Forestry Department
Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT 2010

COUNTRY REPORT

YEMEN

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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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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**
Jameel Abdulsamad Al-Emad	- Department of Natural Forests - General Directorate of Forestry, Rangeland and Desertification Control -Ministry of Agriculture and Irrigation Sana'a , Yemen	Email (institution): gdfdc@yemen.net.ye Email (personal): jameelalemad@yahoo.com	+967- 1- 250976/ 7	17

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 *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 *in situ*; 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
Hunting Service Co. LTD National land and water conservation, project wood land resources mapping project.	M	Wood Land Resources	1993	The source of data was Landsat imagery supported by extensive field work and air photography.
National symposium on Desertification.	M	Report (work paper)	1996	Understanding of Desertification, its Causes and Socio-Economic Impacts
Land Degradation Project Study in Republic of Yemen	M	Soil, Human Activities and Vegetation Cover	2002	The data used is the remote sensing and field survey.
Jameel Al-Emad	M	OWL and OLWTC	2009	a set of data prepared for FRA 2010

1.2.2 Classification and definitions

National class	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*. Mangrove forest, *Hyphaene* trees, Tihama Acacia forest, Acacia-Commiphora forest, Riverine/ Valleys Forest (*Ficus* spp, *Acacia* spp, Other Forest Trees), *Juniperus* spp forest.

Other wood 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 *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. Tihama Acacia woodland, Acacia-Commiphora woodland, Acacia-Commiphora woodland /shrubland, Acacia open woodland, Tamarix woodland, Anogeissus woodland, Commiphora -Acacia woodland.
Other land	Includes all land not classified as "Forest" or "Other Woodland". Range land, Agricultural land, Cities, Roads, bare hills, desert, etc..
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. Agroforestry (Zizyphus orchards, *Acacia* spp, *Ficus* spp, ect..), and Date Palms

1.2.3 Original data

1993 data

National Classes	Area (1000 ha)
P1 - Mangrove woodland	0.927
P2 - Cultivated date palm	5.181
P3 - Hyphaene woodland	5.016
P4 - Salvadora thicket	10.796
P5 - Tihama Acacia woodland	17.561
P6 - Tihama Acacia woodland and agriculture	13.698
P7 - Plains agriculture	0.0
P8 - Acacia-Commiphora woodland on gravel plains	108.168
P9 - Range/bare land	0.0
E1. Acacia- Commiphora woodland /shrubland	1243.015
E1a. Acacia- Commiphora woodland /shrubland	32.265
E2. Terraced Agriculture with Acacia shrubland	124.096
E3. Riverine Forest	0.300
E4 - Riverine agriculture with forest trees	6.146
E5 - Agriculture with trees on field margins	374.918
E6 - Agriculture predominantly terraced	0.0
E7. Riverine Acacia woodland.	5.359
E8 - Agriculture and bare lands	0.0
E9 - Range/bare land	0.0
C1. Acacia open woodland.	332.116
C3 - Date palm agriculture	34.526
C4. Tamarix woodland	42.747
C5 - Zizyphus orchards	2.418
C6 - Agriculture	0.0
C7 - Range/bare land	0.0
J - Juniper woodland remnant	2.132
M1. Anogeissus woodland.	5.618
M2. Anogeissus Parkland.	0.678
M3. Anogeissus woodland with clearings	0.31
M4. Commiphora -Acacia shrubland	5.053
M5. Commiphora -Acacia woodland	5.15
M6 - Range/bare land	0.0
TOTAL MAPPED AREA	2378.194

The report provides the following reclassification:

Woodland: P1, P3, P4, P5, P8, E1, E1a, E3, E7, C1, C4, M1, M2, M4, M5, J plus 50 percent of the mixed classes (P6, E2 and M3)
Traditional agroforestry: E4, E5 and C5
Date palms: P2, C3.

