

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Lebanon

Rome, 2014

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

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

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TABLE OF CONTENTS

Report preparation and contact persons.....	4
1. What is the area of forest and other wooded land and how has it changed over time?	6
2. What is the area of natural and planted forest and how has it changed over time?	12
3. What are the stocks and growth rates of the forests and how have they changed?	16
4. What is the status of forest production and how has it changed over time?	25
5. How much forest area is managed for protection of soil and water and ecosystem services?	31
6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?	36
7. What is the area of forest affected by woody invasive species?	39
8. How much forest area is damaged each year?	42
9. What is the forest area with reduced canopy cover?	46
10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?	47
11. Is there a national platform that promotes stakeholder participation in forest policy development?	49
12. What is the forest area intended to be in permanent forest land use and how has it changed over time?	50
13. How does your country measure and report progress towards SFM at the national level?	53
14. What is the area of forest under a forest management plan and how is this monitored?	55
15. How are stakeholders involved in the management decision making for publicly owned forests?	57
16. What is the area of forest under an independently verified forest certification scheme?	59
17. How much money do governments collect from and spend on forests?	61
18. Who owns and manages the forests and how has this changed?	64
19. How many people are directly employed in forestry?	70
20. What is the contribution of forestry to Gross Domestic Product (GDP)?	72
21. What is forest area likely to be in the future	73

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Introductory Text

Place an introductory text on the content of this report

Since 2005, forestry and forest resources topics in Lebanon are evolving distinctly. The first national forest resources assessment was realized in close collaboration with FAO. This assessment was the first in the country, since the last inventory was achieved in 1964. The results were striking, putting Lebanon outside the list of countries with low forest cover. Forests occupy more than 13% of the total area of the country, in addition to 10% of other wooded land.

Accordingly, forestry sector evolved towards reemitting the exploitation of fuel wood and charcoal in broadleaved forests after a decade of prohibition. This change which was partly demand driven, was followed in parallel by the reinforcement of the number of forest guards in order to better control forest exploitation. These decisions enabled the ministry of agriculture to increase the public revenues from forestry sector, as well as the increase of job opportunities related to this field.

On the other hand, coniferous forests exploitation remains far-off due to law restrictions. Consequently, the absence of management resulted into the increase of disturbances in these forests. Insects and fungi outbreaks, winter storms damages and forest fires are more frequent, and more aggressive, thus reducing the biomass and carbon stock of coniferous species.

July war in 2006 was also a major millstone that hampered forestry activities (forest fire fighting, forest management and reforestation), namely in southern Lebanon. Nevertheless, several recovery projects and funds following July war, enabled Lebanon to restore to certain extent its infrastructure in relation to forest fire fighting and reforestation activities. These joined efforts between concerned ministries, donors and NGOs lead to the proposal of a forest fire fighting strategy and a reforestation plan.

The socio-economical conditions had a direct impact on the natural resources (including fuel wood and non-wood forest products), with a higher pressure on these resources coupled with lower public revenues.

Towards the end of 2009, the Ministry of Agriculture adopted a new strategy (2010-2014).

Since then, things have changed drastically. The forest sector gained increased importance and attention and is more and more considered as a national asset.

The new policy of the Ministry of Agriculture considers the forest sector as vital from social, economic and environmental points of view.

A lot of NGOs, municipalities and government institutions are implementing reforestation projects in the country.

In order to organize these reforestation activities, and coordinate those efforts, the Lebanese Government launched the ambitious national initiative to plant 40 million forest trees in public lands within the next 20 years. The inter-ministerial committee which was set up to oversee the programme development and implementation initiated the preparation of a roadmap for this long-term reforestation programme. This roadmap proposes ways of sharing responsibilities and coordination mechanism like partnerships between the different stakeholders.

On the other hand, a National Forest Program in Lebanon is currently in progress.

The next years should witness the execution of the second national forest resources assessment, and forest legislation should be reviewed.

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	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Forests and OWL	2004	N/A

2	Land Cover – Land Use Project (FAO, MOA 2002); based on satellite image 1998	Forests and Other Wooded Lands	1998	N/A
3	Ministry of Environment	Reforestation/ Afforestation	2004/2007	MoE official website and personal communication
4	Ministry of Agriculture	idem	2005-2013	Personal communication
5	NGOs	idem	2005-2013	Personal communication

1.2.2 Classification and definitions

National class	Definition
Forests	Same as FRA.
Other Wooded Lands	Same as FRA
Other Lands	Same as FRA
Reforestation and Afforestation	Artificial plantation of forests in any site, regardless of its previous land use. The site can be already a forest, and reforestation can be an artificial expansion of the original forest, or enrichment into the same area.

