



Forestry Department

Food and Agriculture Organization of the United Nations

**GLOBAL FOREST RESOURCES
ASSESSMENT 2010**

COUNTRY REPORT

JORDAN

**FRA2010/105
Rome, 2010**



The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site (www.fao.org/forestry/fra).

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person for matters related to FRA 2010 is:

Mette Løyche Wilkie
Senior Forestry Officer
FAO Forestry Department
Viale delle Terme di Caracalla
Rome 00153, Italy

E-mail: Mette.LoycheWilkie@fao.org

Readers can also use the following e-mail address: fra@fao.org

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The Global Forest Resources Assessment Country Report Series is designed to document and make available the information forming the basis for the FRA reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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Report preparation and contact persons

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

Name (FAMILY NAME, First name)	Institution / address	E-mail	Fax	Tables
Al- Rahahleh, Laith	Ministry of Agriculture	laithrahahleh@yahoo.com	+9626-5337929	

Introduction

Jordan is located about 80 km east of the Mediterranean Sea between Latitudes 29° to 33° north, and 34° to 39° east. The area of land is approximately 88778 km² (DOS,2003), while the area of water bodies is around 482 km² including the dead sea, and Aqaba bay. Altitude ranges from less than 400 m below sea level at the surface of Dead Sea up to 1750 m in Jebel Rum. The climate varies from dry sub-humid Mediterranean in the north-west of the country with annual rainfall of about 600 mm to desert conditions with annual precipitation less than 50 mm. In Jordan, natural forests comprise less than 1% of total country area and are distributed, and concentrated in the west strip which has sufficient amount of annual rainfall.

1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2010 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 <i>in situ</i> . 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 <i>in situ</i> ; 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”.
Other land with tree cover (Subordinated to “Other land”)	Land classified as “Other land”, spanning 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.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Al Daqish, M, A and Nsour, M	M	Forest area , ownership and Characteristics	2005	A set of tables prepared for FRA 2005 project based on good estimates.
Ministry of Agriculture statistics, department of land and surveys	M	Forest Vegetation	1990	For state forests vegetation information were gathered from Ministry of Agriculture statistics, department of land and surveys
Ministry of Agriculture statistics, department of land and surveys	M	Privately owned land covered with forest trees	2000	Information from Ministry of Agriculture , owned land covered with forest trees converted to agriculture land
Annual reports, Ministry of Agriculture statistics	M	Forest area ownership	<u>2007</u>	Information from the annual reports of Forestry department.

1.2.2 Classification and definitions

National class	Definition
Forest	Same as FRA.
Other wooded land	Same as FRA.

There is no classification system but lands with rainfall less than 200mm is considered as range land which occupies more than 90% of the total area of Jordan according to the agriculture law # 44 for 2002.

1.2.3 Original data

Data were taken from the latest Ministry of Agriculture report 2007.

1.3 Analysis and processing of national data

1.3.1 Calibration

Not necessary as the UN/FAOSTAT figures on country and land area have been used.

1.3.2 Estimation and forecasting

The same figures were used for all reporting years.

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	97.5	97.5	97.5	97.5
Other wooded land	51	51	51	51
Other land	8675.5	8675.5	8675.5	8675.5
...of which with tree cover	222	222	222	222
Inland water bodies	54	54	54	54
TOTAL	8878	8878	8878	8878

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	In Jordan, most of forests do not reach more than 5 m at maturity age, but we consider them as forest.	
Other wooded land		
Other land	Olive and orchard trees are considered as other wooded land.	
Other land with tree cover		
Inland water bodies		

Other general comments to the table

Expected year for completion of ongoing/planned <u>national forest inventory and/or RS survey / mapping</u>	
Field inventory	n. a
Remote sensing survey / mapping	n. a

2 Table T2 – Forest ownership and management rights

2.1 FRA 2010 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.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Individuals (sub-category of Private ownership)	Forest owned by individuals and families.
Private business entities and institutions (sub-category of Private ownership)	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities (sub-category of Private ownership)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities (sub-category of Private ownership)	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
Categories related to the holder of management rights of public forest resources	
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 institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit 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.

