

Lao People's Democratic Republic

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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	Remote Sensing, FIPD, SIDA (Sweden), SPOT 4 and 5 (visually)	N/A	1992 and 2002	Monitoring forest and Land cover

2	Remote Sensing, FIPD, FIM (JICA) Alos, Spot5, Rapideye	N/A	2010-2013	to make base map of Land cover
3	Forestry Strategy to the Year 2020 of the Lao PDR	N/A	N/A	http://www.forestcarbonasia.org/wp-content/uploads/2011/10/2.-Forestry-Strategy-to-the-Year-2020-of-the-Lao-PDR.pdf
4	LAO PEOPLE'S DEMOCRATIC REPUBLIC Peace Independence Democracy Unity Prosperity Ministry of Agriculture and Forestry Department of Forestry, Forest Investment Program Lao Investment Plan Master Draft: 19 September 2011	N/A	N/A	http://www.forestcarbonasia.org/wp-content/uploads/2011/10/1.-Forest-Investment-Program-Lao-PDR.pdf

1.2.2 Classification and definitions

National class	Definition
Dry Dipterocarp	The Dry Dipterocarp Forest occurs in open stands. The tree diameter is comparably small and the height of the stand varies from 8 to 25 m. The crowns do not spread out widely. This type of forest is normally found in places with shallow soil, where the hard pan emerges above the ground, and on latirized soil. On the most poor and shallow soils the trees are crooked and do not exceed 10 m in height: If the crown cover is less than 20 % and the stand is undisturbed the vegetation type should be classified as Savannah.
Upper Dry Evergreen and Lower Dry Evergreen	The evergreen forest type is a multi-storey forest consisting of more than 80% trees of evergreen species. Most of the trees have long and cylindrical boles, many of them with a big buttress. Usually, the height of the trees of the upper storey is more than 30 m. Another typical characteristic of this forest type are climbers and lichen on the tree stems. Bamboo is usually not found except when the canopy has been opened. Evergreen forest located at an altitude above 200 m is classified as Upper Evergreen Forest. Areas below that altitude are classified as Lower Evergreen Forest.
Upper Mixed Deciduous and Lower Mixed Deciduous	Mixed deciduous forest type the deciduous tree species represent more than 50% of the stand. The forest storeys are not as dense as those of evergreen type. Most often bamboo occurs in this type of forest. Mixed deciduous forest located at an altitude above 200 m is classified as Upper Mixed deciduous Forest. Mixed deciduous forest located at an altitude 200 m and below is classified as Lower Mixed Deciduous Forest.

Gallery Forest	The Gallery Forest is not characterized by tree species composition but could be i.e. either deciduous or evergreen. Clues used for identification of this forest type are the occurrence of some other land use types in its vicinity such as streams and villages. In areas where streams are likely to overflow seriously, the forest is often left along the low bank of the streams (both persistent and intermittent ones) forming a long band of forest with the stream bed on one side and, for, example, paddy fields on the other. The width of the Gallery Forest will not be more than 100 m.
Coniferous	The Coniferous Forest is usually single storied and open but the young growth may sometimes form a dense second storey. This forest type occurs in higher elevations with a cool climate. The characteristic species of this type are pines but (<i>Pinus kesiya</i> or <i>Pinus merkusii</i>) but other coniferous trees such as i.e. <i>Cunninghamia</i> may also be predominant.
Mixed Coniferous and Broadleaved	The Mixed Coniferous Forest is a transition type between the coniferous and the broadleaved forest types. The coniferous trees could be mixed with either deciduous or evergreen trees. It is also found in higher elevations.
Wood Plantation	In Forest Plantations the planted trees could still be identified (i.e. by even height, even spacing or by species typical for plantations) although they may be mixed up with other non-cultivated plants. All sustainable plantations (including young ones with a crown density less than 20 % should be classified as Forest Plantations. Rubber plantations are also classified as Forest Plantations. Coffee, tea and shade providing trees for coffee and tea as well as fruit trees are not classified as Forest Plantations.
Bamboo	If an area is covered with bamboo and the over storey has a crown cover less than 5% it should be classified as Bamboo. Abandoned ray is often recovered by bamboo. Some species of bamboo may last for many years. Bamboo brakes may vary in height from 2 m to 25 m depending on their species. If the Bamboo represents less than 80% of the total vegetation cover of the under storey I the vegetation type should not be classified as Bamboo.
Temporally Unstocked	If an area is covered with bamboo and the over storey has a crown cover less than 5% it should be classified as Bamboo. Abandoned ray is often recovered by bamboo. Some species of bamboo may last for many years. Bamboo brakes may vary in height from 2 m to 25 m depending on their species. If the Bamboo represents less than 80% of the total vegetation cover of the under storey I the vegetation type should not be classified as Bamboo.
Ray	Ray is an area where the forest has been cut and burnt for temporary cultivation of rice and other crops. The area should be classified as Ray from the time of clearcut until one year after it has been abandoned. Areas being prepared for clearcut but not yet clearcut and areas that have been abandoned for more than 1 year should not be classified as Ray.

