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Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT

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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 2005 (FRA 2005), which is the most comprehensive assessment to date. More than 800 people have been involved, including 172 national correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

The reporting framework for FRA 2005 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes more than 40 variables related to the extent, condition, uses and values of forest resources. More information on the FRA 2005 process and the results - including all the country reports - is available on the FRA 2005 Web site (www.fao.org/forestry/fra2005).

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 2005 is:

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Contents

1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2005 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
Engineering Technical Bureau of FRWO	H	Satellite Images Landsat 5 TM	1998	Excluding fragmented Forests with around 0.5 ha. We are providing maps with 1:25000 to extract those forests in coming year 2005
Technical Forest Management of FRWO	M	Land cover map 1:25000 for North of Iran Land Cover 1:250000 For the rest	1997	Base Map: 1997-8. Output Map: 2000

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 5 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use.

1.2.3 Original data

Table A:

	classification based on vegetation cover map 1/25000 in year2000	Percentage Cover- %	Area/ 1000 ha.
Out of North Forests	First class	100-50	843.495
	Second Class	25-50	2773.204
	Third Class1	10-25	4175.553
	Third Class2	10-5	2783.702
	Mangrove Forest	-	19.234
North Forests	Hyrcanian Forest	50-100	1847.886
	Planted forest	-	592.922
			13035.998

Through Iran FRA Expertise Group session the statistics of the table A mixed with other valid statistics plus expertise views and after correction some of statistics (first class , second class and thirdclass1) the total area for out of North Forest (>10%) changed to 8636046 ha instead of 7811486 ha.

Through Iran FRA Expertise Group session the statistics of the table A mixed with other valid statistics plus expertise views and after correction some of statistics (first class , second class and thirdclass1) the total area for out of North Forest (>10%) changed to 8636046 ha instead of 7811486 ha.

Table B: Forest Area with more than 10 % tree coverage

	Forest Area / 1000ha.
Out of North Forest	8636.046
North Forest	1847.886
Planted Forest	592.922
Total	11074.554

Note: The figures in the table B is the original data used in FRA 2005 for calculation and for preparing other tables (the columns which related to year 2000).

1997

Forest area: 13 858 556 ha of which 11 074 854 have a crown cover of more than 10 percent.
Shrubland: 2 556 404 ha . Parks and green spaces: 82 624 ha

1.3 Analysis and processing of national data

1.3.1 Calibration

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

1.4 Reclassification into FRA 2005 classes

Forests:

Forest (National Class)	**Area/000ha**
5%<	13858.556

Forest (FRA2005 Classification)	**Area/ 000ha**
10%<	11074.854

Other wooded lands = 2556.404 (000ha) Shrub lands + 2783.702 (000 ha) Forest less than 10% coverage, totalling 5340.106 (000 ha). Other land with tree cover includes the total area of parks + green spaces in the Out of North Forests.

1.5 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	**2000**	**2005**
Forest	11075	11075	11075
Other wooded land	5340	5340	5340
Other land	147205	147205	147205
...of which with tree cover [1)]	83	83	83
Inland water bodies	1200	1200	1200
TOTAL	164820	164820	164820

1.6 Comments to National reporting table T1:

The above estimates are based on information from 1997. There is no information available for estimating changes over time, but any deforestation is unlikely to exceed the annual planting rate, so the original data have been used for all three reporting years. Around 600 000 ha of Total Forest are used as forest fallow. Around 600 000 ha of Total Forest are used as forest fallow. The figures in the table entitled original data (Table A and Table B) are based on vegetation cover 1/25000 in year 2000. The method used for preparing this map is satellite data (1998) interpretation plus expertise views.
The table below shows another forest classification which use by the country in some cases.

The significant differences between forest area in FRA 2000 and FRA 2005 is related to different forest reclassification used for two FRAs (2000 and 2005) and also is related to unavailable valid statistics in the year which the FRA 2000 report was prepared for the country.

2 Table T2 – Ownership of Forest and Other wooded land

2.1 FRA 2005 Categories and definitions

Category	Definition
Private ownership	Land owned by individuals, families, private co-operatives, corporations, industries, religious and educational institutions, pension or investment funds, and other private institutions.
Public ownership	Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies including cities, municipalities, villages and communes.
Other ownership	Land that is not classified either as "Public ownership" or as "Private ownership".

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Engineering Technical Bureau of FRWO	H	Public ownership	2000	

2.2.2 Classification and definitions

2.2.3 Original data

According to the Constitutional Law of Iran, the principle 45, all of forests, shrub lands and other wooded lands are owned by the State. Table T1 has, therefore, been used as input to this table.

2.3 Analysis and processing of national data

2.3.1 Calibration

2.3.2 Estimation and forecasting

2.4 Reclassification into FRA 2005 classes

Not needed.

2.5 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership	-	-	-	-
Public ownership	11075	11075	5340	5340
Other ownership	-	-	-	-
TOTAL	**11075**	**11075**	**5340**	5340

2.6 Comments to National reporting table T2

3 Table T3 – Designated function of Forest and Other wooded land

3.1 FRA 2005 Categories and definitions

Types of designation

Category	Definition
Primary function	A designated function is considered to be primary when it is significantly more important than other functions. This includes areas that are legally or voluntarily set aside for specific purposes.
Total area with function	Total area where a specific function has been designated, regardless whether it is primary or not.