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Annual reports, Ministry of Agriculture	M	Forest ownership	2008	Mentioned figures are estimations.

2.2.2 Classification and definitions

National class	Definition
Public ownership	Corresponds with FRA definition.
Private ownership	Corresponds with FRA definition.

2.2.3 Original data

The data is obtained from forestry department.

2.3 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	86.8	86.8	86.8
Private ownership	10.7	10.7	10.7
...of which owned by individuals	n. a	n. a	n. a
...of which owned by private business entities and institutions	n. a	n. a	n. a
...of which owned by local communities	n. a	n. a	n. a
...of which owned by indigenous / tribal communities	n. a	n. a	n. a
Other types of ownership	0	0	0
TOTAL	97.5	97.5	97.5

Note: If other types of ownership is reported, please specify details in comment to the table.

Does ownership of trees coincide with ownership of the land on which they are situated?	y	Yes
		No
If No above, please describe below how the two differ:		

Table 2b - Holder of management rights of public forests

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	86.8	86.8	85.8
Individuals	0	0	0
Private corporations and institutions	0	0	1
Communities	0	0	0
Other	0	0	0
TOTAL	86.8	86.8	86.8

2.4 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		
Private ownership		
Other types of ownership		
Management rights	All management rights in Jordan are the responsibility of forestry department which includes private forest. The RSCN has taken over the responsibility of managing the Debeen forest (about 1000 ha - estimate)	

Other general comments to the table

The Royal Society of Conservation Nature (RSCN) has administration rights for about 34. 600 ha, which includes natural reserves.

3 Table T3 – Forest designation and management

3.1 FRA 2010 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.
Protected areas	Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
Categories of primary designated functions	
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
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.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.
Special designation and management categories	
Area of permanent forest estate (PFE)	Forest area that is designated to be retained as forest and may not be converted to other land use.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area under sustainable forest management	To be defined and documented by the country.
Forest area with management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Al Daqish, M, A and Nsour, M	M	Forest area, ownership and Characteristics	2005	A set of tables prepared for FRA 2005 project based on good estimates.
Ministry of Agriculture	M		<u>2000</u>	Statistics
Ministry of Agriculture	M		<u>1990</u>	statistics
Annual reports, Ministry of Agriculture	M	Forest ownership	<u>2008</u>	.

3.2.2 Original data

Expert estimates based on field experience, annual reports of forestry department.

3.3 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	0	0	0	0
Protection of soil and water	95.5	95.5	95.5	95.5
Conservation of biodiversity	1	1	1	1
Social services	1	1	1	1
Multiple use	0	0	0	0
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	97.5	97.5	97.5	97.5

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	97.5	97.5	97.5	97.5
Forest area within protected areas	n. a	n. a	34.6	34.6
Forest area under sustainable forest management	97.5	97.5	97.5	97.5
Forest area with management plan	na	na	na	na

3.4 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water		
Conservation of biodiversity		
Social services		
Multiple use		

Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas	The Royal Society of Conservation Nature (RSCN) has administration rights for about 34. 600 ha, which includes natural reserves	
Forest area under sustainable forest management	All forests are under sustainable management by the forest administration – by law no cutting is authorized.	
Forest area with management plan		

Other general comments to the table

4 Table T4 – Forest characteristics

4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	A species, subspecies or lower taxon, occurring <u>outside</u> 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).
Characteristics categories	
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.
Other naturally regenerated forest of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species (<i>sub-category</i>)	Planted forest, where the planted/seeded trees are predominantly of introduced species.
Special categories	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Annual reports, Forestry Department. Ministry of Agriculture	M	Forest area	2008	

4.2.2 Classification and definitions

National class	Definition
Other naturally regenerated forest	Same as FRA
Other naturally regenerated forest of introduced species	Same as FRA

4.2.3 Original data

The data are based from the annual reports of Forestry Department.