Savannah/open wood land	The Savannah is an area where the soil conditions are unsuitable for tree growth as well as agriculture production. The tree cover in the Savannah should be at least 1% but not more than 20%. The trees are drought resistant and mostly short with graminaceous and herbaceous plants forming an understory. Savannahs should not be mixed up with those grass covered areas that sometimes occur after shifting cultivation. Normally, the Savannah does not occur on steep slopes but in plain areas.
Heath, Scrub Forest	This is an area covered with scrub and stunted trees. The soil is shallow and rocky.
Rice Paddy	Areas permanently being used for rice cultivation. Old paddy that has been abandoned and not been in use for more than one year should not be classified as Rice Paddy.
Agriculture Plantation	Areas of agricultural land being used for production of other crops than rice, i.e. various kinds of vegetables, for fruit tree cultivation etc. Plantations with cash crops, such as coffee, tea, cocoa and cotton are also referred to this land use class.
Other Agriculture Land	Agricultural land being used for other agricultural purposes than agricultural crop cultivation, i.e. grazing of cattle, should be classified as Other Agricultural Land, unless the tree cover exceeds 20%. In that case it should be classified as some type of Current Forest depending on the tree species composition.
Barren land, Rock	Unfertile or seriously degraded land on shallow soil and rocky areas on which neither trees nor grasses can grow.
Grassland	Unfertile or degraded land on which no trees or shrubs grow. It might be an area that is too dry for tree growth that has been covered by grasses. It could also be an area that has originally been covered by trees which has been heavily disturbed by cutting and fire and gradually depleted. One reason for the absence of trees could be that of big areas have been deforested that the seed supply from surrounding forest has ceased. Areas being burnt over and over again (every year) for production of fodder for hunting purposes etc. could also be classified as Grassland. That type of Grassland could be found on higher elevations in the Northern part of Laos. Grassland could also occur on deep sand with high moisture content.
Urban area	Urban Areas include all areas being used for permanent settlements such as villages, towns, public gardens etc. It also includes roads having a width of more than 5 m and areas under electric high power lines. Any type of land under high power lines, except Rice Paddy, should be classified as Urban Areas.
Swamps	Swamps are areas where the soil is saturated with water. The soil may basically be fertile but the lack of oxygen limits its agriculture or forest-production capacity. The Swamp could have a high ecological or environmental value and the flora and fauna may be rich. The typical tree species found in the Swamps are trees which can grow in water, i.e. <i>Adina cordifolia</i> , <i>Rhus succedanea</i> and <i>Barringtonia acutangula</i> .
Water	The land use class Water includes rivers, water reservoirs (i.e. ponds and dams for irrigation and hydro power) and lakes. Water reservoirs and lakes should have an area of 0.5 ha and rivers should be at least 10m wide to be classified as Water. In other cases it should be joined to adjacent land use class.

1.2.3 Original data

National Landuse Class	ha		
	1992	2002	2010
Forest			
Dry Dipterocarp	1,483,252.00	1,343,346.00	1,205,022.00
Dry Evergreen	2,635,870.00	1,330,111.00	1,367,399.00
Mixed Deciduous	7,790,934.00	7,523,422.00	10,181,170.00
Gallery Forest	0.00	33,008.00	0.00
Coniferous	12,664.00	21,910.00	86,501.00
Mixed Coniferous / Broadleaved	0.00	153,162.00	28,990.00
Plantation	1,263.00	54.00	69,010.00
Bamboo	858,459.00	403,846.00	255,862.00
Temporarily unstocked	4,638,676.00	5,493,343.00	4,621,608.00
TOT	17,421,118.00	16,302,202.00	17,815,562.00
Other wooded Land (OWL)			
Rest Temporarily Unstocked Forest	3,092,450.42	3,662,228.50	3,081,072.13
Savannah / Open Woodlands	35,448.48	168,391.07	176,531.80
Heath, Scrub Forest	217,403.31	165,849.37	30,718.71
TOT	3,345,302.21	3,996,468.94	3,288,322.64
Other land (OL)			
Ray	469,320.68	709,823.10	618,009.18
Rice Paddy	947,840.80	1,117,493.33	999,571.94
Agriculture Plantation	88,462.14	189,227.95	44,382.16
Other Agriculture Land	27,785.77	36,646.39	165,041.50

Barren Lands/ Rock	222,919.05	184,422.37	195,330.86
Grassland	891,908.31	589,811.49	162,702.46
Urban Areas	20,092.18	29,487.27	54,539.45
other Land	10,516.20	4,736.34	28,989.86
Swamps	48,196.38	58,739.23	9,731.78
TOT	2,727,041.49	2,920,387.46	2,278,299.19
Water	186,538.64	460,940.32	297,815.65
National Data - Summary			
		000 ha	
	1992	2002	2010
Forest area	17,421.12	16,302.20	17,815.56
Other wooded land	3,345.30	3,996.47	3,288.32
Other land	2,727.04	2,920.39	2,278.30
Water	186.54	460.94	297.82
Inland water body (FAOSTAT)	600	600	600
Country area (FAOSTAT)	23680	23680	23680

1.3 Analysis and processing of national data

1.3.1 Adjustment

See below.

1.3.2 Estimation and forecasting

Forest area and other wooded land figures collected for 1992, 2002 and 2010 through remote sensing have been used for linear interpolation and extrapolation.

FAOSTAT figures have been used for inland water bodies and country areas and other land have been adjusted accordingly/

Categories	Area (000 hectares)						
	1990	1992	2000	2002	2005	2010	2015
Forest	17,644.90	17,421.12	17,197.33	16,302.20	16,869.71	17,815.56	18,761.41
Other wooded land	3,215.07	3,345.30	3,866.24	3,996.47	3,730.91	3,288.32	2,845.73

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Forest	17,644.90	17,197.33	16,869.71	17,815.56	18,761.41
Other wooded land	3,215.07	3,866.24	3,730.91	3,288.32	2,845.73
Other land	2,220.03	2,016.43	2,479.37	1,976.11	1,472.86
Inland water bodies	600.00	600.00	600.00	600.00	600.00
TOTAL	23,680.00	23,680.00	23,680.00	23,680.00	23,680.00

1.3.3 Reclassification

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1.4 Data

Table 1a













Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	17644.9	16525.99	16869.71	17815.56	18761.41
	Other wooded land	3215.07	3866.24	3730.91	3288.32	2845.73
	Other land	2220.03	2687.77	2479.38	1976.12	1472.86
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	600	600	600	600	600
	TOTAL	23680.00	23680.00	23680.00	23680.00	23680.00

Table 1b

Categories		Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
		1990	2000	2005	2010	1990	2000	2005	2010
	Forest expansion	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which afforestation	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	21.9	35.3	75.15	75.15	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which artificial	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Tiers

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

Tier criteria

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

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	Data are different from those reported in FRA 2010 as new estimates rely on remote sensing assessment.	The increase in forest area should be due to expansion of agricultural and Industrial tree plantations (ITP) development especially rubber, which is the main source of Land use and forest change (LUFC) in recent years. Large-scale concessions have grown fairly rapidly aggregating to more than 300,000 ha in just a few years. However, data on plantation here enclosed do not reflect properly this as they have been detected through remote sensing, which can't properly detect forest planted less than 5 years before. The Forestry Strategy to the Year 2020 of the Lao PDR (FS2020) target calls for the establishment of 500,000 ha of industrial tree plantations. DOF has estimated that the total area of ITPs in the country, of which more than half are rubber plantations, has reached 200-300 thousand ha, which when combined with the area of ITP applications of companies submitted to Ministry of Planning and Investment (MPI) would already be close to the FS2020 target for ITP.
Other wooded land	N/A	N/A
Other land	N/A	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
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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 outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Category	Definition
Primary forest	Naturally regenerated forest of native species where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
...of which of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized (<i>sub-sub category</i>)	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species (<i>sub-category</i>)	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted (<i>sub-category</i>)	Mangroves predominantly composed of trees established through planting.