Designation categories

Category / Designated function	Definition
Production	Forest / Other wooded land designated for production and extraction of forest goods, including both wood and non-wood forest products.
Protection of soil and water	Forest / Other wooded land designated for protection of soil and water.
Conservation of biodiversity	Forest / Other wooded land designated for conservation of biological diversity.
Social services	Forest / Other wooded land designated for the provision of social services.
Multiple purpose	Forest / Other wooded land designated to any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone can be considered as being significantly more important than the others.
No or unknown function	Forest / Other wooded land for which a specific function has not been designated or where designated function is unknown.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Engineering Technical Bureau of FRWO	M	Conservation of biodiversity	2004	Arasbaran Forests (152 851 hectares). Some parts of this forest is conserved as biosphere reserve and the rest be conserved by FRWO and some restoration plans formulated for this forest. This forest is not national park.
Expert estimation. Head of Expert group Dr. Shamsollah Shariat Negad	M	Production forest	2005	

3.2.2 Classification and definitions

National class	Definition
Production	In accordance with the FRA 2005 classification
Conservation of biodiversity	In accordance with the FRA 2005 classification
Multiple purpose	In accordance with the FRA 2005 classification

3.2.3 Original data

Production forest: 1500 hectares.
Conservation of biodiversity: Arasbaran Forests (152 851 hectares)
The rest of the forest area is classified as multiple purpose.

3.3 Analysis and processing of national data

3.3.1 Calibration

3.3.2 Estimation and forecasting

Due to lack of other information, the original data have been used for all three reporting years.

3.4 Reclassification into FRA 2005 classes

3.5 Data for National reporting table T3

FRA 2005 Categories / Designated function	Area (1000 hectares)					
	Primary function			Total area with function		
	1990	2000	2005	1990	2000	2005
Forest						
Production	1500	1500	1500			
Protection of soil and water	ID	ID	ID			
Conservation of biodiversity	153	153	153			
Social services	-	-	-			
Multiple purpose	9422	9422	9422	not appl.	not appl.	not appl.
No or unknown function	-	-	-	not appl.	not appl.	not appl.
Total - Forest	**11075**	**11075**	**11075**	**not appl.**	**not appl.**	**not appl.**
Other wooded land						
Production	0	0	0			
Protection of soil and water	0	0	0			
Conservation of biodiversity	0	0	0			
Social services	0	0	0			
Multiple purpose	5340	5340	5340	not appl.	not appl.	not appl.
No or unknown function	0	0	0	not appl.	not appl.	not appl.
Total – Other wooded land	**5340**	**5340**	**5340**	**not appl.**	**not appl.**	**not appl.**

3.6 Comments to National reporting table T3

The area designated for conservation of biodiversity is the Arasbaran Forests. A great part of the area classified as multiple purpose is designated for soil and water protection and small parts of it, which have not been separated exactly, are designated for other functions such as Reservoirs, Biosphere, forest parks and etc.

4 Table T4 – Characteristics of Forest and Other wooded land

4.1 FRA 2005 Categories and definitions

Category	Definition
Primary	Forest / Other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Modified natural	Forest / Other wooded land of naturally regenerated native species where there are clearly visible indications of human activities.
Semi-natural	Forest / Other wooded land of native species, established through planting, seeding or assisted natural regeneration.
Productive plantation	Forest / Other wooded land of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non wood goods.
Protective plantation	Forest / Other wooded land of native or introduced species, established through planting or seeding mainly for provision of services.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Engineering Technical Bureau of FRWO	M		2004	
Head of FRA 2005 expert group, Dr. Shariat negad		Primary, modified natural seminatural forest and plantations.	2004	It includes Plantations of native species in the Caspian Forests. The main objective of plantation in this part is restoration. Plantations in the Out of North Forests of native and introduced species Plantations of conifers in the Caspian Forests (10% of total forest plantations established in the Caspian Forest are conifers). The main objective in this part is for production

4.2.2 Classification and definitions:

National class	Definition
Primary	Same as FRA2005
Modified natural	Same as FRA2005
Semi-natural	Same as FRA2005
Productive plantation	Same as FRA2005

4.2.3 Original data

FRA 2005 Categories	Area (1000 hectares)	Reference year	Source
Primary	200	2004	Expert estimate
Modified natural	10030	2004	""
Semi-natural	228	2004	""
Productive plantation	616	2004	""
Protective plantation	-	2004	""
TOTAL	**11075**	**2004**	**""**

Plantation in desert areas with some native and introduce species that does not have success as a forest and can be as shrublans.

2004
Primary forest: 200 000 ha
Semi-natural forest: Plantations of native species in the Caspian Forests (228 567.6 ha).
Productive plantation: Plantations in the Out of North Forests of native and introduced species (590 922 ha) + Plantations of conifers in the Caspian Forests (Around 10% of total forest plantations (or 25300 ha) established in the Caspian Forest are conifers) totalling 616 328.4 ha.
Modified natural forests: The remaining forests and all other wooded lands.