4.3 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	n. a	n. a	0	0
Other naturally regenerated forest	n. a	n. a	50.6	50.6
...of which of introduced species	n. a	n. a	n.a	n.a
Planted forest	n. a	n. a	46.9	46.9
...of which of introduced species	n. a	n. a	n. a	n. a
TOTAL	97.5	97.5	97.5	97.5

* the artificial forest in Jordan is 470000 acre (introduce, and naturally).

Table 4b

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	0	0	0	0
Bamboo (Forest and OWL)	0	0	0	0

4.4 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest		
Planted forest		
Rubber plantations		
Mangroves		
Bamboo		

Other general comments to the table

Rubber, mangrove and bamboo forests do not grow in Jordan.

5 Table T5 – Forest establishment and reforestation

5.1 FRA 2010 Categories and definitions

Term	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

5.2 National data

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Annual reports, Forestry Department, Ministry of Agriculture	M	Area of forest	2008	

5.2.2 Classification and definitions

National class	Definition
Afforestation	Same as FRA
Reforestation	Same as FRA

5.2.3 Original data

Data were obtained from annual reports of forestry department.

5.3 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species ¹⁾ (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	234.4	547	284.9	n. a	n. a	n. a
Reforestation	10.0	63	33	n. a	n. a	n. a
...of which on areas previously planted	n. a	n. a	n. a	n. a	n. a	n. a
Natural expansion of forest	n. a	n. a	n. a	n. a	n. a	n. a

Note: The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

5.4 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation		
Natural expansion of forest		

Other general comments to the table
<p>The action plan of the Forestry Department in Jordan is to establish around 500ha/y .</p>

6 Table T6 – Growing stock

6.1 FRA 2010 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

6.2 National data

6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Al Daqish, M, A and Nsour, M	M	Forest area , ownership and Characteristics	2005	A set of tables prepared for FRA 2005 project based on good estimates
Unfinished survey results , forestry department	M		2000	

6.2.2 Classification and definitions

National class	Definition
Growing stock	Corresponds with the FRA definition

6.2.3 Original data

A partial forest survey was done in 1995, covering the species *Pinus halepensis* and Oak spp. This survey indicates an average growing stock of approximately 30 m³/ha. This is the only quantitative information available on growing stock and despite its weakness is considered to be a fairly representative and has therefore been applied to the total forest area of Jordan, as estimated in table T1.

6.3 Data for Table T6

Table 6a – Growing stock

FRA 2010 category	Volume (million cubic meters over bark)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	2.925	2.925	2.925	2.925	n. a	n. a	n. a	n. a
... of which coniferous	n. d	n. d	n. d	n. d	n. a	n. a	n. a	n. a
... of which broadleaved	n. d	n. d	n. d	n. d	n. a	n. a	n. a	n. a
Growing stock of commercial species	0	0	0	0	0	0	0	0

Table 6b – Growing stock of the 10 most common species

FRA 2010 category / Species name			Growing stock in forest (million cubic meters)		
Rank	Scientific name	Common name	1990	2000	2005
1 st	<i>Pinis halapensis</i>	Pine	n. a	n. a	n. a
2 nd	<i>Qurcus coccefera</i>	Oak	n. a	n. a	n. a
3 rd					
4 th					
5 th					
6 th					
7 th					
8 th					
9 th					
10 th					
Remaining					
TOTAL					

Note: Rank refers to the order of importance in terms of growing stock, i.e. 1st is the species with the highest growing stock. Year 2000 is the reference year for defining the species list and the order of the species.

Table 6c – Specification of threshold values

Item	Value	Complementary information
Minimum diameter (cm) at breast height ¹ of trees included in growing stock (X)	10 cm	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	10	
Minimum diameter (cm) of branches included in growing stock (W)	10	
Volume refers to “above ground” (AG) or “above stump” (AS)	AG	

6.4 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock		
Growing stock of broadleaved / coniferous		
Growing stock of commercial species		

¹ Diameter at breast height (DBH) refers to diameter over bark measured at a height of 1.30 m above ground level or 30 cm above buttresses if these are higher than 1 m.