Based on this reclassification, the report provided the following summary of woodland resources by region:

National class	Area (1000ha)	
	Forest and Woodland	Agroforestry and Date Palms
Coastal Plains	156.166	5.181
Escarpment and W. Mountains	1405.008	381.064
Central Highlands and Wadis	374.863	36.944
Mahra Woodland	16.809	0
Juniper	2.132	0
TOTAL	**1954.978**	**423.189**

2002 data
Total Forest ; Woodland and Agroforestry Area: 2500 000 ha

2009
Forest area is estimated to be 549 000 ha: Woodland: 1451 000 ha and Agroforestry: 500 000 ha.

1.3 Analysis and processing of national data

1.3.1 Calibration

The total area mapped is only part of the country, but covers all the main forests and woodlands.
The total land area and inland water was calibrated according to the FAO STAT. Calibration was done in the class of other land to keep the forest area constant.

1.3.2 Estimation and forecasting

Available data is for 1993. Estimation and forecasting is based on expert estimations after reclassification.
There is some reduction in some coastal plain OWL due to charcoal making and in Escarpment and west
At the same time, there is natural regeneration/ increase of woodland and Agroforestry in most Mountain and coastal plain regions result to using gas instead of fuelwood.

The forest conditions are improving on density level (or vegetation cover), but the total areas remain constant over time, result to ownership system and sustainable use. There is, however, no detailed information on the areas of reduction/natural regeneration, so it is assumed that they more or less outweigh each other so that the **total areas remain constant over time**.

The area of Other Land with tree cover for 2010 is estimated by linear inter and extrapolation based on the 2002 and 2009 estimates.

1.3.3 Reclassification into FRA 2010 categories

The above estimates are based on information from 1993, the reclassification and definitions and update for data original are based on information from 2002 and interpretation plus expertise views. In addition to dependence FRA 2010 Categories and definitions

There is no information available for estimating changes over time.

Below is the reclassification matrix used:

National Classes	Forest	Other wooded land	Other land	Other land with tree cover	Inland water
P1 - Mangrove woodland	100%				
P2 - Cultivated date palm				100%	
P3 - Hyphaene woodland	100%				
P4 - Salvadora thicket		100%			
P5 - Tihama Acacia woodland	60%	40%			
P6 - Tihama Acacia woodland	100%				
P7 - Plains agriculture					
P8 - Acacia-Commiphora woodland on gravel plains	50%	50%			
P9 - Range/bare land					
E1. Acacia- Commiphora woodland /shrubland	20%	80%			
E1a. Acacia- Commiphora woodland /shrubland	20%	80%			
E2. Terraced Agriculture with Acacia shrubland		100%			
E3. Riverine Forest	100%				
E4 - Riverine agriculture with forest trees				100%	
E5 – Agriculture with trees on field margins				100%	
E6 – Agriculture predominantly terraced					
E7. Riverine Acacia woodland.	100%				
E8 – Agriculture and bare lands					
E9 - Range/bare land					
C1. Acacia open woodland.	60%	40%			
C3 - Date palm agriculture				100%	
C4. Tamarix woodland		100%			
C5 - Zizyphus orchards				100%	
C6 - Agriculture					
C7 - Range/bare land					
J - Juniper woodland remnant	100%				
M1. Anogeissus woodland.		100%			
M2. Anogeissus Parkland.		100%			
M3. Anogeissus woodland with clearings		100%			
M4. Commiphora -Acacia shrubland		100%			
M5. Commiphora -Acacia woodland	50%	50%			
M6 - Range/bare land					
Other land			100%		

Results after reclassification:

National Classes	TOTAL Area (1000 ha)	Woodland (Hunting, 1993) (1000 ha)	Forest (1000 ha)	wooded land (1000 ha)	Other land (1000 ha)	Other land with tree cover (1000 ha)
P1 - Mangrove woodland	0.927	0.927	0.927			
P2 - Cultivated date palm	5.181					5.181
P3 - Hyphaene woodland	5.016	5.016	5.016			
P4 - Salvadora thicket	10.796	10.796		10.796		
P5 - Tihama Acacia woodland	17.561	17.561	10.537	7.024		
P6 - Tihama Acacia woodland	13.698	13.698	13.698			
P7 - Plains agriculture	0.00	0.00				
P8 - Acacia-Commiphora woodland on gravel plains	108.168	108.168	54.084	54.084		
P9 - Range/bare land	0.00	0.00				
E1. Acacia- Commiphora woodland /shrubland	1243.015	1243.015	248.603	994.412		
E1a. Acacia- Commiphora woodland /shrubland	32.265	32.265	6.453	25.812		
E2. Terraced Agriculture with Acacia shrubland	124.069	124.069		124.069		
E3. Riverine Forest	0.300	0.300	0.300			
E4 - Riverine agriculture with forest trees	6.146	0.00				6.146
E5 - Agriculture with forest trees	374.918	0.00				374.918
E6 - Agriculture predominantly terraced	0.00	0.00				
E7. Riverine Acacia woodland.	5.359	5.359	5.359			
E8 - Agriculture and bare lands	0.00	0.00				

E9 - Range/bare land	0.00	0.00				
C1. Acacia open woodland.	332.116	332.116	199.2696	132.8464		
C3 - Date palm agriculture	34.526					34.526
C4. Tamarix woodland	42.747	42.747		42.747		
C5 - Zizyphus orchards	2.418	0				2.418
C6 – Agriculture	0.00	0.00				
C7 - Range/bare land	0.00	0.00				
J - Juniper woodland remnant	2.132	2.132	2.132			
M1. Anogeissus woodland.	5.618	5.618		5.618		
M2. Anogeissus Parkland.	0.678	0.678		0.678		
M3. Anogeissus woodland with clearings	0.31	0.31		0.31		
M4. Commiphora -Acacia shrubland	5.053	5.053		5.053		
M5. Commiphora -Acacia woodland	5.15	5.15	2.575	2.575		
M6 - Range/bare land	0.00	0.00				
Other land					**50842.022**	
TOTAL	**2378.167**	**1954.978**	**548.9 53**	**1406.025**		**423.189**

Summary results:

FRA Categories	**1993 (1000 ha)**
Forest	549
Other wooded land	1406
Other land	50842
...of which with tree cover [1)]	423

1.4 Data for Table T1

FRA 2010 categories	**Area (1000 hectares)**			
	1990	**2000**	**2005**	**2010**
Forest	549	549	549	549
Other wooded land	1 406	1 406	1 406	1 406
Other land	50 842	50 842	50 842	50 842
...of which with tree cover	423	423	423	500
Inland water bodies	0	0	0	0
TOTAL	**52 797**	**52 797**	**52 797**	**52 797**

1.5 Comments to Table T1

Variable / category	**Comments related to data, definitions, etc.**	**Comments on the reported trend**
Forest	The data on forest area is from 1993; 2002; 2009 The *Juniperus* trees can reach heights up to 10 metres. Some other species in the national class “forest” (Mangrove forest, Riverine``````````/ Valleys forest) reach up 6 metres. These areas have been classified as "Forest".	

Other wooded land	The data available on OWL is from 1993; 2002; 2009 All wooded lands have been classified as "Other wooded land". The majority of the trees reach up 5 metres high or less and have thus been classified as "Other wooded land".	
Other land		
Other land with tree cover	The data available on Other land with tree cover is from 1993. 2002; 2009	
Inland water bodies		

Other general comments to the table
The above table is a result of the inventories/assessments 1993, and the calculation of the change rate for 2010 based on the data (reference year 2002) and expert estimates (2009). The forests area remains constant over time. The areas of Other Land (.. of which with tree cover) are indicating an improvement and increase in the present position, as already explained in detailed in the estimation and forecasting paragraph. There is an urgent need for a new national forests resources assessment in Yemen.

