



Forestry Department

Food and Agriculture Organization of the United Nations

**GLOBAL FOREST RESOURCES
ASSESSMENT 2010**

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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).

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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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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
Forest Code of the Republic of Armenia	H	Forest cover	2005	Definitions of forest, non-forest and other related areas
State Land Account /Balance 1997 of the Republic of Armenia, Yerevan 1997	H	Land use	1983, 1988, 1993	
Simultaneous State Forest Account 1993 of the Republic of Armenia, Yerevan 1993	H	Forest and OWL areas	1983, 1988	Information about State Forest Lands
National Statistical Service Yearbook, Yerevan 2002	H	Land use and forest cover	1983, 1988, 1993	
The Environmental Millennium Development Goal (MDG) in Europe and Central Asia Forest/Biodiversity indicators for Armenia 2004”. (Authors: A Ghoulijanyan, A. Gevorgyan (independent expert) and R. Petrosyan	H	Forest cover percentage	2005	
Forest Management Plans for Forest Enterprises and National Parks	H	Forest cover, forest indices	2004-2008	Information about State Forest Lands

1.2.2 Classification and definitions

National class	Definition
Forest	Interconnected and interacting integrity of biological diversity dominated by tree-bush vegetation and of components of natural environment on forest lands or other lands allocated for afforestation with the minimal area of 0,1 ha, minimal width of 10 m and with tree crowns covering at least 30% of the area, as well as non-forested areas of previously forested forest lands.
<i>Forest lands</i>	Forested lands and lands allocated or envisaged for flora and fauna protection, nature protection as well as non-forested lands allocated or envisaged for the running of forest economy.
Stocked (closed) forest lands	Stocked (closed) forest lands, occupied by young stands of trees species with the stand density of 0.4 and higher, and stands of other age groups with the stand density of 0.3 and higher, as well as land areas occupied by the bushy vegetation, where stands of trees species can be established without special forest-amelioration work.
Open (un-stocked) forest lands	Open (un-stocked) forest lands are not designated for forest re-establishing (clear-cut areas, burned forest areas, vanished stands, sparse stands, bare land, openings, nurseries, non-closed plantations and other).

Note: The national classification does not consider the thresholds levels of the height and size of the area for including the forest fund lands into a specific category. The minimum area that is being accounted is 0.1 hectare

1.2.3 Original data

National Categories	Area (1000 hectares) State Forest Fund	
	1993	2005
Stocked forest lands	334.1	331.6
Un-stocked forest lands	44.5	57.8
Non-forest lands	67.6	60.6

The data for 2005 correspond to the inventory and assessment of 85% of the forest lands during 2005-2008 and the remaining 15% are old data.

Non-forest lands, mainly of agricultural usage (fodder production, pastures, arable lands, rock outcrops, rocks, larg areas of bare lands with high inclination, non-usable lands and other) are not designated for forest re-establishing in Armenia.

Correction of forest land areas of forest enterprises within the administrative borders of communities close to forests was implemented during 2000-2005 in Armenia. Consequently, agricultural lands in the former land balance of the forest enterprises within administrative borders were transferred to the ownership of communities. The decrease of non-forest lands between 1993 and 2005 is a result of this correction.

1.3 Analysis and processing of national data

1.3.1 Calibration

Source	Inland water bodies	Total land area	Total country area
FAOSTAT	160 000 hectares	2 820 000 hectares	2 980 000 hectares

National data on the area of forest land were used directly. The area of other land was adjusted in order to add up to the total land area.

1.3.2 Reclassification into FRA 2010 categories

All stocked forest lands are reclassified as forests, while all un-stocked forest lands are reclassified as other wooded land.

1.3.3 Estimation and forecasting

Estimation and forecasting were carried out based on the 1993 and 2005 data.