<p>Growing stock composition</p>	<p>Only 2 species have been inventoried: <i>Quercus Calliprinos</i> and <i>Pinus halepensis</i> indicating a total growing stock of 1.75 and 0.85 million cubic meters respectively. This was not considered sufficient for providing any estimates on growing stock composition. Other common species include the following : <i>Quercus aegilops</i> ,<i>Juniperus phoenicea</i> , <i>Acacia seyal</i> and <i>Olea europea</i>.</p>	
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<p>Other general comments to the table</p>
<p>A partial forest survey was done in 1995, covering the species <i>Pinus halepensis</i> and Oak species. This survey indicates a growing stock of approximately 30 m³/ha. This is the only quantitative information available on growing stock and despite its weakness, it is considered to be a fairly representative and has therefore been applied to the total forest area of Jordan, as estimated in table T1.</p>

7 Table T7 – Biomass stock

7.1 FRA 2010 Categories and definitions

Category	Definition
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 2mm 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.

7.2 National data

7.2.1 Classification and definitions

National class	Definition
Above-ground biomass	Same the definition of FRA
Below-ground biomass	Same the definition of FRA

7.2.2 Original data

Table 6 was used as input to this table.

7.3 Analysis and processing of national data

7.3.1 Estimation and forecasting

For tropical arid zones deciduous and broadleaved forests:

Basic wood density for oak is 0.7 for Asia and was considered 0.5 for pine.

The average basic wood density was considered 0.6

R = 0.43

BEF = 2

Dead-live ratio = 0.14

7.4 Data for Table T7

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass	3.51	3.51	3.51	3.51	n. a	n. a	n. a	n. a
Below-ground biomass	1.51	1.51	1.51	1.51	n. a	n. a	n. a	n. a
Dead wood	0.7	0.7	0.7	0.7	n. a	n. a	n. a	n. a
TOTAL	5.72	5.72	5.72	5.72				

7.5 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass		
Below-ground biomass		
Dead wood		

Other general comments to the table

8 Table T8 – Carbon stock

8.1 FRA 2010 Categories and definitions

Category	Definition
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 specified depth chosen by the country and applied consistently through the time series.

8.2 National data

8.2.1 Original data

Table 7 was used as input to this table.

8.3 Analysis and processing of national data

8.3.1 Reclassification into FRA 2010 categories

The default factor 0.47 was used to convert the biomass stock to carbon stock for the table 7 according to 2006 IPCC guidelines.

The soil carbon was calculated for LAC and sandy soils (31 ton/ha).

The default value for carbon stock of litter in tropical forests has been used (2.1 ton C/ha).

8.4 Data for Table T8

FRA 2010 Category	Carbon (Million metric tonnes)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Carbon in above-ground biomass	1.65	1.65	1.65	1.65	n. a	n. a	n. a	n. a
Carbon in below-ground biomass	0.71	0.71	0.71	0.71	n. a	n. a	n. a	n. a
<i>Sub-total: Living biomass</i>	2.36	2.36	2.36	2.36	n. a	n. a	n. a	n. a
Carbon in dead wood	0.329	0.329	0.329	0.329	n. a	n. a	n. a	n. a
Carbon in litter	0.205	0.205	0.205	0.205	n. a	n. a	n. a	n. a

Sub-total: Dead wood and litter	0.534	0.534	0.534	0.534	n. a	n. a	n. a	n. a
Soil carbon	3.023	3.023	3.023	3.023	n. a	n. a	n. a	n. a
TOTAL	5.917	5.917	5.917	5.917				

Soil depth (cm) used for soil carbon estimates	30 cm
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8.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		
Carbon in below-ground biomass		
Carbon in dead wood		
Carbon in litter		
Soil carbon		