Expected year for completion of ongoing/planned <u>national</u> forest inventory and/or RS survey / mapping	
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
National symposium on Desertification.	L	Report (work paper)	1996	Yemen Traditions in Natural Conservation

2.2.2 Classification and definitions

National class	Definition
Public ownership	Forest owned by the State (by institution of the public administration).
Private ownership	Forest owned by individuals, families, private religious and educational institution
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 religious and educational institution.

2.2.3 Original data

National class	Definition
Public ownership	Land owned by the government. It represents about 5 %.
Private ownership	Land owned by individuals and families. It represents about 80 %.
Other ownership	Land owned by corporations and institutions. It represents about 15 %.

Note: This classification is based on expert estimates.

2.3 Analysis and processing of national data

2.3.1 Calibration

The percentages above have been applied to the area of forest in Table T1.

2.3.2 Estimation and forecasting

The figures for 1996 have been used for all reporting years, due to lack of other information.

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	27.4	27.4	27.4
Private ownership	521.6	521.6	521.6
...of which owned by individuals	439.2	439.2	439.2
...of which owned by private business entities and institutions	82.4	82.4	82.4
...of which owned by local communities	0	0	0
...of which owned by indigenous / tribal communities	0	0	0
Other types of ownership	0	0	0
TOTAL	**549**	**549**	**549**

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?	x	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	27.4	27.4	27.4
Individuals	0	0	0
Private corporations and institutions	0	0	0
Communities	0	0	0
Other	0	0	0
TOTAL	**27.4**	**27.4**	**27.4**

2.5 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership	No forest survey was done.	
Private ownership		
Other types of ownership		
Management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.	Public Administration, individuals and communities retains management rights and responsibilities within the limits specified by the traditional (martial) law.

Other general comments to the table
The main weakness in the national data is the uncertainty of the forest area for the private and public ownership. Besides no data is available since the survey of 1996. The lack of any estimates or trends makes it difficult for extrapolation of figures for the years 2000 and 2005 assessments.

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 sustain-able 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
Hunting Service Co. LTD National land and water conservation, project wood land resources mapping project.	M	Wood Land Resources	(1993)	The source of data was Landsat imagery supported by extensive field work and air photography.
FAO/ Government Cooperation Programme	L	Plan of operation	1988	Forestry Development in Republic of Yemen, Phase

3.2.2 Classification and definitions

National class	Definition
Multiple purpose	Same as FRA

3.2.3 Original data

Table T1 has been used as input. All forests fulfill multiple functions and all forests are considered to be Permanent Forest Estate.

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	0	0	0	0
Conservation of biodiversity	0	0	0	0
Social services	0	0	0	0
Multiple use	549	549	549	549
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	**549**	**549**	**549**	**549**

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	549	549	549	549
Forest area within protected areas	0	0	30	31
Forest area under sustainable forest management	0	0	0	0
Forest area with management plan	0	0	0	0

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	All forest areas are designated primarily for multiple functions (Production, protection of soil and water, conservation of biodiversity and social services).	
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas		31000 ha from forests area are within protected areas and used for conservation of biodiversity and also used by communities for other purposes.
Forest area under sustainable forest management		
Forest area with management plan		

Other general comments to the table
It is difficult to breakdown the area of multiple purpose forests. All the forests in Yemen are considered protective or have multiple purpose, and there are no management plans at all. According to this, all the forests and OWL in Yemen are considered to be under a designated function.

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 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).
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 *(sub-category)*	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 *(sub-category)*	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
Hunting Service Co. LTD National land and water conservation, project wood land resources mapping project.	M	Wood Land Resources	(1993)	The source of data was Landsat imagery supported by extensive field work and air photography.
Forestry Department, Food and Agriculture Organization of the United Nations Mangroves of Asia 1980-2005: country reports	M	Mangroves (Forest and OWL)	2007	Forest Resources Assessment Programme Working Paper 136 Rome

4.2.2 Classification and definitions

National class	Definition
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.