4.3 Analysis and processing of national data

4.3.1 Calibration

4.3.2 Estimation and forecasting

Due to lack of other information, the above estimates have been used for all three reporting years.

4.4 Reclassification into FRA 2005 classes

4.5 Data for National reporting table T4

FRA 2005 Categories	Area (1000 hectares)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Primary	200	200	200	-	-	-
Modified natural	10030	10030	10030	5340	5340	5340
Semi-natural	228	228	228	-	-	-
Productive plantation	616	616	616	-	-	-
Protective plantation	-	-	-	-	-	-
TOTAL	**11075**	**11075**	**11075**	**5340**	**5340**	**5340**

4.6 Comments to National reporting table T4

5 Table T5 – Growing stock

5.1 FRA 2005 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.
Commercial growing stock	The part of the growing stock of species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.

5.2 National data

5.2.1 Data sources

References to sources of information (For Caspian Forests)	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Deputy- FRWO	H	Growing stock	1987	4th national periodic inventory based on temperate sample plots- field work during 1985-1988,published in1990
Forest Deputy- FRWO	H	Growing Stock	1997	5th national periodic inventory based on permanent sample plots- field work during 1996-1998,published in2000

References to sources of information (For Out of North Forests)	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Deputy- FRWO	L	Growing stock	1999	Not published

5.2.2 Classification and definitions

National class	Definition
Growing Stock for (Caspian Forests)	Volume over bark of all living trees more than 12.5 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 7 cm, and may also include branches to a minimum diameter of 7 cm.
Growing Stock (for Out of North Forests)	Volume over bark of all living trees more than 7.5 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 5 cm, and may also include branches to a minimum diameter of 5 cm.

5.2.3 Original data

Caspian forests:

year	Forest Area	Average Growing Stock
1990	1925167	210
2000	1847886	220
2005	1847886	225

According to the 4th national periodic inventory based on temperate sample plots-field work during 1985-1988, in 1987, the forest area of the Caspian Forest is estimated at 1 925 167 ha and the average growing stock is 210 cubic meters per hectare.

Based on vegetation cover map scale 1:25000, forest area in 1997 is 1 847 886 ha, and it is assumed the same area for the year 1990. The average growing stock is 220 cubic meters per hectare

According to the decreasing of deforestation and annual harvesting the average volume of the growing stock increases by 1 cubic meter per hectare per year.

Out of North Forests

Based on vegetation cover map scale 1:25000, forest area in 1997 is 9 227 854 ha.

The most parts of the Out of North Forests are simple coppice, so measurement of the growing stock cannot be easily done. The growing stock in these forests varies between 5 to 40 cubic meters per hectare. Average growing stock for these forests is estimated at 12 cubic meters per hectare.

5.3 Analysis and processing of national data

5.3.1 Calibration

5.3.2 Estimation and forecasting

Caspian forests:
The 1987 figure has been used for reporting year 1990 and the 1997 figure has been used for reporting year 2000.

For 2005, an average growing stock of 225 cubic metres per hectare has been assumed with the same forest area as in 1997.

According to the definition, all of the growing stock of Caspian forest is commercial.

Data for Table T5

FRA 2005 Categories (For Caspian Forests only)	**Volume (million cubic meters over bark)**					
	Forest			**Other wooded land**		
	1990	**2000**	**2005**	**1990**	**2000**	**2005**
Commercial Growing stock	404.894	406.535	415.774	Not available	Not available	Not available

Out of North Forests

The growing stock in these forests is assumed to have remained constant at 110 734 248 m3 (equivalent to 12 m3/ha * 9 227 854 ha)

Data for Table T5:

FRA 2005 Categories (for Out of North Forests)	**Volume (million cubic meters over bark)**					
	Forest			**Other wooded land**		
	1990	**2000**	**2005**	**1990**	**2000**	**2005**
Growing stock	110.73	110.73	110.73	Not available	Not available	Not available

5.4 Reclassification into FRA 2005 classes

National classifications	**FRA clases**
FRA 2005 Categories (For Caspian Forests only)	Commercial stock
FRA 2005 Categories (for Out of North Forests)	Growing stock

5.5 Data for National reporting table T5

FRA 2005 Categories	**Volume (million cubic meters over bark)**					
	Forest			**Other wooded land**		
	1990	**2000**	**2005**	**1990**	**2000**	**2005**
Growing stock	516	517	527	Not available	Not available	Not available
Commercial growing stock	405	407	416	Not available	Not available	Not available

Specification of country threshold values

Specification of country threshold values (for Caspian Forests)	**Unit**	**Value**	**Complementary information**
1. Minimum diameter at breast height of trees included in Growing stock (X)	cm	12.5	
2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock	cm	7	
3. Minimum diameter of branches included in Growing stock (W)	cm	7	
4. Minimum diameter at breast height of trees in Commercial growing stock (Z)	cm	12.5	
5. Volume refers to “Above ground” (AG) or “Above stump” (AS)	AG	Above ground	
6. Have any of the above thresholds (points 1 to 4) changed since 1990	Yes/No	No	The changes does not belong to points 1 to 4, but based on new measurement FROW renew the basic volume table for Fagus Orientalis which are different with previous one
7. If yes, then attach a separate note giving details of the change	Attachment		