Other general comments to the table

9 Table T9 – Forest fires

9.1 FRA 2010 Categories and definitions

Category	Definition
Number of fires	Average number of vegetation fires per year in the country.
Area affected by fire	Average area affected by vegetation fires per year in the country.
Vegetation fire (supplementary term)	Any vegetation fire regardless of ignition source, damage or benefit.
Wildfire	Any unplanned and/or uncontrolled vegetation fire.
Planned fire	A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Annual reports , Ministry of Agriculture	M	Disturbance by fire and other disturbances	1988-2002	Annual statistics
Annual reports , Ministry of Agriculture	M	Disturbance by fire and other disturbances	2008	

9.2.2 Classification and definitions

National class	Definition
Disturbance by fire	Same as FRA

9.2.3 Original data

Year	Disturbed area (1000 ha)
	Fire
1988	0.37
1989	0.41
1990	0.36
1991	0.42
1992	0.44
1998	0.76
1999	0.82
2000	0.79
2001	0.84
2002	0.79

9.3 Analysis and processing of national data

9.3.1 Estimation and forecasting

The five year average for the period 1988-1992 was used for reporting year 1990 and the five year average for the period 1998-2002 was used for reporting year 2000.

9.4 Data for Table T9

Table 9a

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on forest	0.4	78	0.8	45	1.1	49
... of which on other wooded land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on other land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table 9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire	100	100	100
Planned fire	0	0	0

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively

9.5 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire		
Number of fires		
Wildfire / planned fire		

Other general comments to the table

10 Table T10 – Other disturbances affecting forest health and vitality

No data is available for this table

11 Table T11 – Wood removals and value of removals

11.1 FRA 2010 Categories and definitions

Category	Definition
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Annual reports , Ministry of Agriculture	M	Wood removals	2008	

11.2.2 Original data

Woodfuel removals	1990	2000	2005
Total weight (1000 m ³ o.b.)	6716.15 tonnes	1463 tonnes	3404 tonnes
Unit value (J.D/ ton)	100 JD	100 JD	100 JD

11.3 Analysis and processing of national data

The removals in tonnes were multiplied by 1.38 to get removals in m³. The Unit value was divided by 1.38.

11.4 Data for Table T11

FRA 2010 Category	Industrial roundwood removals			Woodfuel removals		
	1990	2000	2005	1990	2000	2005
Total volume (1000 m ³ o.b.)	n. a	n. a	n. a	9.268	2.019	4.698
... of which from forest	n. a	n. a	n. a	n. a	n. a	n. a
Unit value (local currency / m ³ o.b.)	n. a	n. a	n. a	72.46	72.46	72.46
Total value (1000 local currency)	n. a	n. a	n. a	671.650	146.300	340.400

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

	1990	2000	2005
Name of local currency	Jordan dinners	Jordan dinners	Jordan dinners

11.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	
Total volume of industrial roundwood removals	no available information related to industrial wood	
Total volume of woodfuel removals	All the data available regards to woodfuel wood	
Unit value	Jordan dinners	
Total value		

Other general comments to the table
<p>Figures are mentioned in tonnes. The average price is 100 Jordan dinners/ ton.</p>

12 Table T12 – Non-wood forest products removals and value of removals

12.1 FRA 2010 Categories and definitions

Term	Definition
Non-wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of NWFP removals	For the purpose of this table, value is defined as the market value at the site of collection or forest border.

NWFP categories

Category
<u>Plant products / raw material</u>
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
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Wild meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

12.2 National data

12.2.1 Original data

Up to date there is no quantitative data related to the production of NWFPs from Jordanian forests. Only a list of the most important products is provided.

12.3 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005		NWFP category
				Quantity	Value (1000 local currency)	
1 st	Honey		ton	n. a	n. a	
2 nd	Forage		ton	n. a	n. a	
3 rd	Seeds		ton	n. a	n. a	
4 th	Mashroom		ton	n. a	n. a	
5 th	Aromatic plants		ton	n. a	n. a	
6 th	Medicine plant		ton	n. a	n. a	
7 th						
8 th						
9 th						
10 th						
All other plant products						
All other animal products						
TOTAL						

	2005
Name of local currency	Jordanian dinnares

12.4 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.