4.2.3 Original data

Table T1 has been used as input to this table.

4.3 Analysis and processing of national data

4.3.1 Calibration

It is assumed that all the forests areas fall within the areas classified as other naturally regenerated forest.

4.3.2 Reclassification into FRA 2010 categories

All forests are classified as modified other naturally regenerated forest.

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	0	0	0	0
Other naturally regenerated forest	549	549	549	549
...of which of introduced species	n.a	n.a	n.a	n.a
Planted forest	0	0	0	0
...of which of introduced species	0	0	0	0
TOTAL	**549**	**549**	**549**	**549**

Table 4b

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	0.950	0.900	0.900	0.900
Bamboo (Forest and OWL)	0	0	0	0

4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest	All forest areas are regenerated naturally and there are clearly visible indications of human activities.	
Planted forest		
Rubber plantations		
Mangroves	The majority of the Mangrove forests are pure stands of *Avicenna marina* which grow up to 6 m in height and *Rhizophora mucronata* which grow up to 7-9 m	The estimates for 1990, 2000 and 2005 are expert estimates based on the information currently available. (Ref FAO 2007)
Bamboo		

Other general comments to the table

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

No reforestation or afforestation activities are taking place in Yemen.

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	0	0	0	0	0	0
Reforestation	0	0	0	0	0	0
...of which on areas previously planted	0	0	0	0	0	0
Natural expansion of forest	nd	nd	nd	nd	nd	nd

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

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
Hunting Service Co. LTD National land and water conservation, project wood land resources mapping project.	M	Wood Land Resources	(1993)	The source of data was Landsat imagery supported by extensive field work and air photography.
Inventory of natural forest in Yemen, Consultant .	M	Management of forestry (Parts).	1988	Saad Allah, Jamal, Project development of forestry – Yemen.

6.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees more than 7 cm in diameter at breast height. Includes the stem from the ground level up to a top diameter of 5 cm, It does not include branches.

6.2.3 Original data

National class	Volume (million cubic meters over bark)	
	Forest + Woodland	
	1993	1995
Growing stock	16.8	16.8

The growing stock of all forests and woodlands (about 2 million ha) is 16.8 million cubic meters. The woodland areas correspond to the area of Forest and Other wooded land together in table T1.

National class (Broad classes of forest types)	Volume (m3/ha)
Forest	9.2
OWL	8.5

The above figures are expert estimates based on a partial inventory undertaken in 1988 and 1993.

6.3 Analysis and processing of national data

The above average volumes per hectare were applied to the area of forest and other wooded land from Table 1.

6.4 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	5.05	5.05	5.05	5.05	11.95	11.95	11.95	11.95
... of which coniferous	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
... of which broadleaved	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
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
1st					
2nd					
3rd					
4th					
5th					
6th					
7th					
8th					
9th					
10th					
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)	7	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	5	
Minimum diameter (cm) of branches included in growing stock (W)		not included
Volume refers to "above ground" (AG) or "above stump" (AS)	AG	

6.5 Comments to Table T6

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

Other general comments to the table

[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.

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 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Hunting Service Co. LTD National land and water conservation, project wood land resources mapping project.	M	Wood Land Resources	1993	The source of data was Land sat imagery supported by extensive field work and air photography.
inventory of natural forest in Yemen, Consultant .	M	Management of forestry (Parts).	1988	Saad Allah, Jamal, Project development of forestry – Yemen.
FAO. Working Paper 82. 2004. FAO/Forestry Department	M	Biomass expansion factor. Root-shoot ratio.	2004	
FAO. Working Paper 81. 2004.FAO/ Forestry Department	H	Biomass Expansion factor. Root-shoot ratio	2004	

7.2.2 Classification and definitions

National class	Definition
Above-ground biomass	It corresponds to FRA 2010 definition.
Below-ground biomass	It corresponds to FRA 2010 definition.
Dead wood	It corresponds to FRA 2010definition.