2.2 National data

2.2.1 Data sources

References to sources of information	Variables	Years	Additional comments

1	MAF. 1991. Survey of Plantations in LAO PDR. LAO-Swedish Forestry Co-operation Programme- Forest Inventory. Report No.1. Ministry of Agriculture and Forestry. Department of Forestry and Environment. Forest Inventory and Management Office. LAO PDR	Plantations till 1990	1990	N/A
2	Tsechalicha, Xiong and Don Gilmour. 2000. Forest Rehabilitation in LAO PDR- Issues and Constraints. IUCN. LAO PDR.	Plantations till 1998	1998	N/A
3	DOF. 2000. NFI Database. Department of Forestry. National Office of Forest Inventory and Planning. Lao PDR.	Extent	1992	N/A
4	DOF 2010 Forest cover Assessment in Lao PDR- Final Report on the easy Survey by sample plots in whole country. Ministry of Agriculture and Forestry. Department of Forestry. Forest Inventory and Planning Division.	Extent	2009-2010	N/A
5	LAO PEOPLE'S DEMOCRATIC REPUBLIC Peace Independence Democracy Unity Prosperity Ministry of Agriculture and Forestry Department of Forestry, Forest Investment Program Lao Investment Plan Master Draft: 19 September 2011	N/A	N/A	http://www.forestcarbonasia.org/wp-content/uploads/2011/10/1.-Forest-Investment-Program-Lao-PDR.pdf
6	Forestry Strategy to the Year 2020 of the Lao PDR	N/A	N/A	http://www.forestcarbonasia.org/wp-content/uploads/2011/10/2.-Forestry-Strategy-to-the-Year-2020-of-the-Lao-PDR.pdf

2.2.2 Classification and definitions

National class	Definition
National Biodiversity Conservation Areas (NBCAs)	Forests and forest lands which are classified for the purpose of preventing species of flora and fauna, nature and other precious things in terms of history, culture, tourism, the environment, education, and scientific research.

Natural forest	Natural forest is forest classified under National Biodiversity Conservation Areas (NBCAs) excluding bamboo, plantations and Temporarily unstocked forest.
N/A	N/A
N/A	N/A

2.2.3 Original data

PLANTATIONS			
MAF (1991) indicates that area of plantations till 1990 is 2900 ha. Tsechalicha and Gilmour (2000) indicate that 47.589 ha has been brought under plantations (excluding that for watersheds) between 1991 to 1998. They also indicate there is a plan to establish about 25,000 ha. per annum.			
Variable	1990	1991 to 1998	
Area under Plantations in 000 ha	2.9	47.589	
They however do not mention the extent of plantation under various afforestation activities for watershed rehabilitation. A nominal extent of 1,000 ha could be assumed for 1990 and 2000.			
Data from Remote Sensing Project JICA have been provided for 1992 – 2002 – 2010.			
	1992	2002	2010
Plantation	1.26	0.05	69.01
They however don't reflect properly the increase occurred in plantation.			

2.3 Analysis and processing of national data

2.3.1 Adjustment

2.3.2 Estimation and forecasting

PRIMARY FOREST			
Natural forest under National Biodiversity Conservation Areas (NBCAs) excluding bamboo, plantations and Temporarily unstocked forest. It has been assumed that half of natural forest is primary forest.			
Natural FOREST in NBCA			
	1992	2002	2010

Dry Dipterocarp	141,547.99	146,120.33	144,766.30
Dry Evergreen	430,038.95	667,630.96	329,956.22
Mixed Deciduous	2,546,784.75	1,914,454.89	2,054,548.87
Gallery Forest	0.00	511.78	0.00
Coniferous	5,773.96	3,684.09	21,253.17
Mixed Coniferous / Broadleaved	0.00	83,516.53	1,728.02
TOT Natural FOREST	3,124,145.65	2,815,918.57	2,552,252.58
Primary Forest	1,562,073	1,407,959	1,276,126

These figures collected for 1992, 2002 and 2010 through remote sensing have been used for linear interpolation and extrapolation.

PLANTED FOREST

A token figure of 1000 ha of protective plantations has been assumed considering the various past and on going activities to rehabilitate watersheds.

Data for 2000 have been interpolated using data from 1992, 2002 and 2010, but the data for 2000 was adjusted according to the trend.

2.3.3 Reclassification

National Class	Percentage of a National Class to a FRA Classes
	Primary Forest
Natural FOREST in NBCA	50 %

2.4 Data

Table 2a







Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	1592.9	1438.78	1358.52	1276.13	1193.73
	Other naturally regenerated forest	16049.5	15068.43	15484.28	16469.43	17454.57
	... 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	2.5	18.78	26.91	70.01	113.11
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
TOTAL		17644.90	16525.99	16869.71	17815.57	18761.41

Table 2b

Primary forest converted to (000 ha)								
1990-2000			2000-2010			2010-2015		
Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2c

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

Tiers

Category	Tier for status	Tier for reported trend
Primary forest	Tier 2	Tier 2
Other naturally regenerated forest	Tier 2	Tier 1
Planted forest	Tier 1	Tier 1

Mangroves	Tier 3	Tier 3
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Tier Criteria