Other general comments to the table

13 Table T13 – Employment

13.1 FRA 2010 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment	Includes all persons in paid employment or self-employment.
Paid employment	Persons who during a specified reference period performed some work for <u>wage or salary</u> in cash or in kind.
Self-employment	Persons who during a specified reference period performed some work for <u>profit or family gain</u> in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers).

13.2 National data

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Ministry of Agriculture	M	Statistics on forestry sector	1990 & 2000	Periodical reports
Ministry of Agriculture	M	Statistics, and number of employments.	2009	Annual reports

13.2.2 Classification and definitions

National class	Definition
Employment in primary production of goods	Same as FRA

13.2.3 Original data

Collected figures were based on Forestry Department data.

Casual labour (workers) employed in certain seasons don't exceed 5 months per year with daily payment and no contracts.

Official employees working all the year and with official contracts.

13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	0.443	0.715	0.785
...of which paid employment	0.443	0.715	0.785
...of which self-employment	n. a	n. a	n. a
Employment in management of protected areas	n. a	n. a	n. a

13.4 Comments to Table T13

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Employment in primary production of goods		
Paid employment / self-employment		
Employment in management of protected areas		

Other general comments to the table

14 Table T14 – Policy and legal framework

14.1 FRA 2010 Categories and definitions

Term	Definition
Forest policy	A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society.
Forest policy statement	A document that describes the objectives, priorities and means for implementation of the forest policy.
National forest programme (nfp)	A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies.
Law (Act or Code) on forest	A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.

14.2 Data for Table T14

Indicate the existence of the following (2008)			
Forest policy statement with national scope		Yes	
	N	No	
If Yes above, provide:	Year of endorsement		
	Reference to document		
National forest programme (nfp)		Yes	
	N	No	
If Yes above, provide:	Name of nfp in country		
	Starting year		
	Current status		In formulation
			In implementation
			Under revision
		Process temporarily suspended	
Reference to document or web site			
Law (Act or Code) on forest with national scope		Yes, specific forest law exists	
	Y	Yes, but rules on forests are incorporated in other (broader) legislation	
		No, forest issues are not regulated by national legislation	
If Yes above, provide:	Year of enactment	1923	
	Year of latest amendment	2002	
	Reference to document	Ministry of agriculture, judgment ministry.	

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements		Yes
	N	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest		Yes
	N	No
If Yes above, indicate the number of regions/states/provinces with Laws on forests		

14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	No forest policy has been formulated for Jordan. The Agriculture Strategy provides orientation for forestry sector development. A draft policy statement has been formulated in 2008 with the assistance of a TCP/FAO (TCP/JOR/3101)
National forest programme (nfp)	There is no national forest program.
Law (Act or Code) on forest with national scope	
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

Other general comments to the table

15 Table T15 – Institutional framework

15.1 FRA 2010 Categories and definitions

Term	Definition
Minister responsible for forest policy-making	Minister holding the main responsibility for forest issues and the formulation of the forest policy.
Head of Forestry	The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests.
Level of subordination	Number of administrative levels between the Head of Forestry and the Minister.
University degree	Qualification provided by University after a minimum of 3 years of post secondary education.

15.2 Data for Table T15

Table 15a – Institutions

FRA 2010 Category	2008	
Minister responsible for forest policy formulation : please provide full title		
Level of subordination of Head of Forestry within the Ministry		1 st level subordination to Minister
		2 nd level subordination to Minister
	Y	3 rd level subordination to Minister
		4 th or lower level subordination to Minister
Other public forest agencies at national level		
Institution(s) responsible for forest law enforcement	Ministry of agriculture, judgment ministry.	