FRA 2010 categories	Area (1000 hectares)					
	1993	2004	1990	2000	2005	2010
Forest	334	332	335	333	332	331
Other wooded land	45	58	41	52	58	63

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest*	335	333	332	331
Other wooded land	41	52	58	63
Other land	2 444	2 435	2 430	2 426
...of which with tree cover	n.d.	n.d.	n.d.	n.d.
Inland water bodies	160	160	160	160
TOTAL	2 980	2 980	2 980	2980

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	The national classification does not consider the thresholds levels of the height and size of the area for including the forest fund lands into a specific category. The minimum area that is being accounted is 0.1 hectare	
Other wooded land	In absence of any better data, all un-stocked forest lands were reclassified as other wooded land.	
Other land		
Other land with tree cover		
Inland water bodies		

Other general comments to the table

The big differences of the national land fund classifications and the FRA classification applied to forest and other wooded land, as well as the lack of national definitions and data/ information on a number of categories of forests and other wooded land, created a difficulty in compiling the data for this table.

Nevertheless, the most important issue is the non-controlled (illegal) cuttings, which have taken place in the Republic of Armenia since the State Forest Account 1993, and the following years, which led to the basic changes in forest ecosystems. All the logic of the forestry developments were disturbed and, taking into account that during the last 12 years there were not any complete forest assessment/ inventory, monitoring and evaluation of the forest condition in the Republic, it was difficult to provide the reliable estimation of the status and forecasting.

However, forest management planning process has started from 2004 and by the end of 2011 more precise data on forest resources will be available.

Expected year for completion of ongoing/planned <u>national forest inventory and/or RS survey / mapping</u>	
Field inventory	2009-2011
Remote sensing survey / mapping	2009-2011

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 (<i>sub-category of Private ownership</i>)	Forest owned by individuals and families.
Private business entities and institutions (<i>sub-category of Private ownership</i>)	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 (<i>sub-category of Private ownership</i>)	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 (<i>sub-category of Private ownership</i>)	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
Forest Code	H	Ownership classification	2005	Forests and forest lands can be under state, community and private ownership and shall not be subject to alienation to communities, legal persons and citizens.
By-laws	H	Ownership	2005-2008	
Land Code	H	Ownership		

2.2.2 Classification and definitions

National class	Definition
State ownership	State forests and forest lands
Private ownership	The forest established on the lands owned by communities, legal persons and citizens by their owners shall be regarded as their property.
Communal ownership	The forest established on the lands owned by communities, legal persons and citizens by their owners shall be regarded as their property.

2.2.3 Original data

Up until 2005, all forests in Armenia were under public ownership.

2.3 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	335	333	332
Private ownership	0	0	0
...of which owned by individuals			
...of which owned by private business entities and institutions			
...of which owned by local communities			
...of which owned by indigenous / tribal communities			
Other types of ownership	0	0	0
TOTAL	335	333	332

Does ownership of trees coincide with ownership of the land on which they are situated?	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	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	335	333	332
Individuals	0	0	0
Private corporations and institutions	0	0	0
Communities	0	0	0
Other	0	0	0
TOTAL	335	333	332

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		

Other general comments to the table

Before 2005, the forest was exclusively state owned.

According to the present Forest Code of the Republic of Armenia:

- Forests and forest lands can be under state, community and private ownership
- State forests and forest lands shall not be subject to alienation to communities, legal persons and citizens
- The forest established on the lands owned by communities, legal persons and citizens by their owners shall be regarded as their property.
- The process is on the way, but there are no forests established yet on the lands owned by communities, legal persons and citizens.

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
Simultaneous State Forest Account 1993 of the Republic of Armenia, Yerevan 1993	H	Forest and OWL areas	1983, 1988	Information about State Forest Fund
Forest Code of RA	H	Forest and OWL areas	2005	
Forest Management Plans for Forest Enterprises and National Parks	H	Forest cover, forest indices	2004-2008	Information about State Forest Lands

3.2.2 Classification and definitions

National class	Definition
Forests of protection significance	Forests of protection significance include: a) forests in the water protection zones of water bodies; b) forests located on steep slopes (more than 30 degree); c) forest belt with the width of 200 m on the upper and lower timberline; d) forests growing in semi-desert, steppe and forest-steppe areas; e) forests within the radius of 100 m surrounding botanical gardens, zoological parks and arboretums.
Forests of special significance	Forests of special significance include: a) forests included in the specially protected areas of nature; b) municipal forests and forests located close to cities; c) forests of recreational and health protection significance; d) border forests and forests of military significance; e) forests having historical and scientific value; f) forests protecting sanitary zones.
Forests of production significance	Forests of production significance are the forests ensuring continuous wood production and those not classified as forests of special and protection significance.