Specification of country threshold values(for Out of North Forest)	**Unit**	**Value**	**Complementary information**
1. Minimum diameter at breast height of trees included in Growing stock (X)	cm	7.5	-
2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock	cm	5	-
3. Minimum diameter of branches included in Growing stock (W)	cm	5	-
4. Minimum diameter at breast height of trees in Commercial growing stock (Z)	cm	7.5	-
5. Volume refers to “Above ground” (AG) or “Above stump” (AS)	AG / AS	Above ground	-
6. Have any of the above thresholds (points 1 to 4) changed since 1990	Yes/No	no	-
7. If yes, then attach a separate note giving details of the change	Attachment		-

5.6 Comments to National reporting table T5

All tree species in the country's forest are commercial. The regional inventory had started from 1956 in Caspian Forest and the period between inventories is ten years.

6 Table T6 – Biomass stock

6.1 FRA 2005 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 living 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 biomass	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.

6.2 National data

6.2.1 Data sources

References to sources of information (For Caspian Forest)	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Deputy- FROW	H	species growing stock	2000	5th national periodic inventory
Forest Deputy- FROW	H	species growing stock	1990	4th national periodic inventory
IPCC	L	dead live ratio	2001	Deciduous forests

References to sources of information (For Out of North Forests)	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forest Deputy- FROW	L	Average v/ha	1999	Not published
IPCC	L			

6.2.2 Classification and definitions

National class	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, without seeds and foliage

6.2.3 Original data

1: Basic density by species estimated by the country

Beech	0.535
Carpinus betulus	0.7
Quercus castanea folia	0.667
Parrotia persica	0.66
Alnus	0.37
Diospyrus lotus	0.57
Acer	0.489
Tillia	0.47
Fraxinus	0.667

Note: Because of the difference between the values of basic density estimated by the country and FRA guideline, the expert committee decided to use the FRA guideline basic density (0.7) for calculation.

2- The final data for table T5 were used as input for the biomass estimations.

Thresholds used by the country are the following:

For temperate Asia deciduous and broadleaved forests:
According to FRA Guideline Basic wood density =0.7 (basic wood density calculated by the country based on species attachment No.1)
R for broadleaf forest (Out of north forest with 12 m^3/ha average growing stock)<75 ton/hectare = **0.43**
R for broadleaf forest (Caspian forest with 210-220 m^3/ha average growing stock) 75-150 ton/hectare = **0.26**
BEF = **1.4**
Dead-live ratio = **0.14**

6.3 Analysis and processing of national data

6.3.1 Calibration

6.3.2 Estimation and forecasting

By using the method which has introduced in IPCC and the values from table T5:

For Caspian Forests

year	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)
1990	404.894	0.7	283.426	1.4	396.796	0.26	103.167
2000	406.535	0.7	284.575	1.4	398.404	0.26	103.585
2005	415.774	0.7	291.042	1.4	407.459	0.26	105.939

For Out of North Forests

year	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)
All 3 years	110.72	0.7	77.504	1.4	108.506	0.43	46.657

For Caspian Forest

FRA 2005 Categories(For Caspian Forest)	Biomass (million metric tonnes oven-dry weight)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Above-ground biomass	396.796	398.404	407.459	-	-	-
Below-ground biomass	103.167	103.585	105.939	-	-	-
Dead wood biomass	69.99	70.28	71.876	-	-	-
TOTAL	**569.958**	**572.268**	**585.274**	**-**	**-**	**-**

Out of North Forests

FRA 2005 Categories(Out of North Forests)	Biomass (million metric tonnes oven-dry weight)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Above-ground biomass	108.506	108.506	108.506	-	-	-
Below-ground biomass	46.657	46.657	46.657	-	-	-
Dead wood biomass	21.723	21.723	21.723	-	-	-
TOTAL	**176.886**	**176.886**	**176.886**	**-**	**-**	**-**

6.4 Reclassification into FRA 2005 classes

Not needed. The data can be used directly

6.5 Data for National reporting table T6

FRA 2005 Categories	Biomass (million metric tonnes oven-dry weight)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Above-ground biomass	505	507	516	-	-	-
Below-ground biomass	150	150	153	-	-	-
Dead wood biomass	92	92	94	-	-	-
TOTAL	**747**	**749**	**763**	**-**	**-**	**-**

6.6 Comments to National reporting table T6

7 Table T7 – Carbon stock

7.1 FRA 2005 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 living 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 biomass	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 a minimum diameter chose by the country for lying dead (for example 10 cm), in various states of decomposition above the mineral or organic soil. This includes the litter, fumic, and humic layers.
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.