1.2.3 Original data

<p>Forest area</p> <p>Data year: 2004 - Source: National Forest and Tree Resources Assessment 2003-2005 (FAO, FRA WP 95)</p> <p>Data year: 1998 – Source: Land Cover-Land Use Programme (FAO - MOA, 2002, satellite image). This source was also used for estimating Other Land with trees.</p> <p>Data year 2004- 2013: Reforestation activities done by the Ministry of Environment, Ministry of Agriculture, NGOs and CBOs.</p> <p>The total information of the land use area classes are expected and estimated based on the total area of the national area country, which is equivalent to 1,045,200 hectares.</p>		
LANDUSE CLASS	1998 (hectares)	2004 (hectares)

Forest	133 712	139 959
Other Wooded Land	119 605	108 378
Other Land	791 589	797 152
...of which with trees (olives and fruit trees)	116 210	116 210
Inland Water	294	294
TOTAL	1 045 200	1 045 200
...of which land area	1 044 906	1 044 906

Forest expansion, deforestation, reforestation

The reforestation plans achieved by the ministry of environment are reported (305ha between 2002 and 2004, and 278ha between 2004 and 2006). Data from NGOs, CBOs and municipalities cannot be accounted in areas.

1.3 Analysis and processing of national data

1.3.1 Adjustment

Forest area

	1000 ha
FAOSTATLandArea	1023
FAOSTAT Country Area	1045
FAOSTAT Inland Water Area (calculated)	22

Calibration done by land area in order to align with FAOSTAT figures:

Calibration factor: $1\,023\,000 / 1\,044\,906 = 0.9790354$

Forest expansion, deforestation, reforestation

No calibration was done.

1.3.2 Estimation and forecasting

Forest area

Data for 1998 was used for 2000 and the data for 2004 used for 2005 and 2010 and 2015. Burned forest area is still considered as a forest. We assume that most of the urbanization occurs in OWL (mainly in fragmented forests of less than 0.5ha) and OL with trees, rather than forests. Besides, no data exists on the recent land cover/land use changes. Reforestation and afforestation reports show an increase of about 400ha of forests on private lands (communal lands).

A running project to update the land cover/land use map based on GEO-I images dated 2011 and above. The results are expected end of 2014.

Forest expansion, deforestation, reforestation

Natural expansion as well as recent artificial plantations of forests cannot be assessed before a second National Resources Assessment or another Remote sensing interpretation.

1.3.3 Reclassification

Forest area



Land classification for FRA 2015 remains the same as for 2005.

Forest expansion, deforestation, reforestation

We considered that in most cases, plantation activities occur in areas where forests were absent for at least 50 years. Thus, artificial plantations are mostly considered as afforestation activities.

1.4 Data

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	131	131	136.5	136.9	137.3
	Other wooded land	117	117	106	106	106











	Other land	775	775	780.5	780.1	779.7
	... of which with tree cover	114	114	114	114	114
	Inland water bodies	22	22	22	22	22
	TOTAL	1045.00	1045.00	1045.00	1045.00	1045.00

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	0.305	0.278	N/A	0	0	0	N/A
	... of which natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Deforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which artificial	0	0	0	N/A	0	0	0	N/A

Tiers

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

Tier criteria

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

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	The forest definition and data source remain as those of 2004 Forest resources assessment.	The slight increase in forest area is due to the reforestation activities by municipalities in communal lands
Other wooded land	idem	N/A
Other land	idem	Other land is calculated by the difference
Other land with tree cover	The ministry of agriculture annual statistical reports are used to estimate the variation in the area of this category.	No changes in the area of this sub-category
Inland water bodies	N/A	No changes
Forest expansion	Afforestation and Reforestation are merged in one definition in Lebanon. However all plantation activities can be considered as afforestation, since plantations occur in land that have not been classified as forest for more than 50 years	Natural expansion of forest increased for the last decades as forests expanded due to abandon of agricultural land, war or displacement of people.
Deforestation	N/A	N/A
Reforestation	N/A	Reforestation programs are funded by several projects, the government and municipalities.

Other general comments to the table

Forest area The FAO National Forest and Tree Resources Assessment 2003-2005 (FAO, FRA WP 95) project has resulted in precise data that was used for FRA 2005-2010-2015 reporting processes. Another assessment is expected in 2015, which would be used for further FRA reporting process. Forest expansion, deforestation, reforestation Despite, the changes that affected forests and other wooded lands' definitions, it is estimated that natural expansions contributed along with early afforestation programs realized by MoA (2000ha approx.), in increasing the forest cover in Lebanon from 7% (1964) to 13.4% (2005) of the total area of the country

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	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	All Categories	2004	N/A
2	Ministry of Environment	Planted forest	2008	N/A
3	N/A	N/A	N/A	N/A

4	N/A	N/A	N/A	N/A
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2.2.2 Classification and definitions

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

2.2.3 Original data

National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903) for Stone pine stands, and Ministry of Environment reports on the reforestation plans (www.moe.org.lb). Field survey following the National Forest and Tree Resources Assessment in 2005 and the derived forest map enabled us to estimate former artificial plantations surface. *Pinus pinea* forests are all planted and cover 7776ha. Other artificial plantations realized by MoA Green Plan activities (mainly local conifer species) occupy about 1990 ha. MoE reforestation program has already an area of 400 ha.

Since 2010, an estimate of 400 ha artificial plantations were done by MoA, MoE, and NGOs.