3.2.3 Original data

NATIONAL CATEGORIES / DESIGNATED FUNCTIONS	Forests			2008	
	1993	2000	2005	Forest code 2005	1000 ha
	1000 ha	1000 ha	1000 ha		
Forests implementing primarily protective functions	217.4	216.3	223.1	forests of protection significance	133
of which:				forests of special significance	130.4
- protective forest belts along railways and auto-roads	4	3.8	3.8	forests of production significance	68.2
- other protective forest belts	1.2	1.1	1.1		
- forests of important function for the protection of the environment	212.2	211.3	218.2		
Forests implementing primarily social functions	75.7	74.3	75.5		
Forests implementing primarily special functions	60.7	60.4	60.4		
TOTAL	353.8	351	359		331.6

Note: According to the Forest Code of 2005, the forests of the Republic of Armenia irrespective of the form of ownership shall be classified by their main special-purpose significance as follows:

- a) forests of protection significance;
- b) forests of special significance;
- c) forests of production significance.

The order of forest classification by main special-purpose significance shall be determined by the Government of the Republic of Armenia.

3.3 Analysis and processing of national data

3.3.1 Calibration

The totals of the original data are substantially different from the total forest area as of table T1. They were therefore calibrated in order to add up to the forest total. The data for 1993 were calibrated to the 1990 total in order to directly provide data for 1990. Likewise, the 2008 data were calibrated to the 2010 total to provide data for 2010.

Calibration (using 1993 for 1990)	1990	2000	2005	2010
Production function	0	0	0	68.0
Protective functions	205.7	205.0	206.1	132.6
Social functions	71.6	70.4	69.7	0.0
Special functions	57.4	57.2	55.8	130.0
TOTAL	334.7	332.6	331.6	330.6

3.3.2 Reclassification into FRA 2010 categories

The special functions contain a number of different functions, but the available data do not allow for separate them into the different FRA categories. They are therefore reported as Multiple use, although they in part may have clearly defined specific functions.

3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production*	0	0	0	68.0
Protection of soil and water	205.7	205.0	206.1	132.6
Conservation of biodiversity **	0	0	0	0
Social services	71.6	70.4	69.7	0
Multiple use	57.4	57.2	55.8	130.0
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	335	333	332	331

Table 3b – Special designation and management categories

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

3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production	Production was introduced as a separate category in the Forest code 2005, and reported first time in 2010.	For the period 1990-2005 production was not a separate category.
Protection of soil and water		
Conservation of biodiversity	Protected areas are included under Multiple use.	
Social services	Separately defined 1990-2005, thereafter included in Multiple use	
Multiple use	Includes: <ul style="list-style-type: none"> • forests included in the specially protected areas of nature; • municipal forests and forests located close to cities; • forests of recreational and health protection significance; • border forests and forests of military significance; • forests having historical and scientific value; • forests protecting sanitary zones. 	
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas		
Forest area under sustainable forest management		
Forest area with management plan		

Other general comments to the table

Breaking down forests by the designation function categories and corresponding areas was provided on the basis of the Forest Code of the Republic of Armenia (1994), and the results of the State Forest Fund Account (1993). Despite the suggested break down, all forests in Armenia (as a whole), bear the protective functions, taking into account the mountainous landscape, strong relief fragmentation, and the danger of the erosion, as well as the function of the conservation of biodiversity, which is also very important. The Table in the section 3.4 shows the percentage of other specific functions, which are being implemented, additionally to the primary function with regard to the total area.