7.2 National data

7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Table T6 – Biomass stock and its components	L	AGB,BGD,DWB	1999	-
IPCC	L	The equation	2004	-

7.2.2 Classification and definitions:

National class	Definition
Carbon in above-ground biomass	It corresponds to FRA 2005 definition.
Carbon in below-ground biomass	It corresponds to FRA 2005 definition.
Carbon in dead wood biomass	It corresponds to FRA 2005 definition.

7.2.3 Original data

The final data for table T6 were used as input for the carbon estimations

7.3 Analysis and processing of national data

The default factor of 50% was used to convert biomass stock from table T6 to carbon stock.

7.3.1 Estimation and forecasting

For Caspian Forests

FRA 2005 Categories (For Caspian Forests)	Carbon (Million metric tonnes)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Carbon in above-ground biomass	198.398	199.202	203.730	-	-	-
Carbon in below-ground biomass	51.58	51.79	52.970	-	-	-
Sub-total: Carbon in living biomass	**249.978**	**250.992**	**256.700**	**-**	**-**	**-**
Carbon in dead wood	34.997	35.139	35.938	-	-	-
Carbon in litter				-	-	-
Sub-total: Carbon in dead wood and litter				**-**	**-**	**-**
Soil carbon to a depth of _____ cm	ID	ID	ID	-	-	-
TOTAL CARBON				**-**	**-**	

For out of North Forest)

FRA 2005 Categories (For out of North Forest)	Carbon (Million metric tonnes)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Carbon in above-ground biomass	54.253	54.253	54.253	-	-	-
Carbon in below-ground biomass	23.328	23.328	23.328	-	-	-
Sub-total: Carbon in living biomass	**77.581**	**77.581**	**77.581**	**-**	**-**	**-**
Carbon in dead wood	10.861	10.861	10.861	-	-	-
Carbon in litter	-		-	-	-	-
Sub-total: Carbon in dead wood and litter	**-**		**-**	**-**	**-**	**-**
Soil carbon to a depth of _____ cm	-		-	-	-	-
TOTAL CARBON	**-**		**-**	**-**	**-**	**-**

The carbon stock in litter can not be calculated due to the absence of forest area.

7.4 Reclassification into FRA 2005 classes

Not needed. The data can be used directly.

7.5 Data for National reporting table T7

FRA 2005 Categories	Carbon (Million metric tonnes)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Carbon in above-ground biomass	253	253	258	-	-	-
Carbon in below-ground biomass	74	75	76	-	-	-
Sub-total: Carbon in living biomass	**328**	**329**	**334**	**-**	**-**	**-**
Carbon in dead wood	46	46	47	-	-	-
Carbon in litter	-	-	-	-	-	-
Sub-total: Carbon in dead wood and litter	-	-	-	-	-	-
Soil carbon to a depth of _____ cm	-	-	-	-	-	-
TOTAL CARBON	**374**	**375**	**381**	-	-	-

7.6 Comments to National reporting table T7

8 Table T8 – Disturbances affecting health and vitality

8.1 FRA 2005 Categories and definitions

Category	Definition
Disturbance by fire	Disturbance caused by wildfire, independently whether it broke out inside or outside the forest/OWL.
Disturbance by insects	Disturbance caused by insect pests that are detrimental to tree health.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as a bacteria, fungi, phytoplasma or virus.
Other disturbance	Disturbance caused by other factors than fire, insects or diseases.

8.2 National data

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Conservation and protection Programme of Natural Resources 1989-2003 .	M	Disturbance by fire, insects, disease	1990	
Integrated Programme on Conservation and Protection of Natural Resources in Iran-	M	Disturbance by fire, insects, diseases	2002	The information has gathered from Conservation and Protection Bureau of FRWO , formal statistics exist at FRWO and main finding of some researches
Country Report to International conference of Forest fire Management	H	Area , Number , Average area	2003	
Conservation and protection Criteria and Indicators for SFM	M	Criteria: biodiversity, Environmental Health, Economic criteria	2003	
Conservation and protection Programme of Natural Resources	H to M		1989-2003	The programme was conducted cross the country

8.2.2 Classification and definitions

National class	Definition
Natural factors	Factors making unexpected disturbances by insect pests, diseases, wild fire, drought, flood and so on.
Human factors	Factors making disturbances by human activities such as fire, illegal cutting, overgrazing and so on
Conservative Criteria	To decrease or to prevent natural resources degradation
Protective Criteria	To increase efficiency conservative measurements

8.2.3 Original data

Average annual area affected (hectares)

	1988	1989	1990	1991	1992	Average 1988-1992
Disturbance by fire	612	408	1133	289	3924	9815
Disturbance by insects and diseases	21761	21990	67716	263162	178442	110614

The figures have been used for table 8-5 are 5-year average area.