2.3 Analysis and processing of national data

2.3.1 Adjustment

The areas are multiplied by the calibration factor: 0.9790354

2.3.2 Estimation and forecasting

Except stone pine stands and other artificial plantations all the forests fall under the naturally regenerated forests. Besides the data showing the area of artificial plantations cited above, we estimate that NGOs, CBOs and municipalities plantations (after 2005) cover about 150ha.

2.3.3 Reclassification

2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
CFRG	Primary forest	N/A	N/A	0	0	0
CFRG	Other naturally regenerated forest	N/A	N/A	126.4	126.4	126.4
CFRG	... of which of introduced species	N/A	N/A	0	0	0
CFRG	... of which naturalized	N/A	N/A	N/A	N/A	N/A
CFRG	Planted forest	N/A	N/A	10.1	10.5	10.9
CFRG	... of which of introduced species	N/A	N/A	7.7	7.8	N/A
TOTAL		.00	.00	136.50	136.90	137.30

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 3	Tier 2
Other naturally regenerated forest	Tier 3	Tier 2
Planted forest	Tier 3	Tier 2
Mangroves	Tier 3	Tier 2

Tier Criteria

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

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	N/A
Other naturally regenerating forest	N/A	N/A
Planted forest	Includes the reforestation and afforestation plans and added to the areas as derived from the forest map (FRA, 2005) and field surveys.	Slightly increasing, due to the efforts of the government, municipalities, NGOs, CBOs and individuals...
Mangroves	N/A	N/A

Other general comments to the table

All forests have been historically subject to human intervention in Lebanon, which is resumed in the absence of primary forests. For instance all broadleaved forests are classified as Other naturally regenerated forests. Local coniferous species (*Pinus brutia*, *P. halepensis*, *Cedrus libani*, *Abies ciliciqua*, *Juniperus* spp. and *Cupressus sempervirens*) are either naturally regenerated or planted. Introduced species like *Pinus pinea*, *P. nigra*, *P. canariensis*, *C. arizonica*...etc. are all planted. However, except for *P. Pinea* which was introduced centuries ago, and planted on a large scale, the other species remain insignificant inside forests. Natural regeneration of introduced species is not observed.

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	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Volume Growing stock of tree species, Biomass stock of tree species	2004	N/A
2	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Carbon stock	2004	N/A
3	N/A	N/A	N/A	N/A

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

National class	Definition
Growing stock	Volume over bark of all living trees more than 10 cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to top of bole.
Above Ground Biomass	Same as FRA 2015
Below Ground Biomass	All living biomass of live roots (root diameter above 2mm).
Dead wood	All non living woody biomass, not contained in the litter, either standing, lying on the ground or in the soil. It includes dead roots lying on the surface and stumps larger than 10cm of diameter.
Carbon in above-ground biomass	Same as FRA 2015
Carbon in below-ground biomass	Carbon in all living biomass of live roots (root diameter above 2mm).

3.2.3 Original data

Growing stock		
The national forest assessment gives the following data for 2004		
Land Use	Volume (m ³ /ha)	Total volume (m ³)
Forest	35.6	4,967,361
Other Wooded Lands	5.1	550,777
Other Lands	3.7	2,984,537
Total		
Note: The following form factors were used to calculate the volume of the tree trunks. Default values of 0.5 for broadleaves, 0.7 for conifers and 0.55 for fruit trees.		
Biomass stock		

Tables in questions 1 and data on growing stock were used for the calculation of biomass.

Carbon stock

Question 1 and data on growing and biomass stock were used for the calculation of carbon stock. Data is only available for 2005 and 2010.

3.3 Analysis and processing of national data

3.3.1 Adjustment

Growing stock

The values of growing stock composition are multiplied by the calibration factor: 0.9790354 for area correction.

Biomass stock

No calibration needed since surface areas are not needed for the calculation.

Carbon stock

No calibration is needed since the original data for surface has been calibrated (Question 1).

3.3.2 Estimation and forecasting

Growing stock

The data for 2004 have been used for the reporting year 2005. No data are available for 1990 and 2000. The forecasting for 2010 and 2015 takes into consideration the trend as observed in neighbouring countries (Syria) or countries having comparable conditions (Tunisia). A biomass increase of about 5% in forests and 3% in OWL for the past five years is estimated. We estimated that wood removal is counter parted by the increase in forest areas.

Biomass stock

The growing stock data and wood density were used to obtain the stem biomass. Wood density has been obtained from FAO and neighbouring countries for some specific species. For the remaining coniferous and broad-leaved are taken respectively equal to 0.4 and 0.5. A biomass expansion factor has been applied to the stem biomass to calculate the above ground biomass. For this factor, the value of 1.3 is used for the coniferous, and the

value of 1.4 is applied for the broad-leaved. The Root-shoot ratio is equal to 0.27, as we consider Lebanon as the subtropical dry forest. By multiplying the above ground biomass by this ratio we obtain the below ground biomass.