7.2.3 Original data

The final data of table 6 was used as input for the biomass estimations

7.3 Analysis and processing of national data

The following conversion factors were used (tropical Asia, deciduous and broad leaved forests):
Basic wood density for acacias is 0.76
R = 0.43
BEF = 2
Dead-live ratio = 0.14

Applying these conversion factors gives the following results:

	G. stock (Million m3)	Basic density (tones/m3)	Stem biomass (million tones)	Biomass exp. fact	A.G biomass (million tones)	Root-Shoot ratio	B.G biomass (million tones)
Forest	5.05	0.76	3.84	2	7.68	0.43	3.30
OWL	11.95	0.76	9.08	2	18.16	0.43	7.81

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	7.68	7.68	7.68	7.68	18.16	18.16	18.16	18.16
Below-ground biomass	3.30	3.30	3.30	3.30	7.81	7.81	7.81	7.81
Dead wood	1.54	1.54	1.54	1.54	3.64	3.64	3.64	3.64
TOTAL	**12.52**	**12.52**	**12.52**	**12.52**	**29.61**	**29.61**	**29.61**	**29.61**

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 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Intergovernmental Panel on Climate Change (WMO; UNEP) 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume (4) Agriculture, Forestry and Other Land Use – Chapter (4) Forestry Land	M	Carbon Fraction of Above and below-ground Forest Biomass, Carbon in dead wood = 0.47 of the biomass in 6.5 table.	2006	http://www.ipcc-nggip.iges.or.jp

8.2.2 Classification and definitions

National class	Definition
Carbon in above-ground biomass	It corresponds to FRA 2010 definition.
Carbon in below-ground biomass	It corresponds to FRA 2010 definition.
Carbon in dead wood biomass	It corresponds to FRA 2010 definition.
Carbon in litter and Soil carbon.	It corresponds to FRA 2010 definition.

8.2.3 Original data

The final data of table 7 was used as input for the carbon estimations.

8.3 Analysis and processing of national data

The default factor of 47 % was used to convert biomass stock from table T7 to carbon stock.
The soil carbon was calculated for LAC soils (35 ton/ha)
The default value for carbon stock of litter in tropical forests (2.1 ton C/ha) has been used

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	3.61	3.61	3.61	3.61	8.54	8.54	8.54	8.54
Carbon in below-ground biomass	1.55	1.55	1.55	1.55	3.67	3.67	3.67	3.67
Sub-total: Living biomass	***5.16***	***5.16***	***5.16***	***5.16***	***12.21***	***12.21***	***12.21***	***12.21***
Carbon in dead wood	0.72	0.72	0.72	0.72	1.71	1.71	1.71	1.71
Carbon in litter	1.15	1.15	1.15	1.15	2.95	2.95	2.95	2.95
Sub-total: Dead wood and litter	***1.87***	***1.87***	***1.87***	***1.87***	***4.66***	***4.66***	***4.66***	***4.66***
Soil carbon	19.22	19.22	19.22	19.22	49.21	49.21	49.21	49.21
TOTAL	**26.25**	**26.25**	**26.25**	**26.25**	**66.08**	**66.08**	**66.08**	**66.08**

Soil depth (cm) used for soil carbon estimates	30 cm

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

No data are available for this reporting table

10 Table T10 – Other disturbances affecting forest health and vitality

10.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.
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.
Category	**Definition**
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
field survey reports , General Directorate of forestry and desertification control, Ministry of Agriculture and Irrigation	M	Forests and WLD	2000 - 2007	information on state forests vegetation are gathered from surveys without quantitative data

10.2.2 Classification and definitions

National class	Definition
Disturbance by insects	Same as FRA 2010
Disturbance by diseases	Same as FRA 2010
Invasive species	Same as FRA 2010

10.2.3 Original data

No quantitative data is available for this table. However, the name of important insects and diseases that affect forest health and vitality are listed in table 10b below.