	1998	1999	2000	2001	2002	Average 1998-2002
Disturbance by fire	13167	7036	2155	3184	6789	6 466
Disturbance by insects and diseases	165219	145755	35437	104923	330394	220 133

Average annual area affected (hectares)

	1990	2000
Disturbance by fire	9 815	6 466
Disturbance by insects and diseases	110 614	220 133

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

8.4 Reclassification into FRA 2005 classes

8.5 Data for National reporting table T8

FRA-2005 Categories	Average annual area affected (1000 hectares)			
	Forests		Other wooded land	
	1990	2000	1990	2000
Disturbance by fire	10	6	Not identified	Not identified
Disturbance by insects and diseases	111	220	Not identified	Not identified
Other disturbance	Not identified	Not identified	Not identified	Not identified

8.6 Comments to National reporting table T8

More than 99% of fires in the country are surface fires and are not reported as deforestation or forest degradation. This table has been filled based on the national forest definition (forest with more than 5% coverage) so it includes data for OWL.

The increasing area disturbed by insects and diseases in the year 2000 in comparison with the year 1990 is due to some drought.

9 Table T9 – Diversity of tree species

9.1 FRA 2005 Categories and definitions

Category	Definition
Number of native tree species	The total number of native tree species that have been identified within the country.
Number of critically endangered tree species	The number of native tree species that are classified as "Critically endangered" in the IUCN red list.
Number of endangered tree species	The number of native tree species that are classified as "Endangered" in the IUCN red list.
Number of vulnerable tree species	The number of native tree species that are classified as "Vulnerable" in the IUCN red list.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Red Book	H	endangered tree species, vulnerable tree species	2004	Research Institute on Forests and Range Lands
Trees ands Shrubs of Iran	H	Native tree species	2004	Dr. Habib Allah Sabeti - yazd University

9.2.2 Classification and definitions

National class	Definition
Native tree species	In accordance with the FRA 2005 definitions
Critically endangered tree species	In accordance with the FRA 2005 definitions
Endangered tree species	In accordance with the FRA 2005 definitions
Vulnerable tree species	In accordance with the FRA 2005 definitions

Note: If different national data sources use different classes and definitions, a table such as above is needed for each relevant data source.

9.2.3 Original data

Native tree species	503
Critically endangered tree species	0
Endangered tree species	2
Vulnerable tree species	7

The IUCN Red List contains only one vulnerable species for I.R. of Iran: *Aquilaria malaccensis* (Agarwood).

9.3 Analysis and processing of national data

9.4 Reclassification into FRA classes

9.5 Data for National reporting table T9

FRA 2005 Categories	**Number of species (year 2000)**
Native tree species	503
Critically endangered tree species	0
Endangered tree species	0
Vulnerable tree species	1

9.6 Comments to National reporting table T9

The IUCN Red List contains only one vulnerable species for I.R. of Iran: *Aquilaria malaccensis* (Agarwood), while the national list contains 2 endangered species and 7 vulnerable species.

10 Table T10 – Growing stock composition

10.1 FRA 2005 Categories and definitions

Carpinus betulus
Fagus orientalis (Beech)
Alnus sp.
Quercus castaneafolia
Acer sp.
Pavotia persica
Tillia sp
Diospyrus lotus
Fraxinus sp.

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Forestry Deputy	H	Species	2000	

10.2.2 Original data

Only growing stock data for Caspian forests from 1987 and 1997 are available by species and presented in this table. The data are used directly to represent the reporting years 1990 and 2000 respectively.

10.3 Analysis and processing of national data

10.3.1 Calibration

10.3.2 Estimation and forecasting

10.4 Reclassification into FRA classes

10.5 Data for National reporting table T10

FRA 2005 Categories / Species name* (Scientific name and common name)	Growing Stock in Forests (million cubic meters)	
	1990	2000
Carpinus betulus	126.20	125.25
Beech or fagus orientalis	132.48	123.26
Alnus sp.	30.53	35.53
Quercus castaneafolia	34.17	36.35
Acer sp.	30.32	27.39
Pavotia persica	15.75	21.29
Tillia sp	11.45	10.61
Diospyrus lotus	5.99	9.86
Fraxinus sp.	1.21	1.41
Remainder of species	16.68	15.585
TOTAL	**404.87**	**406.535**

*The name of the species has ordered based on most common species in year 2000

10.6 Comments to National reporting table T10

This table includes just the species of Caspian Forest. However, the growing stock of Caspian forest represents approximately 80% of the total growing stock in the country.

11 Table T11 – Wood removal

11.1 FRA 2005 Categories and definitions

Category	Definition
Industrial wood removal	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removal	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
Plan &Programme Bureau- FRWO	H	-	2004	-

11.2.2 Classification and definitions

National class	Definition
Industrial wood removal	It corresponds the FRA 2005 definition
Woodfuel removal	It corresponds the FRA 2005 definition

11.2.3 Original data

Table A: industrial wood removal – Iran

	Industrial wood removal-class1/ CM	Industrial wood removal-class2/CM	Industrial wood removal-class3/CM	Industrial wood removal-class4/CM	Industrial wood removal-class5/CM	Industrial wood removal-class6/CM
1988	265915	95991	70022	22862	187061	465320
1989	266550	110957	78368	20953	194310	518192
1990	266975	94635	74382	17586	206766	500546
1991	319977	97437	75254	20079	217120	718786
1992	323949	107350	79498	17839	212195	634975

Note: Class 1 to 6 refer to national terms which the country uses for different industrial wood removal in cubic meter.