Growing stock of years 1990 and 2000 are not available. For the year 2010 and 2015, the calculation will be the same as for 2005, and adjusted only to the changes in surface area.

There are no available data or estimated about dead wood weight in Lebanon.

Carbon stock

It is calculated by multiplying respectively the above-ground biomass and the below ground biomass with the default value for carbon content in living biomass (47% = 0.47 ton carbon per ton dry weight (Biomass)). Carbon found in the litter and in the soil, as well as soil depth are estimated using the empirical factors as set by the IPCC guidelines for warm temperate dry climates and predominant HAC soils.



3.3.3 Reclassification

Growing, biomass and carbonstock

The national data is according to FRA 2010 categories.

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	N/A	N/A	4.863	5.097	5.35	N/A	N/A	0.533	0.548	0.563
	... of which coniferous	N/A	N/A	3.466	3.639	3.82	N/A	N/A	0.382	0.394	0.405


	... of which broadleaved	N/A	N/A	1.397	1.458	1.53	N/A	N/A	0.151	0.154	0.158
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Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	Pinus pinea	Snawbar mothmer (stone pine)	N/A	N/A	1.518	1.59
2 nd	Pinus brutia	Yarz (Brutia pine)	N/A	N/A	1.273	1.34
3 rd	Quercus cerris	Azr (Turkish oak)	N/A	N/A	0.94	0.99
4 th	Cedrus libani	Arz (Cedar of Lebanon)	N/A	N/A	0.304	0.32
5 th	Juniperus excelsa	Lezzab (Juniper)	N/A	N/A	0.284	0.3
6 th	Quercus infectoria	Aafs (oak)	N/A	N/A	0.182	0.19
7 th	Quercus calliprinos	Sendian (Live oak)	N/A	N/A	0.173	0.18
8 th	Juniperus drupacea	Defran (Juniper)	N/A	N/A	0.088	0.09
9 th	Platanus orientalis	Delb (Oriental plane)	N/A	N/A	0.019	0.02
10 th	Ostrya carpinifolia	Shrekk (Hope horn bean)	N/A	N/A	0.016	0.02
Remaining			N/A	N/A	0.066	0.07
TOTAL			.00	.00	4.86	5.11

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)	10cm	N/A
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	N/A	to the top of bole
Minimum diameter (cm) of branches included in growing stock (W)	N/A	branches not included
Volume refers to above ground (AG) or above stump (AS)	AS	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
CFRQ	Net annual increment	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which coniferous	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which broadleaved	N/A	N/A	N/A	N/A	N/A

Table 3d

Category		Biomass (million metric tonnes oven-dry weight)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
CFRQ	Above ground biomass	N/A	N/A	2.78	2.913	2.913	N/A	N/A	0.304	0.313	0.322
CFRQ	Below ground biomass	N/A	N/A	0.751	0.775	0.78651	N/A	N/A	0.082	0.084	0.087
CFRQ	Dead wood	N/A	N/A	0	0	N/A	N/A	N/A	0	0	N/A
TOTAL		.00	.00	3.53	3.69	3.70	.00	.00	.39	.40	.41

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
CFRQ	Carbon in above ground biomass	N/A	N/A	1.307	1.369	1.369	N/A	N/A	0.143	0.147	0.151
CFRQ	Carbon in below ground biomass	N/A	N/A	0.353	0.364	0.37	N/A	N/A	0.039	0.039	0.041

	<i>Subtotal Living biomass</i>	N/A	N/A	1.66	1.733	1.739	N/A	N/A	0.182	0.186	0.192
	Carbon in dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	N/A	N/A	2.933	2.941	2.95	N/A	N/A	2.109	2.109	2.115
	<i>Subtotal Dead wood and litter</i>	N/A	N/A	2.933	2.941	N/A	N/A	N/A	2.109	2.109	N/A
	Soil carbon	N/A	N/A	5.078	5.093	5.108	N/A	N/A	3.944	3.944	3.956
TOTAL		.00	.00	9.67	9.77	9.80	.00	.00	6.23	6.24	6.26

Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 3	Tier 1
Net annual increment	N/A	N/A
Above ground biomass	Tier 3	Tier 1
Below ground biomass	Tier 3	Tier 1
Dead wood	N/A	N/A
Carbon in above-ground biomass	Tier 1	Tier 1
Carbon in below ground biomass	Tier 1	Tier 1
Carbon in dead wood and litter	Tier 3	Tier 1
Soil carbon	Tier 3	Tier 1

Tier criteria

Category	Tier for status	Tier for reported trend
Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other

Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier 1: Other
Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Carbon in above ground biomass • Carbon in below ground biomass • Carbon in dead wood and litter • Soil carbon 	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors 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	There was an error in the calculation in 2005. Figures do not include trees with diameters lesser than 10cm, which also integrates the expansion in forest areas due to reforestation/afforestation activities since 2003.	The forecasting for 2010 takes into consideration the trend as observed in neighbouring countries (Syria) or countries having comparable conditions (Tunisia). A biomass increase of about 5% in forests and 3% in OWL for the past five years is estimated.
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	Biomass increasing due to increment in diameter and height of trees,
Below-ground biomass	N/A	N/A
Dead wood	Dead wood is estimated about 1.5 tons per hectare from an ongoing study in P. brutia stands. FRA 2005 showed that 1-4% of tree invidious are dead inside forests. However, there are no estimates about the weight of dead trees.	Dead wood would increase due to the increasing frequency and amplitude of forest fires.
Carbon in above-ground biomass	The IPCC guidelines do not cover OWL. Therefore, we counted them as forests.	N/A

