation of above derived figures for 1990 and 2005. The figure 3,985,000 ha for 2010 is derived by linear interpolation of above derived figures for 2000 and 2005.

6.3.3 Reclassification

See 4.3.3

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	2776	3381	3683	3985	4287
	Forest area within protected areas	3277	3184	3138	3092	3092

Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 1	Tier 1

Forest area within protected areas	Tier 1	Tier 1
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Tier criteria

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

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	Conservation of biodiversity responsible by two institutes are protected forest and protected area. Protected forest is under jurisdiction of Forestry Administration of Ministry of Agriculture, Forestry and Fisheries and protected area is under jurisdiction of Ministry of Environment
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	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

7.2.2 Classification and definitions

National class	Definition
N/A	N/A

7.2.3 Original data

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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
N/A	N/A	N/A
Total	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Invasive species	N/A	N/A

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
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7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	N/A	N/A

Other general comments to the table
N/A

8. How much forest area is damaged each year?

Documents for this question:

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

8.1 Categories and definitions

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

8.2 National data

8.2.1 Data sources

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

8.2.2 Classification and definitions

National class	Definition
N/A	N/A

8.2.3 Original data

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8.3 Analysis and processing of national data

8.3.1 Adjustment

8.3.2 Estimation and forecasting

8.3.3 Reclassification

8.4 Data

Table 8a

Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	1031.26	N/A	1691.61	N/A	1308.53	N/A	1067.24	N/A	1475.61	N/A
	... of which forest area burned	155.37	N/A	83.23	N/A	153.36	N/A	143.69	N/A	316.6	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	1129.73	N/A	880.78	N/A	592.85	N/A	1162.9	N/A	252.44	N/A
	... of which forest area burned	189.28	N/A	243.65	N/A	22.35	N/A	50.83	N/A	14.6	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

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

Outbreak category

1 Insects

2 Diseases

3 Severe weather events

Tiers

Category	Tier for status	Tier for trend
Area affected by fire	Tier 2	Tier 2
<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	N/A	N/A

Tier criteria

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

8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
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Burned area	FAO provided data from remote sensing was used	FAO provided data from remote sensing was used
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	5093.44

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 2

Tier criteria

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

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	N/A

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

10.2.2 Classification and definitions

National class	Definition
N/A	N/A

10.2.3 Original data

--

10.3 Data

Table 10

Category				
	National	Sub-national		
		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes	no	no	no
... of which, in <u>publicly</u> owned forests	yes	no	no	no
... of which, in <u>privately</u> owned forests	no	no	no	no
Legislation and regulations supporting sustainable forest management	yes	no	no	no
... of which, in <u>publicly</u> owned forests	yes	no	no	no
... of which, in <u>privately</u> owned forests	no	no	no	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	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

Is there a national platform that promotes or allows for stakeholder participation in forest policy development?	no
--	----

11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	N/A

Other general comments

--

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

Documents for this question:

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

12.1 Categories and definitions

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

12.2 National data

12.2.1 Data sources

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

12.2.2 Classification and definitions

National class	Definition
Permanent Forest Estate	Consist of Permanent Forest Reserves and Private Forests
Permanent Forest Reserves	Consist of Production forest, Protection Forest and Conversion Forestland for other Development Purpose Note: Conversion Forest land for other development purpose is idle land, comprised mainly of secondary vegetation, not yet designated for use by any sector that shall be classified as Permanent Forest Reserves until the Royal Government decide to use and develop the land for another purpose
N/A	N/A
N/A	N/A

12.2.3 Original data

See 4.2.3.

12.3 Analysis and processing of national data

12.3.1 Adjustment

12.3.2 Estimation and forecasting

See 4.3.2

12.3.3 Reclassification

12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	10094
	... of which permanent forest estate	10094

Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 2
Permanent forest estate	Tier 2

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	N/A
Permanent forest estate	N/A

Other general comments

--

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

Documents for this question:

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

13.1 Categories and definitions

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

13.2 National data

13.2.1 Data sources

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

13.2.2 Classification and definitions

National class	Definition
N/A	N/A

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	N/A	N/A	no	no	no	no	no	no
Other field assessments	N/A	N/A	yes	yes	no	yes	yes	no
Updates to other sources	N/A	N/A	no	no	no	no	no	no
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	no
3 Other (please document)	no
4 None	yes

Other type of forest reporting

N/A

13.4 Comments

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

Other general comments

--

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

Documents for this question:

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

14.1 Categories and definitions

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

14.2 National data

14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	World Bank, 1996. Cambodia Forest Policy Assessment. Report No 15777-KH. The World Bank.	Concession Areas	Before 1996	N/A
2	KC. 2004. National Report to the fifth session of the United Nations Forum on Forests. Kingdom of Cambodia	Concession Areas	2004	N/A
3	Royal Decree, 1993. Government of Cambodia	Protected Area	1993	N/A
4	Royal Decree, 2004. Government of Cambodia	Protected Area	2004	N/A
5	Original GIS data source	Protected Areas	N/A	N/A
6	Gov't Sub Degree	Protected Forest	N/A	N/A
7	Law on Forestry	N/A	2002	N/A

14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	0

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

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
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Tiers

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

Tier criteria

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

14.4 Comments

Category	Comments
Forest area with management plan	N/A
N/A	N/A
N/A	N/A

Other general comments

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

Documents for this question:

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

15.1 Categories and definitions

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

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	no
2. Operations phase	no
3. Review of operations	no

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

Other general comments

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

Documents for this question:

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

16.1 Categories and definitions

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

16.2 Data

Table 16a

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

Table 16b

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

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

Tier criteria

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

Tiers

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

16.3 Comments

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

Other general comments

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

Documents for this question:

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

17.1 Categories and definitions

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

17.2 National data

17.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Cambodia: Forestry Statistics 2006	5	2006	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	44569223	5789281	N/A
Public expenditure on forestry	1364496	4114936	N/A
	2000	2005	2010
Name of Local Currency	Riel	Riel	N/A

17.4 Comments

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

Other general comments

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

Documents for this question:

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

18.1 Categories and definitions

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

18.2 National data

18.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Original data from Remote sensing	Forest Cover 2005	2005	Based on Remote Sensing and adequate ground truthing
2	Community Forestry Statistics in Cambodia	N/A	2005	N/A
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
N/A	N/A

18.2.3 Original data

There is lack of proper demarcation of Cambodia forest estate. According to the forestry law all forest land belongs to the state. Community forestry is one categories of permanent forest reserve. The state shall recognized and ensure their traditional use right for the purpose of traditional customs, belief, religions and living.