Due to the above-described situation, the main cuttings are forbidden on the total forest land of Armenia, according to the Governmental decision. In fact, there are no sufficient areas for the main cuttings, but still some small plots may correspond to demands of commercial fellings.

The reforestation is planned in the high-forest areas of Armenia available for wood supply, which are estimated as of 67,4 thousand hectares.

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 Original data

Expert assessment of primary forest area (assumed to be 5% of total forest area) and partial data and expert assessment of planted forest area see final reporting table. Remaining forest area is considered other naturally regenerated forest.

4.3 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	17	17	17	17
Other naturally regenerated forest	304	305	305	293
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
Planted forest	14	11	10	21
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
TOTAL	335	333	332	331

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	Expert estimate, assumed to be 5% of total forest area.	
Other naturally regenerating forest		
Planted forest		
Rubber plantations		
Mangroves		
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

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Code of the RA	H	definitions	2005	

5.2.2 Classification and definitions

National class	Definition
Afforestation	Establishment and growing of artificial forest cultures through planting and seeding on non-forested lands as well as lands having other special-purpose significance.
Reforestation	Rehabilitation of previously forested areas and safeguarding of natural regrowth.

5.2.3 Original data

See final reporting table.

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	n/a	317	475	n/a	n/a	n/a
Reforestation	n/a	n/a	2000	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

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
Simultaneous State Forest Account 1993 of the Republic of Armenia, Yerevan 1993	H	Forest and OWL areas	1983, 1988	Information about State Forest Fund
Forestry Management Planning Project	H	Forest and OWL areas	2004-2008	

6.2.2 Classification and definitions

National class	Definition
Growing stock	Volume of living stem wood in cubic meters of all trees in the stand
Commercial growing stock	Defined as the part of the growing stock available for wood supply (exploitation) – there is no official (legal /juridical) definition of “ <i>Commercial growing stock</i> ” in the country (see comments below)

6.2.3 Original data

Total growing stock on forest: 41 740 000 m³ (data for 1993) and 40 670 000 m³ for 2005.

For other wooded land, an expert estimate of 800 000 m³ has been used for all reporting years.

FRA Categories / Species name	Growing Stock in Forests		
	(million cubic meters)	(million cubic meters)	Percentage share
	1993	2005	1993
<i>Fagus orientalis</i>	20.68	20.52	49.54%
<i>Quercus macranthera</i>	12.54	11.3	30.04%
<i>Carpinus caucasica</i>	6.00	6.40	14.37%
<i>Pinus silvestris</i>	0.61	0.60	1.46%
<i>Carpinus orientalis</i>	0.45	0.45	1.08%
<i>Juniperus oblonga</i>	0.16	0.17	0.38%
<i>Populus</i>	0.31	0.28	0.74%
<i>Tilia cordata</i>	0.24	0.15	0.57%
<i>Fraxinus excelsior</i>	0.10	0.30	0.24%
<i>Acer tataricum</i>	0.14	0.20	0.34%
Remainder of species	0.51	0.30	1.22%
TOTAL	41.74	40.67	100%

6.3 Analysis and processing of national data

6.3.1 Estimation and forecasting

Data for 1990, 2000 and 2010 were estimated by linear inter- and extrapolation based on figures for 1993 and 2005.

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	42.01	41.12	40.67	40.22	0.80	0.80	0.80	0.80
... 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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

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>Fagus orientalis</i>		20.81	20.62	20.52
2 nd	<i>Quercus macranthera</i>		12.62	11.74	11.30
3 rd	<i>Carpinus caucasica</i>		6.04	6.28	6.40
4 th	<i>Pinus silvestris</i>		0.61	0.60	0.60
5 th	<i>Carpinus orientalis</i>		0.45	0.45	0.45
6 th	<i>Juniperus oblonga</i>		0.16	0.17	0.17
7 th	<i>Populus</i>		0.31	0.29	0.28
8 th	<i>Tilia cordata</i>		0.24	0.18	0.15
9 th	<i>Fraxinus excelsior</i>		0.10	0.23	0.30
10 th	<i>Acer tataricum</i>		0.14	0.18	0.20
Remaining			0.51	0.37	0.30
TOTAL			42.01	41.12	40.67