Carbon in below-ground biomass	The IPCC guidelines do not cover OWL. Therefore, we counted them as forests.	N/A
Carbon in dead wood	N/A	N/A
Carbon in litter	The estimations using the IPCC guidelines could overestimate the stock, since soil depth average in Lebanon is less than 30cm in most forests.	N/A
Soil carbon	We considered all soils as LAC, and all the country as warm temperate dry, which do not take into account the high variability of soil and climatic conditions of Lebanon.	N/A

Other general comments to the table

Empirical factors are still used for all species. A first study is being conducted on *P. brutia* in order to define its wood density, volume mass, correction factor and so forth, for better estimation of the volume, growing stock, biomass and carbon. Only a second National Forest Resources assessment can give an acute idea about volume increment in forests and OWL. The formula was reviewed in accordance with the technical advice provided in Alexandria; estimate was made about the increase of the growing stock due to height and diameter growth of trees (see 3.3.2, growing stock).

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	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Designated functions	2004	No new accurate data is available
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

4.2.2 Classification and definitions

National class	Definition
Production	n.a.

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

4.2.3 Original data

Designation/protection status	Forests (ha)	OWL (ha)
Production	123814	103717
Natural Reserve	3 624	3 360
Protection	12521	1301
Total	139 959	108 378

4.3 Analysis and processing of national data

4.3.1 Adjustment

The areas are multiplied by the calibration factor: 0.9790354

4.3.2 Estimation and forecasting

The data for 2004 have been used for the reporting years 2005 and 2010 and 2015. No data are available for 1990 and 2000.

4.3.3 Reclassification

Pinus pinea is reclassified as “production” forest. Broadleaved and mixed forests are reclassified under “the “multiple use” category.

4.4 Data

Table 4a



Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	N/A	N/A	7.8	8	N/A
	Multiple use forest	N/A	N/A	91	91	N/A

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	74.16	0
1991	73.96	0
1992	80.28	N/A
1993	83	N/A
1994	85.19	N/A
1995	87.18	N/A
1996	89.07	N/A
1997	90.46	N/A
1998	89.96	N/A
1999	25.23	N/A

2000	26.22	N/A
2001	26.21	N/A
2002	26.2	N/A
2003	26.19	N/A
2004	26.18	N/A
2005	26.17	N/A
2006	26.05	N/A
2007	26.05	N/A
2008	26.05	N/A
2009	26.05	N/A
2010	26.02	N/A
2011	26.02	N/A

Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 2	Tier 1
Multiple use forest	Tier 2	Tier 1

Tier Criteria

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

4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	Concerns Pinus pinea stands dedicated to pine nut production.	N/A
Multiple use forest	Includes mainly broadleaved and mixed forests where no clear primary designated function exists.	N/A
Total wood removals	N/A	N/A

Commercial value of NWFP	N/A	N/A
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Other general comments to the table

In addition to being productive, forests and OWL play all the functions of protection of soil and water and social services. However, the primary designated function remains unclear in Lebanon, since it varies with time period, and multiple uses are often seen in forests. Ministerial decrees and code 85 hamper timber exploitation. Besides conservation of biodiversity, the protected forests and reserves play a multiple function as well, since they cover services such as protection of soil and water and social services.

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

Documents for this question:

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

5.1 Categories and definitions

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

5.2 National data

5.2.1 Data sources

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

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

5.2.2 Classification and definitions

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

5.2.3 Original data

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5.3 Analysis and processing of national data

5.3.1 Adjustment

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5.3.2 Estimation and forecasting




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5.3.3 Reclassification

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5.4 Data

Table 5a

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

	... of which desertification control	N/A	N/A	N/A	N/A	N/A
	... of which avalanche control	N/A	N/A	N/A	N/A	N/A
	... of which erosion, flood protection or reducing flood risk	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

Other

N/A

Table 5b

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

Tiers

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

Tier criteria

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

5.5 Comments

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

Other general comments to the table

N/A

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

Documents for this question:

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

6.1 Categories and definitions

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

6.2 National data

6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Designated functions	2004	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

6.2.2 Classification and definitions

National class	Definition
Natural Reserve	Full protection by law, under the administration of the Ministry of Environment
Protection	Forests can be protected from grazing and cutting and any other disturbing activities under several laws related to the ministry of agriculture. However, this protection is periodical and demand driven (by land owners)
Coniferous protection	The law (code 85) prohibits tree cutting of coniferous species in forests, even in private forests and OWL. However, exclusions are allowed for urbanization, public works, public danger and insects' breakouts.
N/A	N/A

6.2.3 Original data

Designation/protection status	Forests (ha)	OWL (ha)
Production	123814	103717
Natural Reserve	3 624	3 360
Protection	12521	1301
Total	139 959	108 378

6.3 Analysis and processing of national data

6.3.1 Adjustment



6.3.2 Estimation and forecasting

6.3.3 Reclassification

Cedrus libani and forests in natural reserves fits under “biodiversity conservation” category.