Table A: industrial wood removal – Iran

	Industrial wood removal-class1/ CM	Industrial wood removal-class2/CM	Industrial wood removal-class3/CM	Industrial wood removal-class4/CM	Industrial wood removal-class5/CM	Industrial wood removal-class6/CM
1998	341176	79320	49646	19569	250244	559871
1999	310031	64500	32062	17433	238775	493291
2000	315199	73475	28811	16322	237330	493212
2001	325799	61757	25071	17336	225406	501291
2002	315945	46361	19455	11496	223252	382672

11.3 Analysis and processing of national data

11.3.1 Estimation and forecasting

Five years average was estimated using the above figures. It is assume that the figures refers to over bark volume.

11.4 Reclassification into FRA 2005 classes

11.5 Data for National reporting table T11

FRA 2005 Categories	Volume in 1000 cubic meters of round wood over bark					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial round wood	1256	2050	2448	-	-	-
Wood fuel *	425	55	20	-	-	-
TOTAL for Country	**1 681**	**2 105**	**2 468**	**-**	**-**	**-**

* Illegal utilization is excluded (local utilization for rural consumption)

11.6 Comments to National reporting table T11

This table includes only the statistics related to Caspian Forest. However, the growing stock of Caspian forest represents approximately 80% of the total growing stock in the country.

12 Table T12 – Value of wood removal

12.1 FRA 2005 Categories and definitions

Category	Definition
Value of industrial wood removal	Value of the wood removed for production of goods and services other than energy production (woodfuel).
Value of woodfuel removal	Value of the wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

12.2 National data

12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Plan & Programme Bureau - FRWO	H	Price	2004	

12.2.2 Classification and definitions

National class	Definition
Value of industrial wood removal	It corresponds the FRA 2005 definition
Value of woodfuel removal	It corresponds the FRA 2005 definition

12.2.3 Original data

Average prices industrial round wood in reporting years

1990	2000	2005
23.30	51.73	48

12.3 Analysis and processing of national data

12.3.1 Estimation and forecasting

12.4 Reclassification into FRA 2005 classes

12.5 Data for National reporting table T12

FRA 2005 Categories	Value of round wood removal (1000 USD)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial round wood	29 281	106 072	117482	-	-	-
Wood fuel	733	548	184	-	-	-
TOTAL for Country	**30 014**	**106 620**	**117 666**	**-**	**-**	**-**

12.6 Comments to National reporting table T12

Calculations are based on one USD Dollar value 800 Rails in year 1990, 8000 Rails in year2000 and 8700 Rails in year 2005.

The prices of goods were under the control of the Government in the year 1990 while the prices are based on the open market procedure since 2000.

13 Table T13 – Non-wood forest product removal

13.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
Plant products / raw material
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
Animal products / raw material
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

13.2 National data

12.6.1 13.2.1 Data sources

References to sources of information	**Quality (H/M/L)**	**Variable(s)**	**Year(s)**	**Additional comments**
Out of North Forest Bureau - FRWO	M	Non-Wood Forest Products	2003	-

12.6.2 13.2.2 Classification and definitions

National class	**Definition**
Food	It corresponds with FRA 2005
Raw material for medicine and aromatic products	It corresponds with FRA 2005
Raw material for utensils, handicrafts & construction	It corresponds with FRA 2005
Exudates	It corresponds with FRA 2005

13.2.3 Original data

FRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	2000	2003
Plant products / raw material					
1. Food		Kg	-	48434	710
2. Fodder		-	-	-	-
3. Raw material for medicine and aromatic products		Kg	-	30262 *	6559
4. Raw material for colorants and dyes		-	-	-	-
5. Raw material for utensils, handicrafts & construction		Kg	-	750**	-
6. Ornamental plants		-	-	-	-
7. Exudates		Kg	421373	547782	84784

* Year 1999
** Year 2001

13.3Analysis and processing of national data

12.6.3 13.3.1Estimation and forecasting

Figures from 1999 and 2001 have been used for reporting year 2000. Figures from 2003 have been used for reporting year 2005.

13.4 Reclassification into FRA 2005 classes

Food Includes nuts of *Pistachia* sp., *Jugluns* sp., etc…

13.5 Data for National reporting table T13

FRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	2000	2005
Plant products / raw material					
1. Food		Tons	-	48.43	0.710
2. Fodder		-	-	-	-
3. Raw material for medicine and aromatic products		Tons	-	30.26	6.56
4. Raw material for colorants and dyes		-	-	-	-
5. Raw material for utensils, handicrafts & construction		Tons	-	0.750	-
6. Ornamental plants		-	-	-	-
7. Exudates		Tons	421.37	547.78	84.78
8. Other plant products		-	-	-	-
Animal products / raw material		-	-	-	-
9. Living animals		-	-	-	-
10. Hides, skins and trophies		-	-	-	-
11. Wild honey and bee-wax		-	-	-	-
12. Bush meat		-	-	-	-
13. Raw material for medicine		-	-	-	-
14. Raw material for colorants		-	-	-	-
15. Other edible animal products		-	-	-	-
16. Other non-edible animal products		-	-	-	-

13.6 Comments to National reporting table T13

The statistics in these tables are related to legal utilization of NWFP, not illegal use.