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

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	Data differ from those reported in FRA 2010 as they have been detected through remote sensing assessment. It has been assumed that half of natural forest is primary forest.	N/A
Other naturally regenerating forest	N/A	N/A
Planted forest	The increase in forest area should be due to expansion of agricultural and Industrial tree plantations (ITP) development especially rubber, which is the main source of Land use and forest change (LUFC) in recent years. Large-scale concessions have grown fairly rapidly aggregating to more than 300,000 ha in just a few years. However, data on plantation here enclosed do not reflect properly this as they have been detected through remote sensing, which can't properly detect forest planted less than 5 years before. The Forestry Strategy to the Year 2020 of the Lao PDR (FS2020) target calls for the establishment of 500,000 ha of industrial tree plantations. DOF has estimated that the total area of ITPs in the country, of which more than half are rubber plantations, has reached 200-300 thousand ha, which when combined with the area of ITP applications of companies submitted to Ministry of Planning and Investment (MPI) would already be close to the FS2020 target for ITP.	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	MAF. 1992. Forest cover and Land use in Lao PDR- Final Report on the Nationwide Reconnaissance Survey. Ministry of Agriculture and Forestry. Department of Forestry. National Office of Forest Inventory and Planning. Lao PDR.	Extent	1982 & 1989	N/A

2	DOF. 2000. NFI Database. Department of Forestry. National Office of Forest Inventory and Planning. Lao PDR.	Extent	1992 & 1997	N/A
3	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 Carbon conversion factor of 0.47
4	DOF. 2010. FIM Database. Department of Forestry. Forest Inventory and Planning division. Lao PDR.	Extent	2000, 2005, & 2010	2010 Forest cover and Land use in Lao PDR is drab

3.2.2 Classification and definitions

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

3.2.3 Original data

A. Summary Table			
National Classes of Forests	Area (000 ha)	Volume (000 m ³)	Volume per ha
Natural High Forests (NHF)	10125.24	891811.18	88.08
Dry Dipterocarp Forests (DDF)	1603.96	81154.75	50.60
Potential Forests (PF)	8836.84	60743.82	6.87
Total Forest (NHF +DDF+0.6*PF)	17031	1009412	59.27
Total OWL (0.4*PF)	3535	24298	6.87

B. Detailed Table

Province	Foresttype	Area (000 ha)	Avg. vol (m ³ /ha)	Total volume (000 m ³)	Field work (Year)
1	NHF	133.59	108.81	14,535.93	1992
	DD	28.36	24.94	707.3	
	PF	66.31	6.45	427.7	
2	NHF	718	64.57	46,361.26	1997
	DD	0	0	0	
	PF	674	6.93	4,670.82	
3	NHF	464.42	58.07	26,968.87	1997
	DD	0	0	0	
	PF	332.95	7.77	2,587.02	
4	NHF	488	43.22	21,091.36	1997
	DD	0.93	NA		
	PF	1019	1.47	1,497.93	
5	NHF	272.6	54.74	14,922.12	1997
	DD	0	0	0	
	PF	198.67	5.9	1,172.15	
6	NHF	347.35	19.29	6,700.38	1995
	DD	16.94	21.62	366.24	
	PF	1475.34	0.93	1,372.07	
7	NHF	732.38	55.48	40,632.44	1998
	DD	0	0	0	
	PF	742.47	7.59	5,635.35	
8	NHF	704.71	111.01	78,229.86	1993

	DD	157.56	82.48	12,995.55	
	PF	696.2	7.87	5,479.09	
9	NHF	734.84	38.99	28,651.41	1998
	DD	6.33	0	0	
	PF	524.55	3.3	1,731.02	
10	NHF	648.44	56.6	36,701.70	1993
	DD	0	0	0	
	PF	1069.8	11	11,767.80	
11	NHF	1139.1	66.48	75,727.37	1996
	DD	11.6	62.93	729.99	
	PF	343.4	14.67	5,037.68	
12	NHF	956.5	188.23	180,042.00	1992
	DD	46.1	62.19	2,866.96	
	PF	232.5	26.08	6,063.60	
13	NHF	698.7	96.96	67,745.95	1992
	DD	600.1	58.82	35,297.88	
	PF	436.1	9.04	3,942.34	
14	NHF	529.4	152.64	80,807.62	1990
	DD	146.3	49.82	7,288.67	
	PF	253.9	15.28	3,879.59	
15	NHF	405.71	105.41	42,765.89	1994
	DD	61.44	46.68	2,868.02	
	PF	387.45	9.49	3,676.90	
16	NHF	526.1	99.76	52,483.74	1994
	DD	320.3	39.66	12,703.10	
	PF	184.7	5.98	1,104.51	

17	NHF	625.4	123.83	77,443.28	1995
	DD	208	25.63	5,331.04	
	PF	199.5	3.5	698.25	
Total		20.566.1		1,033,709.74	

Growing stock composition:

The NFI (1990) provides estimates of growing stock per hectare by following main species.

Species Scientific name	cubic meters/ha)	
Dipterocarpus tuberculatus	0.002	
Dalbergia kerii	0.109	
Shorea obtusa	0.085	
Azelia xylocapa	1.272	
Hopea feerea P	2.013	
Pinus khasya	6.820	
Dipterocarpus alatus	5.850	
Pterocarpus macrocarpus	1.300	
Dipterocarpus obtusifolius	0.503	
Anisoptera cochinchinensis	5.362	
Remainder of species	N/A	

3.3 Analysis and processing of national data

3.3.1 Adjustment

3.3.2 Estimation and forecasting

Growing stock

Since there is single set of information available on the growing stock and that too spans the years 1992 to 1997, hence the volume per hectare figures from this information will be used for 1990, 2000, 2005 and 2010 estimations of growing stock.

Variables	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Area in 000ha	16,819	16,492	16,156	4,158	4,292	4,297
Volume per ha (m ³ /ha)	59.27	59.27	59.27	6.87	6.87	6.87
Growing stock in million m ³	997	977	958	29	929	30

Below ground biomass :

From appendix 5, table 5.3 pag 5 of the FRA guidelines, considering an above ground biomass < 125t/ha and a tropical dry forest biome, the root-shoot ratio of 0.20 has been chosen.