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	N/A	N/A	3.5	3.5	3.5
	Forest area within protected areas	3.5	3.5	3.5	3.5	3.5

Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 3	Tier 1

Forest area within protected areas	Tier 3	Tier 1
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Tier criteria

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

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	The protected forests under the ministry of Environment have a major scope the conservation of biodiversity. The remaining cedar stands are added to this category.	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	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	disturbance	2004	No sub-categories according to the kind of disturbance
2	State of Lebanon's forests, AFDC	disturbance	2007	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

There is no calibration needed for this section.

7.3.2 Estimation and forecasting

7.3.3 Reclassification

There is no reclassification needed, since FRA categories are adopted.

7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
1. n.a.	0	0
2.	N/A	N/A
3.	N/A	N/A
4.	N/A	N/A
5.	N/A	N/A
6.	N/A	N/A
7.	N/A	N/A
8.	N/A	N/A
9.	N/A	N/A
10.	N/A	N/A
Total	0	0

Tiers

Category	Tier for status	Tier for reported trend
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Invasive species	Tier 3	Tier 1
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Tier Criteria

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

7.5 Comments

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

Other general comments to the table

No invasive woody species exists in forests in Lebanon.

8. How much forest area is damaged each year?

Documents for this question:

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

8.1 Categories and definitions

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

8.2 National data

8.2.1 Data sources

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

8.2.2 Classification and definitions

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

8.2.3 Original data

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8.3 Analysis and processing of national data

8.3.1 Adjustment

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8.3.2 Estimation and forecasting

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8.3.3 Reclassification

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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	0.73	N/A	0.48	N/A	0.44	N/A	4.62	N/A	1.23	N/A
	... of which forest area burned	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	0.17	N/A	2.8	N/A	0.73	N/A	0.25	N/A	0.59	N/A
	... of which forest area burned	0	N/A	0	N/A	0	N/A	0	N/A	0	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
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
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	0.6225082271

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

--

10.3 Data

Table 10

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

10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	Ministry of Agriculture strategy
Legislation and regulations supporting sustainable forest management	Forest code 1949- ministerial decisions.

Other general comments

--

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

Documents for this question:

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

11.1 Categories and definitions

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

11.2 National data

11.2.1 Data sources

	References to sources of information	Years	Additional comments
1	Inter-ministerial committee for forests	2013	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

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

11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	The established Inter-ministerial Committee will be a long lasting arrangement and strengthened with all tools and means to play the role of statutory body to the MoA for the development, planning, and implementation of the NARP (National Afforestation/Reforestation Programme) providing political backing and guidance to the Programme on policy and legal matters and possibly on technical issues. It will function as platform for stakeholders' participation.

Other general comments

--

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

Documents for this question:

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

12.1 Categories and definitions

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

12.2 National data

12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Designated functions	2004	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

12.2.2 Classification and definitions

National class	Definition
Natural Reserve	Full protection by law, under the administration of the Ministry of Environment
Coniferous protection	The law (code 85) prohibits tree cutting of coniferous species in forests, even in private forests and OWL. However, exclusions are allowed for urbanization, public works, public danger and insects' breakouts.
N/A	N/A
N/A	N/A

12.2.3 Original data

12.3 Analysis and processing of national data



12.3.1 Adjustment

12.3.2 Estimation and forecasting

12.3.3 Reclassification

12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	
	... of which permanent forest estate	20

Tiers

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

Tier Criteria

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

12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	N/A
Permanent forest estate	<p>Conifer forests protected by law (code 85), that are not included into natural reserves and protected areas, and are not subject to cutting for urbanization and land reclamation. If we consider the protected conifer forests and natural reserves all together, and do not take into account the illegal cuttings, and forest fires we can have as permanent estate forests about 20000ha: - 11000ha of fir and junipers (outside natural reserves) - 7000ha of stone pine for production - 2000 Other forests (mainly mixed forests but outside natural reserves) The conifer forests are protected by law (code 85) since 1996, any law amendment can change the status of these forests, especially those that are not situated into natural reserves. Otherwise we can have a total area of permanent estate forests of about 20000ha, starting year 2000 (in 1990 this law didn't exist)</p>

Other general comments

--

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

Documents for this question:

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

13.1 Categories and definitions

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

13.2 National data

13.2.1 Data sources

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

13.2.2 Classification and definitions

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

13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/remote sensing sample based	Aerial/remote sensing full coverage
Forest inventory	N/A	N/A						
Other field assessments	N/A	N/A						
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	
2 Periodic national state of the forest report	
3 Other (please document)	
4 None	

Other type of forest reporting
N/A

13.4 Comments

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

Other general comments

--

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

Documents for this question:

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

14.1 Categories and definitions

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

14.2 National data

14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Designated functions	2004	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

14.3 Data

Table 14a

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

Table 14b

Indicate which (if any) of the following are required in forest management plans in your country

1 Soil and water management	
2 High conservation value forest delineation	
3 Social considerations community involvement	

Table 14c

Percent of area under forest management plan that is monitored annually	N/A
--	------------

Tiers

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

Tier criteria

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

14.4 Comments

Category	Comments
Forest area with management plan	Some kind of sustainable forest management plans in some regions is present but accurate data not available.
N/A	N/A
N/A	N/A

Other general comments

--

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

Documents for this question:

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

15.1 Categories and definitions

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

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	yes
2. Operations phase	
3. Review of operations	

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 3

Tier criteria

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

15.2 Comments

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

Other general comments

table 15 1. An inter-ministerial committee was set up in 2013 for forests related issues including many stakeholders.

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

Documents for this question:

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

16.1 Categories and definitions

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

16.2 Data

Table 16a













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

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	1.Name	0	0	0	0	0	0	0
	2.Name	0	0	0	0	0	0	0
	3.Name	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
	1.Name	0	0	0	0	0	0	
	2.Name	0	0	0	0	0	0	
	3.Name	0	0	0	0	0	0	

Tier criteria

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

Tiers

Category	Tier for status
International forest management certification	Tier 3
Domestic forest management certification	Tier 1

16.3 Comments

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

Other general comments

--

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

Documents for this question:

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

17.1 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose revenue include: <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	MoA	Forest revenue, Forest expenditure	2007-8 2010-2012	N/A
2	MoE	Forest expenditure	2007-8	N/A
3	Consultant on Forest revenue and expenditure	N/A	2010-2012	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	1513000000	620314513500
Public expenditure on forestry	N/A	107882333333	2276400000
	2000	2005	2010
Name of Local Currency	Lebanese Pounds	Lebanese Pounds	Lebanese Pounds

17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	The figure reported under 2005 refer to year 2008 and not to 2005. Includes only revenues of MoA and municipalities. It does not include entrance fees to protected areas and natural reserves. Could decrease due to the economical crisis Figure for 2010: Revenue from: Fuel wood (1732500000) - Charcoal (1425000000) - Pine Kernels (551016000000)-Honey (16511667000) - AMP (2424000000) - Carob (1411429500) - Grazing (6150000000) - Hunting (12799500000) - Cultural services (14019417000)
Public expenditure on forestry	Year 2008 and not 2005 Includes all services and activities implemented in forests, as well as the operational cost and salaries of forestry staff. Salaries have increased in 2008, leading to an increase in operational expenditure All payments transferred to contractors from either domestic or external funds, from public authorities or projects under these authorities External funding rose mainly after July war in 2006, as many emergency projects and rehabilitation funds were ensured after Stockholm meeting that followed the war. These funds came mainly from International organizations (GEF/Lebanese Rehabilitation Fund/UNDP/FAO/GTZ)...
Other general comments	N/A

Other general comments

National data

All data comes from the archive of the Ministry of Agriculture/directorate of rural development and natural resources (years 2007-2008), as well as from the ministry of Environment for the same years.

Communal land exploitation (bidding)	1478500000 LP (average 2007-2008)
Tree cutting and charcoal production licences	34500000 LP (450 licences for about 6000t in 2008)
Forestry activities in communal lands (reforestation, maintenance...)	492833333 LP (one third of the communal land revenue in 2007-08)
Operational expenditure (MoA, MoE)	3812000000 LP (average 2007-2008)
Transfer payments (MoA, MoE, donors, international organizations to private sector and NGOs...)	2350900000 LP (average 2007-2008)
Domestic funding	5404733333 LP (2008)
External funding	5688000000 LP (2008)

We estimate that forest revenues are underestimated because of leakage of controlled revenues from exploited communal lands. All this leakage is estimated to reach up to 30% of the forest revenue. Values tend to decrease because of the economical crisis and the pressure on the natural resources, which makes the authorities obliged to accept the accorded low prices during bids, or even deliver permits to exploit the natural resources for free without retrieving any charge (fuel wood, fodder, non-wood forest products...). External funding tends to decrease, as most of the funds came after July war in 2006, as recovery or rehabilitation funds.

Table 17

FRA 2015 category	Revenues/ expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	n.a	n.a*	620314513500**
Public expenditure on forestry	n.a	10788233333	To be determined***

*figure for 2008: 1513000000 LP-

** Revenue from: Fuel wood (1732500000) - Charcoal (14250000000) - Pine Kernels (551016000000)-Honey (16511667000) - AMP (2424000000) - Carob (1411429500) - Grazing (6150000000) - Hunting (12799500000) - Cultural services (14019417000).

*** Ministry staff salaries (2276400000) - Technical equipment (???) - Pesticides (???) - Land Maintenance (???) - Reforestation (???)