Community Forestry Statistics in Cambodia 2005

No	Province/Citie	Communities	Area(ha)
1	Kampong Chhnang	31	14,889
2	Kampong Cham	18	6,997
3	Kratie	13	17,831
4	Stung Trang	15	22,150

5	Mondul Kiri	3	3,104
6	Kampot	5	1,993
7	Koh Kong	2	3,790
8	Battambang	13	2,664
9	Svay Rieng	2	525
10	Kampong Speu	7	4,366
11	Kampong Thom	50	40,915
12	Siem Reap	36	17,146
13	Pursat	46	5,116
14	Ratanak Kiri	6	14,599
15	Preah Vihear	3	7,274
16	Krong Pailin	7	2,250
17	Otdor Meanchey	5	9,893
18	Banteay Meanchey	1	3,019
19	Takeo	1	500
Total		264	179,021

18.3 Analysis and processing of national data

18.3.1 Adjustment

18.3.2 Estimation and forecasting

18.3.3 Reclassification

18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	12944	11546	10731	10094
	... of which owned by the state at national scale	12944	11546	10731	10094
	... of which owned by the state at the sub-national government scale	0	0	0	0
	Private ownership	0	0	0	0
	... of which owned by individuals	0	0	0	0
	... of which owned by private business entities and institutions	0	0	0	0
	... of which owned by local, tribal and indigenous communities	0	0	0	0
	Unknown ownership	0	0	0	0
TOTAL		12944.00	11546.00	10731.00	10094.00

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 3	Tier 1
Private ownership	Tier 3	Tier 1
Unknown ownership	N/A	N/A

Tier criteria

Category	Tier for status	Tier for reported trend
Ownership	Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other	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	N/A	N/A	N/A	N/A
Individuals	N/A	N/A	N/A	N/A
Private companies	N/A	N/A	N/A	N/A
Communities	N/A	N/A	179	179
Other	N/A	N/A	N/A	N/A
TOTAL	.00	.00	179.00	179.00

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

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	N/A	N/A
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A
Management rights	N/A	N/A

Other general comments to the table
N/A

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	KKH. 2002. Cambodia: Forestry Statistics to 2002	2002	N/A	N/A
2	KKH. 2006. Cambodia: Forestry Statistics to 2006	2006	N/A	N/A
3	KKH. 2004. Ministry of Agriculture, Forestry and Fisheries (www.maff.gov.kh)	2004	N/A	N/A
4	N/A	N/A	N/A	N/A

19.2.2 Classification and definitions

National class	Definition
N/A	There is no information on national classification and definitions relating to this table.
N/A	N/A
N/A	N/A
N/A	N/A

19.2.3 Original data

A. Employees in Forestry Administration

Number of Employees in Department of Forest and Wildlife							Number of Employees in Forestry Administration				
1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
696	722	748	752	745	858	841	1,748	1,722	1,667	1,606	1,600

The number of employees (993) in Provincial Forest Offices is only available for 2002.

B. Employees in General Department of Rubber

Primary employment in rubber production			
Year	Production Employee	Service Employee	Total
1996	17,220	471	17,691
1997	17,389	413	17,802
1998	16,588	354	16,942
1999	14,949	231	15,180
2000	14,823	226	15,049
2001	14,816	301	15,117
2002	14,422	299	14,721
2003	13,945	509	14,454

Estimation and forecasting

It is assumed that

1. number of employees in provincial forest offices in 1990 and 2000 same as in 2002.
1. number of employees in department of forest and wildlife in 1990 same as in 1997.

1. number of employees looking after national parks etc. (conservation of biodiversity) is in proportion of the forest areas under conservation of biodiversity (Table 3) and it is roughly 25%. Further that this number represents employment through services.

1. number of employees in production and service relating to rubber production is counted against production. The number in 1990 is same as in 1996 and the number in 2005 is same as in 2003.

	1990	2000	2005	estimation and forecasting
FA	696	752	301	(b)
Provincial	993	993	1,421	(a)
FA + Provincial	1,689	1,745	1,722	(a) + (b)
of which Protected area	422	436	431	(c)=(a+b)*0.25
of which others	1,267	1,309	1,292	(a)+ (b)–(c)
Rubber	17,691	15,049	14,454	(d)
Primary Production of Goods	18,958	16,358	15,746	(a)+ (b)–(c) +(d)

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	18.96	16.36	15.75	15.75
	... 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
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Employment in forestry	N/A	N/A
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Other general comments to the table

N/A

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

Documents for this question:

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

20.1 Categories and definitions

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

20.2 Data

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

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	1370286.67	riel	2011

20.3 Comments

Category	Comments
N/A	N/A

Other general comments

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

Documents for this question:

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

21.1 Categories and definitions

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

21.2 National data

21.2.1 Data sources

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

21.3 Data

Table 21a

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

Table 21b

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

21.4 Comments

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

Forests earmarked for conversion	N/A
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Other general comments

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