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	443	Less than 1%	785	Less than 1%	992	Less than 1%
...of which with university degree or equivalent	16	0	38	0	17	0

Notes:

1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

15.3 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation		
Level of subordination of Head of Forestry within the Ministry		
Other public forest agencies at national level		
Institution(s) responsible for forest law enforcement		
Human resources within public forest institutions		

Other general comments to the table

16 Table T16 – Education and research

16.1 FRA 2010 Categories and definitions

Term	Definition
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctor's degree (PhD)	University (or equivalent) education with a total duration of about 8 years.
Master's degree (MSc) or equivalent	University (or equivalent) education with a total duration of about five years.
Bachelor's degree (BSc) or equivalent	University (or equivalent) education with a duration of about three years.
Technician certificate or diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.
Publicly funded forest research centers	Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.

16.2 National data

16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Agriculture Engineering Association, Jordan University of Science and Technology.	M	Statistics, and number of employments.	2009	

16.2.2 Original data

Agriculture Engineering Association, Jordan University of Science and Technology.

16.3 Data for Table T16

FRA 2010 Category	Graduation ¹⁾ of students in forest-related education					
	2000		2005		2008	
	Number	% Female	Number	% Female	Number	% Female
Master's degree (MSc) or equivalent	0	0	0	0	0	0
Bachelor's degree (BSc) or equivalent	52	44%	44	44%	closed	Closed
Forest technician certificate / diploma	0	0	0	0	0	0
FRA 2010 Category	Professionals working in publicly funded forest research centres ²⁾					
	2000		2005		2008	
	Number	% Female	Number	% Female	Number	% Female
Doctor's degree (PhD)	n. a	n. a	n. a	n. a	n. a	n. a
Master's degree (MSc) or equivalent	n. a	n. a	n. a	n. a	n. a	n. a
Bachelor's degree (BSc) or equivalent	n. a	n. a	n. a	n. a	n. a	n. a

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.

16.4 Comments to Table T16

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education	The Foresters were graduated from the Jordan university of science and technology but now this activity was stopped and there are no graduates in the fields of Forestry and rangeland management	
Professionals working in public forest research centres		

Other general comments to the table

17 Table T17 – Public revenue collection and expenditure

17.1 FRA 2010 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, forest products include: roundwood; sawnwood; wood-based panels; pulp and paper; and non-wood forest products. As far as possible, this should include revenue collected by all levels of government (i.e. central, regional/provincial and municipal level), but it should exclude the income of publicly owned business entities.
Public expenditure	All government expenditure on forest related activities (further defined below).
Operational expenditure (sub-category to Public expenditure)	All government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities.
Transfer payments (sub-category to Public expenditure)	All government expenditure on direct financial incentives paid to non-government and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities.
Domestic funding	Public expenditure funded from domestic public financial resources, including: retained forest revenue; forest-related funds; and allocations from the national budget (i.e. from non-forest sector public revenue sources).
External funding	Public expenditure funded from grants and loans from donors, non-governmental organisations, international lending agencies and international organisations, where such funds are channelled through national public institutions.

17.2 National data

17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Annual reports, Ministry of Agriculture	M	Statistics, and number of employments.	2009	

17.2.2 Original data

Data obtained from the annual reports of Forestry Department.

17.3 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
	n.a.	n.a.

Table 17b - Public expenditure in forest sector by funding source

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 local currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	1,600	2,911	n.a.	n.a.	n.a.	n.a.
Transfer payments	0	0	0	0	0	0
Total public expenditure	1,600	2,911	n.a.	n.a.	n.a.	n.a.
If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.	<input type="checkbox"/>	Reforestation				
	<input type="checkbox"/>	Afforestation				
	<input type="checkbox"/>	Forest inventory and/or planning				
	<input type="checkbox"/>	Conservation of forest biodiversity				
	<input type="checkbox"/>	Protection of soil and water				
	<input type="checkbox"/>	Forest stand improvement				
	<input type="checkbox"/>	Establishment or maintenance of protected areas				
	<input type="checkbox"/>	Other, specify below				

17.4 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue		
Operational expenditure	Operational expenditures are very low.	
Transfer payments		

Other general comments to the table