Variables	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total Growing Stock (million m ³)	997	977	958	939	29	29	30	31
BCEF	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
Aboveground Biomass	2044	2003	1964	1925	59	59	62	64
Root shoot ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

Belowground biomass	409	401	393	385	12	12	12	13
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3.3.3 Reclassification

3.4 Data

Table 3a




Category		Growing stock volume (million m ³ over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	997	977	958	939	920	29	29	30	31	32
	... of which coniferous	30	39	38	38	9	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	967	938	920	901	911	29	29	30	31	32

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	<i>Pinus khasya</i>	N/A	118.08	112.75	110.1	107.45
2 nd	<i>Dipterocarpus alatus</i>	N/A	101.29	96.71	94.4	91.75
3 rd	<i>Anisoptera cochinchinensis</i>	N/A	92.84	88.65	86.6	83.95
4 th	<i>Hopea feerea</i> P	N/A	34.85	33.28	32.5	29.85
5 th	<i>Pterocarpus macrocarpus</i>	N/A	22.51	21.49	21	18.35
6 th	<i>Azelia xylocapa</i>	N/A	22.02	21.03	20.5	17.85
7 th	<i>Dipterocarpus obtusifolius</i>	N/A	8.71	8.32	8.1	5.45

8 th	Dalbergia kerii	N/A	1.89	1.8	1.8	1.8
9 th	Shorea obtusa	N/A	1.47	1.41	1.4	1.4
10 th	Dipterocarpus tuberculatus	N/A	0.03	0.03	0.03	0.03
Remaining			593.3	591.53	581.57	581
TOTAL			996.99	977.00	958.00	938.88

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	2044	2003	1964	1925	1886	59	59	62	64	66
	Below ground biomass	409	401	393	385	377	12	12	12	13	14
	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		2453.00	2404.00	2357.00	2310.00	2263.00	71.00	71.00	74.00	77.00	80.00

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	960.68	941.41	923.08	904.75	886.42	27.73	27.73	29.14	30.08	31.02
	Carbon in below ground biomass	192.23	188.47	184.71	180.95	177.19	5.64	5.64	5.64	6.11	6.58
	<i>Subtotal Living biomass</i>	1152.91	1129.88	1107.79	1085.7	1063.61	33.37	33.37	34.78	36.19	37.6
	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	36	35	34	33	34.77	7	9	9	10	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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		1188.91	1164.88	1141.79	1118.70	1098.38	40.37	42.37	43.78	46.19	37.60

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	N/A
Dead wood	N/A	N/A
Carbon in above-ground biomass	Tier 3	Tier 1
Carbon in below ground biomass	Tier 3	Tier 1
Carbon in dead wood and litter	N/A	N/A
Soil carbon	N/A	N/A

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	Tsechalicha, Xiong and Don Gilmour. 2000. Forest Rehabilitation in LAO PDR- Issues and Constraints. IUCN.	Designation	1990	N/A
2	TFAP. 1990. Tropical Forestry Action Plan, First Phase (1990). Government of LAO PDR. Ministry of Agriculture and Forestry, Vientiane.	Designation	1990	N/A
3	Record at the Department of Forestry.	Designation	1990 to 2004	N/A
4	Remote Sensing, FIPD, SIDA (Sweden), SPOT 4 and 5 (visually)	N/A	1992 and 2002	Monitoring forest and Land cover

5	Remote Sensing, FIPD, FIM (JICA) Alos, Spot5, Rapideye	N/A	2010-2013	to make base map of Land cover
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4.2.2 Classification and definitions

National class	Definition
Production Forest	Forests and forest lands which are classified to provide for the requirements of national socio-economic development and peoples' livelihoods in terms of wood and forest derived products which do not seriously affect the environment.
N/A	N/A
N/A	N/A
N/A	N/A

4.2.3 Original data

Figures detected for 1992, 2002 and 2010 through remote sensing have been compared with the map of forest functions for each year.

National Landuse Class	PFA92 - Production forest Area - ha		
	1992	2002	2010
Forest			
Dry Dipterocarp	267,629.51	244,688.82	227,667.28
Dry Evergreen	341,979.06	111,223.85	230,819.23
Mixed Deciduous	1,294,985.68	1,391,354.35	1,611,309.73
Gallery Forest	0.00	2,190.49	0.00
Coniferous	1,837.35	3,018.89	8,014.51
Mixed Coniferous / Broadleaved	0.00	8,866.27	113.15
Plantation	0.00		2,117.34
Bamboo	119,691.21	35,428.63	37,216.24
Temporarily unstocked	559,582.49	653,253.46	482,569.66
TOT	2,585,705.30	2,450,024.75	2,599,827.13

		000 ha		
		1992	2002	2010
PFA92	Production forest Area	2585.705	2450.024746	2599.827

4.3 Analysis and processing of national data

4.3.1 Adjustment

4.3.2 Estimation and forecasting

The figures have been used for linear interpolation and extrapolation.


FRA 2015 Categories	Forest area (000 hectares)						
	1990	1992	2000	2002	2005	2010	2015
Production forest	2,612.84	2,585.71	2,477.16	2,450.02	2,506.20	2,599.83	2,693.45
Multiple use forest	0		0	0	0	0	0

4.3.3 Reclassification

Not needed.