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)	4 cm	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)		There are no limits
Minimum diameter (cm) of branches included in growing stock (W)	3 cm	
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		
Growing stock of broadleaved / coniferous		
Growing stock of commercial species		
Growing stock composition		The overall growing stock composition has not been changed significantly, which allowed the above-mentioned calculations

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.

Other general comments to the table

For the last 12 years, during 1993-2000 on about 75 % of forest areas of the Republic of Armenia, Fellings /Cutting have exceeded for more than 10 times the Allowable Annual Cut. The last forest management planning on the territory of the Republic (as a whole) was implemented in 2004-2008, and the Forest Fund Account - in 1993.

- The background quantitative and qualitative changes have happened in forests, especially as far as the growing stock and species distribution is concerned
- The reliable information is available only for the 250 thousand hectares of the of the territory of the Republic, where the forest management planning was implemented in 2000-2007
- The lack of a legal /juridical definition of “*Commercial growing stock*” is a serious shortcoming
- The years 1988 and 1993 were taken as the basic years for the calculation of Growing Stock, and the volume data for 1990 were defined by the linear interpolation method
- For the estimation of data for 2000-2005, there were taken the international experts’ assumption, that the population of the Republic had used in 1993-1994-1995, as wood-fuel, some 1 (one) million cubic meters of wood annually. This assumption corresponds also to the estimates of local experts and specialists.
- During the reporting years, there were no any taking out the wood from the Republic, or importing wood into the country.
- The research of the illegal logging in 2002-2004, supported financially by the international bank, has shown that only in 2003 there were taken out of forests 847 thousand m3 of industrial wood and wood fuel, of which only 63 thousand m3 were legally documented.
- The Net Annual Increment of forests (State Forest Fund Account, 1993) is 440 thousand m3.

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 Original data

Data from table T6 were used as input for the estimations of biomass.

7.3 Analysis and processing of national data

7.3.1 Calibration

7.3.2 Estimation and forecasting

The following conversion factors were used:

Forest

BCEF: 0.66 (Mediterranean, dry tropical & subtropical; > 80 m³/ha)

R/S ratio: 0.23 (Temperate, other broadleaved with above-ground biomass 75-150 t/ha)

Other wooded land:

BCEF: 3.0

R/S ratio: 0.46

Dead wood was not estimated due to lack of default values in the guidelines.

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	27.7	27.1	26.8	26.5	2.40	2.40	2.40	2.40
Below-ground biomass	6.38	6.24	6.17	6.11	1.10	1.10	1.10	1.10
Dead wood	ID	ID	ID	ID	ID	ID	ID	ID
TOTAL	ID	ID	ID	ID	ID	ID	ID	ID

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

Data on biomass stocks from reporting table T7 were used for estimating carbon in biomass. Forest area from reporting table T1 was used for estimating carbon in litter and soil.

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

The following conversion factors and default values were used. Default values correspond to the climate zone “Warm, temperate, dry”

Carbon fraction in biomass:	0.47
Carbon stock in litter:	28.2 t/ha
Carbon stock in soil, sandy soils (20 000 ha)	19 t/ha
Carbon stock in soil, (remainder)	38 t/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	13.03	12.75	12.62	12.48	1.13	1.13	1.13	1.13
Carbon in below-ground biomass	3.00	2.93	2.90	2.87	0.52	0.52	0.52	0.52
Sub-total: Living biomass	16.03	15.69	15.52	15.35	1.65	1.65	1.65	1.65
Carbon in dead wood	ID	ID	ID	ID	ID	ID	ID	ID
Carbon in litter	9.44	9.38	9.35	9.32	ID	ID	ID	ID
Sub-total: Dead wood and litter	ID	ID	ID	ID	ID	ID	ID	ID
Soil carbon	12.34	12.26	12.22	12.18	ID	ID	ID	ID
TOTAL	ID	ID	ID	ID	ID	ID	ID	ID