10.3 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	n. a	n. a	n. a
Disturbance by diseases	n. a	n. a	n. a
Disturbance by other biotic agents	n. a	n. a	n. a
Disturbance caused by abiotic factors	n. a	n. a	n. a
Total area affected by disturbances	n. a	n. a	n. a

Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
Dolicholepta micrura	*Zizphus spina christii, Acacia* spp.	n. a	n. a	n. a
Scolyus sp; Hylesinus sp; Xyleborus sp	*Ficus cordata , Cordia abysinica*	n. a	n. a	n. a
Azanus ubaldus	*Acacia spp; A. ehrenbergiana; Juniperus procera*	n. a	n. a	n. a
Acizziahollisi burckhadt	*Acacia* spp	n. a	n. a	n. a
Nadiasa undata; Nadiasa acacia	*Acacia* spp	n. a	n. a	n. a
Caryedon acacia	*Acacia* spp	n. a	n. a	n. a
Xylebrina sp	*Acacia* spp	n. a	n. a	n. a
Tlylothris arabicus gabriel	*Acacia* spp, *Juniperus procera*	n. a	n. a	n. a
Thyridopteryx ephemeraeformis	*Zizphus spina christii,*	n. a	n. a	n. a
		n. a	n. a	n. a
decline and die backs (still unidentified)	*Juniperus* spp	n. a	n. a	n. a

Note: Area affected refers to the total area affected during the outbreak.

Table 10c – Area of forest affected by woody invasive species

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
Prosopis juliflora (Invasive species on the coastal plains areas).	n. a
Opuntia dillenii (Invasive species on the most Mountains regions).	n. a
Total forest area affected by woody invasive species	n. a

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

10.4 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects		
Disturbance by diseases		
Disturbance by other biotic agents	Most forest and other wooded land areas are severely affected by domestic animals (camels, goats) through overgrazing.	
Disturbance caused by abiotic factors	All forest and other wooded land areas are severely affected by drought.	
Major outbreaks		
Invasive species		

Other general comments to the table
No quantitative data is available. However, disturbances by insects and diseases are common in all forests, OWL and agroforestry systems of Yemen. For example: Juniper diseases are currently widely spread in the northern boundaries between Yemen and Saudi Arabia in addition to the insects and dieback. Also, Some other species suffer from insects, especially acacias in mountain regions. In some years, disturbances by different factors happen, but unfortunately there is no inventory or reliable and systematic recorded data available.

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
Household fuel wood marketing study, phase 2	H	North of Yemen (regional)	1988	Final report prepared for :UNDP/World Bank, Energy Sector Management Program.
Forestry Department Food and Agriculture Organization of the United Nations. GLOBAL FOREST RESOURCES ASSESSMENT 2010. Working Guidelines the country reporting for FRA 2010. Working paper 143, Roma, 2008.	M	Production of Woodfuel	2008	Appendix 3 – Table (3.2). FAOSTAT 2008

11.2.2 Classification and definitions

National class	Definition
Woodfuel removals	It corresponds to FRA 2010 definition.

11.2.3 Original data

The original data are from the above references and expert estimates. FAOSTAT data under bark were multiplied by 1.15.

11.3 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	205.16	347.39	421.7
... 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	12000	12000	12000
Total value (1000 local currency)	n. a	n. a	n. a	2461920	4168680	5060400

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	YEMNI RIAL	Y.R	Y.R

11.4 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals	There is no data available for industrial wood removals.	
Total volume of woodfuel removals		
Unit value	1US$ =200 Y.R Nearly	
Total value		

Other general comments to the table
- There is no data available for industrial wood removals. - In last decade, there is a decrease in fuel wood consumption, as result to replacing it with gas in some districts of Yemen. Consumption data do not necessarily correspond to removals. - Furthermore, removals of wood fuel do not only come from areas classified as forest and other wooded land, a substantial part comes from the category “Other land”.

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

No data are available for this reporting table.