4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	2612.84	2477.16	2506.2	2599.83	2693.45


	Multiple use forest	0	0	0	0	0
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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	6082.03	5627.03
1991	6316.1	5679.1
1992	6047.82	5692.82
1993	6344.51	5715.51
1994	6381.05	5715.05
1995	6724.39	5730.39
1996	6546.59	5764.59
1997	6482.93	5797.93
1998	6385.6	5814.6
1999	6708.78	5842.78
2000	6438.96	5871.96
2001	6455.01	5885.01
2002	6290.73	5898.73
2003	6322.14	5913.14

2004	6208.51	5928.21
2005	6137.47	5943.97
2006	6137.02	5943.52
2007	6137.2	5943.7
2008	6167.56	5944.5
2009	6163.67	5945.92
2010	6165.7	5947.95
2011	6165.7	5947.95

Tiers

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

Tier Criteria

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

4.5 Comments

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

Other general comments to the table

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	Remote Sensing, FIPD, SIDA (Sweden), SPOT 4 and 5 (visually)	N/A	1992 and 2002	Monitoring forest and Land cover

2	Remote Sensing, FIPD, FIM (JICA) Alos, Spot5, Rapideye	N/A	2010-2013	to make base map of Land cover
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
Water sources forest	Means the forest and the forestry land where a river rises which is located in watershed areas.
Water Resource	Means freshwater resources, the places where fresh water gather, stop, flow permanently or provisionally on the earth surface, in underground stream and up in the air.
Watershed area	Means a boundary of all forestry areas and land of very patch form the top upstream down to the estuaries, and form the water boundaries where the rainfalls drop down gathering and flowing in to a reservoir system.
The water reservoirs	Mean the water storage sites for irrigation, fishery, using for consumption and power generation and tourism.
The planning for the protection forest	Means the determination of the protection forest areas based on the collected data form the actual survey.
The management	Means the forestry activities undertaking such as: the surveys, the planning for classified protection forest, the research and experiment, the use of forestry products in accordance with the plans for classified protection forests.
The restoration	Means the protection and conservation of the degraded forest and forestry and, which are classified to be protected and conserved for rich and healthy forest again by applying of appropriate techniques based on conditions of each area
The protection and conservation	Means of undertake various forestry activities to protect the water sources, soil erosion and quality, the strategies points for the national defines, for the protection of the natural catastrophe and the environment or the likes.
The development	Means the re-plantation of forests and restoration of the degraded forest and forestry land, restoration of land after completion of the mining project in the protection forest and land to become the rich and healthy forest again by using the native trees or floras or local trees or floras that can be growth in that localities or areas for re-plantation covering the forest landscapes, supplemental plantation or naturally restoration.
Road side forest	means the forests defining for the protection of soil erosion of road sides, the eco-systems along the road side including the forest in the conservation areas of the road which is defined from each side of the road at least 50 meters over up (Fifty meters);
The river side forest	means the forests grow along the river side, stream, canal, swamps which have specifically characteristic, eco-systems and defined for the protection into rivers, reservoir at least 50 meters from both side of river bank;

Dipterocarp forest	Means the natural forest with low density and has specific eco-systems; it maintains the underground water, protects the soil at surface shallow level and stone surface. Most of trees grow here are ticking bark species, have not big stamp lasting for drought condition and forest fire, event through is a food stuff bank, medicinal places etc. for the local people;
National boundary Protection forests	mean the forest classified along the country border from the edge of border into the country at least 5 kilo meter (five kilometre)
Forests in and around the town	mean the natural forest or planted forest and are defined as the protection forest in order to reduce the air pollution in the town or city, the protection of the natural disaster, the study and research, the recreation and eco-tourism;
Absolutely Prohibited zone	means the protection forest and the protection forest land classified and allocated specifically in areas with steep sloe over 35 degrees, water origin areas, the forest along the river banks, road side, the areas with high risk of soil erosion, the fore areas along the two country border which cover the streams, mountains, natural forest, vegetation ,historical and cultural significance including living and non-living thing;
Management areas	Mean the forest and forestry land within the protection forest areas and the protection forest land classified and allocated for the local people to be able using the forest and the forest products in the traditionally sustainable manners without the negative impact to natural forest structure. Utility of forest can proceed only in the managed areas which consist of production forest, protection forest, secret forest, cemetery and etc;
the change in protection forest	Means the change made on the forest and the forestry land in the projection forest for other purpose use.
Protection Forest	Forests and forest lands which are classified for the purpose of protecting water sources, preventing soil erosion, strategic areas for national defence, prevention of natural disasters, the environment, etc.
Social Services	Forest land not belong to government project belong to villages forest.

5.2.3 Original data

Figures detected for 1992, 2002 and 2010 through remote sensing have been compared with the map of forest functions for each year.

National Landuse Class	PTA92 ha			Social Services ha		
	1992	2002	2010	1992	2002	2010
Forest						
Dry Dipterocarp	153,217.35	150,839.19	582,306.84	920,856.99	801,698.02	250,282.01
Dry Evergreen	1,097,101.53	281,129.12	590,368.62	766,750.82	270,127.44	216,255.27

Mixed Deciduous	2,345,013.16	2,746,436.68	4,121,262.84	1,604,150.23	1,471,176.29	2,394,048.86
Gallery Forest	0.00	13,704.23	0.00	0	16,601.47	0
Coniferous	2,669.14	13,696.60	20,498.79	2,383.95	1,510.42	36,734.15
Mixed Coniferous / Broadleaved	0.00	54,067.02	289.41	0	6,712.36	26859.29235
Plantation	0.00		5,415.53	1262.996421	54.21698025	59,503.02
Bamboo	312,980.17	72,889.77	95,188.34	368,293.51	276,564.08	122,897.37
Temporarily unstocked	1,944,243.11	2,227,786.09	1,234,273.17	1,679,968.85	1,987,283.35	2,408,953.03
TOT	5,855,224.45	5,560,548.70	6,649,603.53	5,343,667.35	4,831,727.64	5,515,533.01

5.3 Analysis and processing of national data

5.3.1 Adjustment

See below.

5.3.2 Estimation and forecasting

The figures have been used for linear interpolation and extrapolation.