Soil depth (cm) used for soil carbon estimates	30
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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
National Statistical Service of the Republic of Armenia, Yearbook	M	Forest disturbances by fire	1998-2003	Partial coverage

9.2.2 Original data

Categories	Areas	Years						Average (1998-2002)
		1998	1999	2000	2001	2002	2003	
Disturbance by fire	hectares	302.5	52.1	26.9	126.8	5.7	126.8	102.8

Note: Fires, according to the national standards of the Republic of Armenia, are statistically recorded starting from 0.01 ha

Data for 2005 reported directly in the table below.

9.3 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.	0.409	25
... of which on forest	n.a.	n.a.	0.103	n.a.	0.337	n.a.
... of which on other wooded land	n.a.	n.a.	n.a.	n.a.	0.072	n.a.
... of which on other land	n.a.	n.a.	n.a.	n.a.	0	n.a.

Table 9b

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

9.4 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

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
National Statistical Service of the Republic of Armenia, Yearbook	M	Forest disturbances insects	1998-2003 2003-2007	Partial coverage

10.2.2 Original data

See final reporting table.

10.3 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	40	24	46.3
Disturbance by diseases	9.5	5.2	7.7
Disturbance by other biotic agents			
Disturbance caused by abiotic factors			
Total area affected by disturbances	49.5	29.2	54

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)
Common lackey (Malacosoma neustria L.)	<i>Oak</i>	2007		3 years
Brown-tail moth (Euproctis chrysorrhoea L)		2008		
Gipsy-moth (Ocneria dispar L)				
Oak mildew (microshaera alphitoides)		2007	7.7	

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)
Total forest area affected by woody invasive species	

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		
Disturbance caused by abiotic factors		
Major outbreaks		
Invasive species		

Other general comments to the 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
UNECE. 1995. <i>FOREST AND FOREST PRODUCTS COUNTRY PROFILE: Republic of Armenia</i> . Available at: http://www.unece.org/timber/docs/sp/SP8-ARMENIA.pdf		Quantity and value of removals	1990	
Reports from the Association “ARMLLES” (Hayantar) and from National Parks		Removal data	1999-2003	

11.2.2 Original data

Data for 1990 (1000 cubic meters of roundwood under bark)

	Industrial Roundwood	Woodfuel	TOTAL
1988	7.4	44.9	52.3
1989	8.4	49.6	58
1990	8.2	50.4	58.6
1991	8.5	54.7	63.2
1992	8.5	145.5	154
1993	14.2	192.4	206.6
Average 1988-1992	8.2	69.02	77.2

Data for 2000

Categories	Volume in 1000 cubic meters of roundwood under bark					
	1999	2000	2001	2002	2003	Average
Industrial roundwood	5.5	8.4	6.7	6.8	9.1	7.3
Woodfuel	55.0	60.0	50.0	57.0	65.8	57.6
TOTAL for Country	60.5	68.4	56.7	63.8	74.9	64.9

11.3 Analysis and processing of national data

11.3.1 Estimation and forecasting

National figures were multiplied by 1.15 to obtain volume over bark. Data for 1990 and 2000 are five-year averages. Data from 2003 were used to report for 2005. Although some removals may have come from other wooded land, most come from forest and the entire volume removed has therefore been reported as “from forest”.

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.)	9.4	8.4	10.5	79.4	66.2	75.7
... of which from forest	9.4	8.4	10.5	79.4	66.2	75.7
Unit value (local currency / m ³ o.b.)	25	17774	26910	13	7100	5900
Total value (1000 local currency)	235	149302	282555	1032	470020	446630

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	USSR rouble	Dram	Dram

11.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals		
Total volume of woodfuel removals		
Unit value		
Total value		

Other general comments to the table

The research of the illegal logging in 2002-2004, supported financially by an international bank, has shown that only in 2003 there were taken out of forests 847 thousand m³ of industrial wood and wood fuel, of which only about 63 thousand m³ were legally documented. Expert estimates on woodfuel consumption indicate that there should be a woodfuel removal of about one million m³. The reported figures are therefore underestimates.