13 Table T13 – Employment

No data are available for this reporting 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
		X	No
If Yes above, provide:	Year of endorsement		
	Reference to document		
National forest programme (nfp)			Yes
		X	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
			Yes, but rules on forests are incorporated in other (broader) legislation
		X	No, forest issues are not regulated by national legislation
If Yes above, provide:	Year of enactment		
	Year of latest amendment		
	Reference to document		

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
	X	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest		Yes
	X	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	Absence of national forest policy,
National forest programme (nfp)	Absence of national forest programme,
Law (Act or Code) on forest with national scope	Absence of national forest law and legislations,
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

Other general comments to the table
Regarding the above elements, Yemen signed Partnership with the National Forest Programme Facility (Facility) on August 2008, for implementing it.

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	Minister of Agriculture and Irrigation Republic of Yemen – Sana'a – P. O. Box (2805). Tel:+967-1-282966 Fax:+ 967-1-289509 E-mail: min_agri_ye@yahoo.com	
Level of subordination of Head of Forestry within the Ministry		1st level subordination to Minister
		2nd level subordination to Minister
	X	3rd level subordination to Minister
		4th or lower level subordination to Minister
Other public forest agencies at national level	Only, Regional Forests Departments in the agriculture offices on governorates level.	
Institution(s) responsible for forest law enforcement		

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	**192**	**10**	**192**	**10**	**192**	**10**
...of which with university degree or equivalent	89	5	89	5	89	5

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
During the last 8 years, definitely there were some changes in the forest staff, but the absence of inventories make it very difficult to estimate any changes occurred within the public forest institutions at the sub-national level. For that reason figures were kept constant.

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

- Until the present time Yemen have not forests-related education institutions or Post-secondary education programme with focus on forests and related subjects.
- The forestry education and training of the staff in Yemen is mainly carried out in other countries within and outside the sub region.
- The implementation of research programmes on forest issues is the responsibility of General Authority for Agricultural Research and extension, but there is a lack in forest and forestry research in Yemen.

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	
Bachelor's degree (BSc) or equivalent	0		0		0	
Forest technician certificate / diploma	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)	0		0		0	
Master's degree (MSc) or equivalent	0		0		0	
Bachelor's degree (BSc) or equivalent	0		0		0	

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		
Professionals working in public forest research centres		

Other general comments to the table
There is a lack in forestry research, but there is no forestry education or technical training carried out in Yemen.

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
General Directorate of Forestry. Reports	M	Annual Reports	2000-2005	

17.2.2 Classification and definitions

National class	Definition
Operational expenditure *(sub-category to Public expenditure)*	It corresponds to FRA 2010 definition.
Domestic funding	It corresponds to FRA 2010 definition.

17.2.3 Original data

The data in table17 are estimates based on reports and experience of expert.

17.3 Data for Table T17

Table 17a - Forest revenues

Currently, No statistics are available for governmental forest revenues and revenues collected from the forest products and non-wood forest products.

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	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	7000	7000	0	0	7000	7000
Transfer payments	n. a	n. a	0	0	n. a	n. a
Total public expenditure	7000	7000	0	0	7000	7000

If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.		Reforestation
		Afforestation
	√	Forest inventory and/or planning
		Conservation of forest biodiversity
		Protection of soil and water
		Forest stand improvement
		Establishment or maintenance of protected areas
	√	Other, specify below
	Nurseries activities	

17.4 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue	Currently, No statistics are available for forests revenue or government revenue collected from the forest products and non-wood forest products.	
Operational expenditure	All government expenditure on forestry sector is only 7000000 Y.R= 35000 U$, not including salaries, most of which goes to cover nurseries activities, and the remainder part goes to implementation field surveys.	
Transfer payments		

Other general comments to the table
- All the above data and figures are estimates based on reports and experience of expert. - The GDFDC was established in 1984 with the help of FAO and other donor agencies, and was originally very active in many areas until the year 2000. From year 2000 no new projects have been launched related to forestry activities, therefore the funding is very few.