Categories	Forest area (1000 hectares)						
	1990	1992	2000	2002	2005	2010	2015
Protection of soil and water	5,914.16	5,855.22	5,619.48	5,560.55	6,241.21	6,649.60	7,330.26
Ecosystem services, cultural or spiritual values	5,446.06	5,343.67	4,934.12	4,831.73	5,088.15	5,515.53	5,942.91

5.3.3 Reclassification

National Class	Percentage of a National Class to a FRA Classes	
	%	%
Protection	100	
Social Service		100

5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
CFRQ	Protection of soil and water	5914.16	5619.48	6241.21	6649.6	7330.26
CFRQ	... of which production of clean water	N/A	N/A	N/A	N/A	N/A
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

N/A

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	5446.06	4934.12	5088.15	5515.53	5942.91
...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 2	Tier 2
Ecosystem services, cultural or spiritual values	Tier 2	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
Protection of soil and water	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

<ul style="list-style-type: none"> • Cultural or spiritual values • Public recreation • Spiritual or cultural services • Other 	<p>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</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>
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5.5 Comments

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

Other general comments to the table

N/A

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

Documents for this question:

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

6.1 Categories and definitions

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

6.2 National data

6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Tsechalicha, Xiong and Don Gilmour. 2000. Forest Rehabilitation in LAO PDR- Issues and Constraints. IUCN.	Designation	1990	N/A
2	TFAP. 1990. Tropical Forestry Action Plan, First Phase (1990). Government of LAO PDR. Ministry of Agriculture and Forestry, Vientiane.	Designation	1990	N/A
3	UNEP-WCMC. 2005. World Database on Protected Areas. (http://sea.unep-wcmc.org/wdbpa/)	Conservation Areas	2005	N/A
4	UNEP. 2002. State of Environment 2001- LAO PDR. Bangkok. Thailand (http://www.rrcap.unep.org/reports/soe/laosoe.cfm)	Conservation Areas	1993 and 1995	N/A
5	Record at the Department of Forestry.	Designation	1990 to 2004	N/A

6.2.2 Classification and definitions

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

National Biodiversity Conservation Areas (NBCAs)	Forests and forest lands which are classified for the purpose of preventing species of flora and fauna, nature and other precious things in terms of history, culture, tourism, the environment, education, and scientific research.
N/A	N/A
N/A	N/A
N/A	N/A

6.2.3 Original data

National Landuse Class	NBCA92 National Biodiversity Conservation Area - ha		
	1992	2002	2010
Forest			
Dry Dipterocarp	141,547.99	146,120.33	144,766.30
Dry Evergreen	430,038.95	667,630.96	329,956.22
Mixed Deciduous	2,546,784.75	1,914,454.89	2,054,548.87
Gallery Forest	0.00	511.78	0.00
Coniferous	5,773.96	3,684.09	21,253.17
Mixed Coniferous / Broadleaved	0.00	83,516.53	1,728.02
Plantation	0.00		1,973.87
Bamboo	57,493.72	18,963.77	560.07
Temporarily unstocked	454,881.18	625,019.85	495,812.33
TOT	3,636,520.56	3,459,902.19	3,050,598.84

6.3 Analysis and processing of national data

6.3.1 Adjustment

See below.

6.3.2 Estimation and forecasting



The figures have been used for linear interpolation and extrapolation.

Categories	Forest area (1000 hectares)						
	1990	1992	2000	2002	2005	2010	2015
Conservation of biodiversity	3,777.82	3,636.52	3,601.20	3,459.90	3,204.09	3,050.60	2,794.78
Forest area within protected areas	N/A		N/A		N/A	N/A	N/A

6.3.3 Reclassification

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	3777.82	3601.2	3204.09	3050.6	2794.78
	Forest area within protected areas	N/A	N/A	N/A	N/A	N/A

Tiers

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

Tier criteria

Category	Tier for status	Tier for reported trend
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<ul style="list-style-type: none"> • Conservation of biodiversity • Forests within protected areas 	<p>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</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>
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6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	N/A
Forest area within protected areas	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
N/A	N/A
N/A	N/A
N/A	N/A

7.2.3 Original data

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7.3 Analysis and processing of national data

7.3.1 Adjustment

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

8.2.3 Original data

--

8.3 Analysis and processing of national data

8.3.1 Adjustment

8.3.2 Estimation and forecasting

8.3.3 Reclassification

8.4 Data

Table 8a

Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	74.29	N/A	267.86	N/A	165.91	N/A	99.35	N/A	291.37	N/A
	... of which forest area burned	28.9	N/A	148.12	N/A	84.56	N/A	49.37	N/A	184.61	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	47.24	N/A	118.23	N/A	311.71	N/A	37.57	N/A	76.96	N/A
	... of which forest area burned	12.59	N/A	45.99	N/A	173.81	N/A	7.23	N/A	46.32	N/A

Table 8b

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

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

Outbreak category

1 Insects

2 Diseases

3 Severe weather events

Tiers

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

Tier criteria

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

8.5 Comments

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

Other general comments to the table
N/A

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

Documents for this question:

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

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

Table 9

Category	Area of forest with reduced canopy cover (000 ha)
Reduction in canopy cover	5199.59

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

10.2.3 Original data

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10.3 Data

Table 10

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

10.4 Comments

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

Other general comments

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

Documents for this question:

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

11.1 Categories and definitions

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

11.2 National data

11.2.1 Data sources

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

Table 11

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

Category	Comments related to data definitions etc
National stakeholder platform	There is Forestry Sector Sub-working Group consisting of concerned government agencies, donors/projects, NGO/CSO, which is organized on the quarterly basis. FSSWG is under the Natural Resource and Environment Sector Working Group, which directly reports to the Round Table Process between GOL and donors.

Other general comments

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

Documents for this question:

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

12.1 Categories and definitions

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

12.2 National data

12.2.1 Data sources

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

12.2.2 Classification and definitions

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

12.2.3 Original data

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12.3 Analysis and processing of national data

12.3.1 Adjustment

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12.3.2 Estimation and forecasting



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12.3.3 Reclassification

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12.4 Data

Table 12

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

Tiers

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

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

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

Documents for this question:

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

13.1 Categories and definitions

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

13.2 National data

13.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Same as Topic 1	N/A	N/A	N/A
2	Report on Production Forest Management Plans	Ha,	Every year	There are 51 Production Forest Area Total area is 3,089,177 ha, only 224 sub Forest Management Area, the area is finished 2,236,900 ha about 72 %
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

13.2.2 Classification and definitions

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

13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/remote sensing sample based	Aerial/remote sensing full coverage
Forest inventory	100	2010		yes		yes		yes
Other field assessments	N/A	2012	no		no		no	
Updates to other sources	N/A	N/A						
Expert estimate	N/A	N/A						