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

No information is available for this reporting 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
ILO. 2003. <i>Employment trends and prospects in the European forest sector.</i> By Peter Blombäck, Peter Poschen, Mattias Lövgren. Discussion paper ECE/TIM/DP/29, Geneva, Switzerland. Available at: http://www.unece.org/timber/docs/dp/dp-29.pdf	H	Employment in forestry, logging and related services	1990, 2000	Statistics collected through the questionnaire officially submitted to ILO
FAO. 2008. <i>Contribution of the forestry sector to national economies, 1990-2006</i> , by A. Lebedys. Forest Finance Working Paper FSFM/ACC/08. FAO, Rome. http://www.fao.org/docrep/011/k4588e/k4588e00.htm		Employment in forestry, logging and related services	2005	Secondary data source
National Statistical Service of the Republic of Armenia. <i>Environment and natural resources in RA for 2007.</i> Available at: http://www.armstat.am/file/article/ecol_07_5.pdf	H	Employment in management of protected areas	2000, 2005	Official statistics

13.2.2 Original data

Original data on employment in primary production of goods are presented directly in the reporting table below.

For employment in management of protected areas, original data are presented in the following table:

Number of employees at the end of the year of specially protected areas, 2000, 2004-2007 (end of year, person)

	2000	2004	2005	2006	2007
Total employees	579	462	439	445	472
of which:					
scientists	26	26	22	27	27
employees of protection service	345	264	239	247	238
other employees	208	172	178	171	207

13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	5.3	2.3	2
...of which paid employment	n.a.	n.a.	n.a.
...of which self-employment	n.a.	n.a.	n.a.
Employment in management of protected areas	n.a.	0.6	0.4

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

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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	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Year of endorsement	2005	
	Reference to document		
National forest programme (nfp)	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Name of nfp in country	National Forest Program of the RA	
	Starting year		
	Current status	<input type="checkbox"/>	In formulation
		<input checked="" type="checkbox"/>	In implementation
		<input type="checkbox"/>	Under revision
<input type="checkbox"/>		Process temporarily suspended	
Reference to document or web site			
Law (Act or Code) on forest with national scope	<input checked="" type="checkbox"/>	Yes, specific forest law exists	
	<input type="checkbox"/>	Yes, but rules on forests are incorporated in other (broader) legislation	
	<input type="checkbox"/>	No, forest issues are not regulated by national legislation	
If Yes above, provide:	Year of enactment	2005	
	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	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	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	A document describing the strategic ways for rehabilitation of degraded forest ecosystems, sustainable use, and development processes of useful properties of the forest.
National forest programme (nfp)	Program of activities aimed at supporting protection and sustainable use of forest resources at local, national and global levels by stimulating national and international cooperation to manage, protect and rehabilitate forest resources and soil for the benefits of present and future generations
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	Ministry of Agriculture	
Level of subordination of Head of Forestry within the Ministry	X	1 st level subordination to Minister
		2 nd level subordination to Minister
		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		

Table 15b – Human resources

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

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 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	na	na	14	30	15	30
Bachelor's degree (BSc) or equivalent	na	na	170	30	200	50
Forest technician certificate / diploma	na	na	na	na	na	na
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)	na	na	na	na	4	na
Master's degree (MSc) or equivalent	na	na	na	na	8	5
Bachelor's degree (BSc) or equivalent	na	na	na	na	40	5

16.3 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

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 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	537980	635711

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	na	na	na	na	na	na
Transfer payments	na	na	na	na	na	na
Total public expenditure	537980	635711	99700	458519	637680	1119951
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				

17.3 Comments to Table T17

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

Other general comments to the table