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	National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903)	Ownership and management rights	2004	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

18.2.2 Classification and definitions

National class	Definition
Private	Forest owned by individuals, private co-operatives, corporations and other business entities, private religious institutions (waqf)
State	Forest owned by the Republic of Lebanon, in all its institutions including the government cabinet, the ministries, the public institutions, the army...etc. It includes also forests where the local community has a historical or legal right of using this forest.
municipality	Forest owned by the municipality, union of municipalities, or the population (community) of the concerned villages or towns (machaa)
community	Forest owned by a tribe, or a family without having a clear share of its members (waqf thurri)
Not Known	Areas where the owner of the forest could not be known.

18.2.3 Original data

National Forest and Tree Resources Assessment and Monitoring (FAO, TCP/LEB/2903) final report p.13 as well as the reforestation plans added to these figures (in municipality or communal lands).	
Land tenure	(ha)
Private	84,183
State	38,189
Municipality	14521
Community	1,672

Not Known	1,394
Total	139,959

18.3 Analysis and processing of national data

18.3.1 Adjustment

Calibration factor (as explained in Question 1): 0.9790354
--

18.3.2 Estimation and forecasting








Data for 2004 was used for 2005 and 2010 and 2015 with no change. The category “unknown” was integrated with the private ownership, since the private sector is the major land owner. The religions institutions (Waqf) own a significant part of private forests. Their estimation is rough and reaches about 35% of the total private forests.
--

18.3.3 Reclassification

National category	Corresponding FRA 2010 Category	Surface
State	Public ownership	37388
Private, Not Known	Private ownership	99636
	...of which Individuals	47745
	... of which Private business entities and institutions	34673
Municipality	of which Local communities	14216
Community	... of which Indigenous / tribal communities	1637
	Other types of ownership	

18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	N/A	35.9	37.4	37.4
	... 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	N/A	93.7	97.6	97.6
	... of which owned by individuals	N/A	45.8	47.7	47.7
	... of which owned by private business entities and institutions	N/A	33.3	34.7	34.7
	... of which owned by local, tribal and indigenous communities	N/A	14.6	15.2	15.2
	Unknown ownership	N/A	1.4	1.5	1.5
TOTAL		.00	131.00	136.50	136.50

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 2	Tier 1
Private ownership	Tier 2	Tier 1
Unknown ownership	Tier 2	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	35.9	37.4	37.4
Individuals	N/A	0	0	0
Private companies	N/A	0	0	0
Communities	N/A	0	0	0
Other	N/A	0	0	0
TOTAL	.00	35.90	37.40	37.40

Category	Tier for reported trend	Tier for status
Public Administration	Tier 1	Tier 2
Individuals	Tier 1	Tier 2
Private companies	Tier 1	Tier 2
Communities	Tier 1	Tier 2
Other	Tier 1	Tier 2

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	N/A	N/A
Private ownership	The communal land is accounted with the private sector.	Most of the reforestation and afforestation activities are accounted into communal land. Hence, forest surfaces tend to increase in communal lands and private lands.
Unknown ownership	N/A	N/A

<p>Management rights</p>	<p>Definition of management rights of individuals, tribes and communities are similar to those of FRA however, they are not applied or estimated due to the absence of management plans and lack of law enforcement.No written evidence exists about these rights, and this issue remains a hot spot and a matter of litige and conflict between the government and local communities. The meaning of “historically managed” is actually “historically used” without any management plan...</p>	<p>Law 85 prohibits cutting in all conifer forests, including juniper forests which in majority are state forests, NGOs in close collaboration with the concerned ministry are looking forward reactivating management rights in public land.</p>
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Other general comments to the table

In what concerns table 18b, there are no defined holders of management rights of public forests. Nevertheless, many public forests are historically exploited and sometimes illegally by individuals or communities. There is no clear data about the forest area managed under these conditions.

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	MoE	Employment in the management of protected areas	2008	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

19.2.2 Classification and definitions



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

19.2.3 Original data

Original data is based on Tables 11 and 12 of the corresponding FRA 2010 country report.

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	N/A	N/A	1.785	N/A
	... of which female	N/A	N/A	N/A	N/A

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	Concerns only employment for the exploitation of forest trees: fuel wood (including charcoal) and pine nuts. Paid employment / self-employment Does not include shepherds, beekeepers, landowners, plant and animal collectors, hunters and secondary users...	This trend is to increase with the higher demand on fuel wood and pine nuts, especially in deprived areas. Paid employment / self-employment The trend of such employment is decreasing since people are not keen to work in forestry and agricultural activities that are less remunerating than other type of employment

Other general comments to the table

Since there is no syndicate that integrates all workers in the forestry sector, and since forestry is not a major income resource in Lebanon, it is rarely the only generated income by families, and thus difficult to estimate.

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)	N/A	NA	NA

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	The 40 million tree project	N/A	2013	N/A
2	ROADMAP 2030 A Practical Guide to 7% Increase of the Forest Cover in Lebanon	N/A	2013	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	146.911

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	20% of Lebanon total area.Launching of the 40 million tree project.
Forests earmarked for conversion	N/A

Other general comments