Table 13b

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

Other type of forest reporting

Reporting on Production Forest Management Plans

13.4 Comments

Category	Comments
Forest area monitored under a national forest monitoring framework	There has been national forest area survey every 10 years until 2010. The Forestry Law under revision will define national forest inventory including area estimate at every 5 year period.
Forest reporting at national scale	Management Plans will be ready for all Production Forests by end 2015
N/A	N/A

Other general comments

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

Documents for this question:

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

14.1 Categories and definitions

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

14.2 National data

14.2.1 Data sources

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

14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	2236.9
... of which for production	2236.9
... 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	N/A
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Tiers

Category	Tier for status
Forest area with management plan	Tier 2
Percent of area under forest management plan that is monitored annually	N/A

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	yes
2. Operations phase	yes
3. Review of operations	yes

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 2

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
Type of stakeholder inputs	This only applies to the management of production forest.
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	50.79
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	44.99	44.99	12.45	81.62	81.7	82.85	
	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	N/A

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	Forest Develop Fund Division	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

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	N/A	11375	29661764
Public expenditure on forestry	N/A	N/A	40528802
	2000	2005	2010
Name of Local Currency	N/A	LAK	LAK

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	Land law. LAO PDR	Ownership	2003	N/A
2	Forest Law. LAO PDR	Ownership	2007	N/A
3	Southavilay, Thongleua and Tuukka Castrén. 1998. Timber Trade And Wood Flow Study - Lao PDR. Regional Environmental Technical Assistance 5771. Poverty Reduction & Environmental Management in Remote Greater Mekong Subregion (GMS) Watersheds Project (Phase I). LAO PDR.	Ownership	1993 to 1998	N/A
4	N/A	N/A	N/A	N/A

18.2.2 Classification and definitions

National class	Definition
Public ownership	Natural forests and forest lands are the property of the national community whom the state represents in the administration and allocation of individual use and reasonable organisation. Individuals and organisation shall have the right to possess and use any trees, natural forest and forest land provided only that they have received approval from the relevant authorized agency.
N/A	N/A
N/A	N/A
N/A	N/A

18.2.3 Original data

All “Forest” and “Other Wooded land” in Laos belongs to the state (Forest law (1996), Land Law (2003), and Southavilay and Castrén. 1998).

18.3 Analysis and processing of national data

18.3.1 Adjustment









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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	17644.9	16525.99	16869.71	17815.56
	... of which owned by the state at national scale	N/A	N/A	N/A	N/A
	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
	Private ownership	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		17644.90	16525.99	16869.71	17815.56

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 1	Tier 1
Private ownership	Tier 1	Tier 1
Unknown ownership	Tier 1	Tier 1

Tier criteria

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

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	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	N/A	N/A
Other	N/A	N/A	N/A	N/A
TOTAL	.00	.00	.00	.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	N/A	N/A
Other	N/A	N/A

18.5 Comments

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

Management rights	The State assigns rights to use degraded forest lands or defoliated lands to individuals and organizations according to their labor and financial capacity to plant and rehabilitate forests for individuals the area shall not exceed three hectares for each laborer in a family	N/A
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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	Lebedyes, Arvydas. 2004. Trends and current status of the contribution of the forestry sector to national economies. Working Paper FSFM/ACC/07. FOPE. FAO. Rome.	Employment	Lebedyes, Arvydas. 2004. Trends and current status of the contribution of the forestry sector to national economies. Working Paper FSFM/ACC/07. FOPE. FAO. Rome.	N/A
2	UNEP, 2005. Website of UNEP-WCMC (http://sea.unep-wcmc.org/sites/country/lao.htm). 1992 Protected Areas of the World: A review of national systems : Lao People's Democratic Republic.	Employment	UNEP, 2005. Website of UNEP-WCMC (http://sea.unep-wcmc.org/sites/country/lao.htm). 1992 Protected Areas of the World: A review of national systems : Lao People's Democratic Republic.	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

19.2.2 Classification and definitions

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

19.2.3 Original data


Lebedys (2004) has estimated following employment from forestry activities based on round-wood production.


Year	Employment (000 person years)
1990	3
1991	3
1992	2
1993	3
1994	4
1995	5
1996	4
1997	4
1998	3
1999	5
2000	3
2013	3

Only three year average is possible with above data i.e. 1990 to 1992 data for 1990 and 1998 to 2000 data for 2000. It leads to average of 3000 and 4000 person year employment in 1990 and 2000 respectively. All this employment is being treated as production related employment.

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	N/A	N/A	N/A	N/A

	... of which female	N/A	N/A	N/A	N/A
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19.4 Comments

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

Other general comments to the table
N/A

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

Documents for this question:

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

20.1 Categories and definitions

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

20.2 Data

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

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	1296864.59	kip	2011

20.3 Comments

Category	Comments
Gross value added from forestry (at basic prices)	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	Forestry Strategy to the Year 2020 of the LAO PDR	N/A	2005	http://theredddesk.org/sites/default/files/fs_2020.pdf
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
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Government target/aspiration for forest area	<p>The major targets for the forestry sector, which must be achieved to contribute to poverty eradication, are set out in the Forestry Strategy 2020 and can be stated briefly as follows: (i) raise forest cover to 70% of the total land area, by naturally regenerating up to 6 million ha and planting trees up to 500,000 ha in un-stocked forest areas; (ii) provide a sustainable flow of forest products for domestic consumption and export; (iii) preserve the many species and unique habitats; and (iv) conserve the environment. Many important steps have been taken towards achieving these targets, such as the establishment of National Protected Areas (NPA) and Production Forest Areas (PFAs), where sustainable management and forest certification are being up-scaled. The Forest Law, Wildlife and Aquatic Law, and subsidiary Decrees on Production Forest Management have been promulgated, as well as a National Biodiversity Strategy and Action Plan. The Decree on Protection Forest (referred to in this document as Watershed Protection Forest) has been approved by the Prime Minister's Office and was signed on behalf of the National Assembly as Decree No 333/NA on 19th July 2010. A Prime Minister's Decree on Protected Areas has been under development for the past year, by DFRC and DoF, and is currently with Ministry of Justice.</p>
Forests earmarked for conversion	N/A

Other general comments

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