14 Table T14 – Value of non-wood forest product removal

14.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
Plant products / raw material
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
Animal products / raw material
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

14.2 National data

14.2.1 Data sources

References to sources of information	**Quality (H/M/L)**	**Variable(s)**	**Year(s)**	**Additional comments**
Out of North Forest Bureau - FRWO	M	Price	2003	-

14.2.2 Classification and definitions

14.2.3 Original data

FRA 2005 Categories	**Value of the of NWFP removed (1000 USD)**		
	1990	**2000**	**2003**
Plant products / raw material 1. Food	-	55.216	0.780
2. Fodder	-	-	-
3. Raw material for medicine and aromatic products	-	3.972*	0.940
4. Raw material for colorants and dyes	-	-	-
5. Raw material for utensils, handicrafts & construction	-	0.122**	-
6. Ornamental plants	-	-	-
7. Exudates	11061.041	1088.600	549.059

* Year 1999
** Year 2001

14.3 Analysis and processing of national data

14.3.1 Estimation and forecasting

Figures from 1999 and 2001 have been used for reporting year 2000. Figures from 2003 have been used for reporting year 2005.

14.4 Reclassification into FRA 2005 classes

14.5 Data for National reporting table T14

FRA 2005 Categories	**Value of the of NWFP removed (1000 USD)**		
	1990	**2000**	**2005**
Plant products / raw material			
1. Food	-	55.216	0.780
2. Fodder	-	-	-
3. Raw material for medicine and aromatic products	-	3.972	0.940
4. Raw material for colorants and dyes	-	-	-
5. Raw material for utensils, handicrafts & construction	-	0.122	-
6. Ornamental plants	-	-	-
7. Exudates	11061.041	1088.600	549.059
8. Other plant products	-	-	-
Animal products / raw material	-	-	-
9. Living animals	-	-	-
10. Hides, skins and trophies	-	-	-
11. Wild honey and bee-wax	-	-	-
12. Bush meat	-	-	-
13. Raw material for medicine	-	-	-
14. Raw material for colorants	-	-	-
15. Other edible animal products	-	-	-
16. Other non-edible animal products	-	-	-
TOTAL	**11061.041**	**1147.91**	**550.779**

14.6 Comments to National reporting table T14

Calculations are based on one USD Dollar value 800 Rails in year 1990, 8000 Rails in year 2000 and 8700 Rails in year 2005.

15 Table T15 – Employment in forestry

15.1 FRA 2005 Categories and definitions

Category	Definition
Primary production of goods	Employment in activities related to primary production of goods, like industrial roundwood, woodfuel and non-wood forest products.
Provision of services	Employment in activities directly related to services from forests and woodlands.
Unspecified forestry activities	Employment in unspecified forestry activities.

15.2 National data

15.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Plan & Programme Bureau - FRWO	H	Person years	2004	

15.2.2 Classification and definitions

National class	Definition
Primary production of goods	It corresponds the FRA 2005 definition
Provision of services	It corresponds the FRA 2005 definition
Unspecified forestry activities	It corresponds the FRA 2005 definition

15.2.3 Original data

Employment/ 1000 persons- year		
National class/ person year	1990	2000
Conservation and Protection Plan	3.229	3.307
Land Cadastral & Demarcation	0.5	0.5
Out of North Forest Management Plan	-	5.2
North Forest Integrated Management Plan	0.8	1.2
North Forest Utilization Plan	12	10
Afforestation, Reforestation, seedling production and maintenance	50	70
Watershed Management Plans	4	5.6
Employment in FRWO and affiliated offices	13.950	11.250

15.3 Analysis and processing of national data

15.3.1 Estimation and forecasting

15.4 Reclassification into FRA 2005 classes

Reclassification of national classes to FRA2005 Classes (reclassification matrix)

National class	**FRA Classes**
Conservation and Protection Plan=	Provision of services
Land Cadastral & Demarcation=	Unspecified forestry activities
Out of North Forest Management Plan=	Primary production of goods
North Forest Integrated Management Plan =	Primary production of goods
North Forest Utilization Plan =	Primary production of goods
Afforestation , Reforestation, seedling production and maintenance=	Primary production of goods
Watershed Management Plans=	Unspecified forestry activities
Employment in FRWO and affiliated offices=	Provision of services

15.5 Data for National reporting table T15

FRA 2005 Categories	**Employment (1000 person-years)**	
	1990	**2000**
Primary production of goods	62.8	86.4
Provision of services	7.2	8.9
Unspecified forestry activities	14.5	11.8
TOTAL	**84.5**	**107**

15.6 Comments to National reporting table T15

These statistics include the number of people who are employed for activities directly and indirectly related to forestry and watershed management, protection and conservation of natural resources activities which can not be separated exactly. It excludes the number of persons who are employed in Forest Advisory Institutes.