



**Forestry Department**

**Food and Agriculture Organization of the United Nations**

# GLOBAL FOREST RESOURCES ASSESSMENT

## COUNTRY REPORTS

### TAJIKISTAN

FRA2005/216  
Rome, 2005



## 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](http://www.fao.org/forestry/fra2005)).

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The Global Forest Resources Assessment 2005 Country Report Series is designed to document and make available the information forming the basis for the FRA 2005 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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**Abbreviations:**

FRA-2000	-	Global Forest Resources Assessment 2000
FRA-2005	-	Global Forest Resources Assessment 2005
FAO	-	Food and Agriculture Organization of the United Nations
UNECE	-	UN Economic Commission for Europe
SFF	-	State Forest Fund
OWL	-	Other wooded land
OL	-	Other land
BEF	-	Biomass Expansion Factor
DW	-	Density of Wood
H	-	High quality ( <i>of data / information</i> )
M	-	Medium quality
L	-	Low quality
ID	-	Insufficient Data
N/A	-	Not applicable
NDA	-	No Data Available

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## Introduction

The forests in the Republic of Tajikistan are a state ownership. It is a common property of all people. Actually all forests of the republic are mountainous, and they are referred to the first group and cutting of the main usage in them will not be carried out, and all forestry activity is directed on preservation, increase and improvement of a condition of forests.

Among significant variety of vegetative communities there meet various tree-bushy breeds: wide - deciduous and small-leaved forests, unique juniper groves and tugai, nut and pistachio forests, and also deserted sparse growth of trees from saxauls (*Holoxilon* spp.), kandym, cherkez and other sandy breeds.

The percentage of forests in the republic is a little more than 3 % and it occupies the last place among the Central Asian republics. In such situation the special responsibility is with bodies which are carrying out management of forests their protection and reproduction.

Now the common area of lands of state forest fund makes 1,8 million ha, only 25 % of them is engaged in wood plantings. The area covered by forests makes 410 thousand ha, 38 thousand ha of them are forest cultures created per last years. From the common area of wood fund taking place in conducting bodies of a forest facilities 1187,6 thousand ha, or about 70 % are fixed in long-term usage behind collective farms and state farms as pastures.

In the republic trees of III-IV classes of bonitet prevail, with completeness 0,3-0,4 and average stock on 1 ha 35m<sup>3</sup>. Despite of low parameters of security by forest, the role of forests here is immeasurably great. The forest is necessary, first of all, as the store of moisture, protection of land, regulator of a climate, ameliorator of environment, source of reception of food, medicinal and technical raw material and only in an insignificant degree as a source of reception of wood.

The first jobs on forest breeding were begun in 1882. Mass forest breeding in timber enterprises of the republic originates since 1947. Then there are not any obstacles for forest breeding, the lands of state forest fund till 1966 were not fixed in long-term usage with collective farms to state farms.

The forests depending on the main breed are distributed as follows. Juniper planting - 150 thousand ha, walnut - 9 thousand ha, pistachio - 80 thousand ha.

Annually forest restoration is spent on the area up to 1992 - 4500 ha, and since 1993 - 8600 ha. The safety of forest cultures incorporated in 1960-1982гг., makes - 72 %, and in 1982-94гг. - 68 %, and 1994-1998гг.- 78 %.

The low safety of forest cultures is explained to that the majority of them are created in hard soil-climatic conditions and besides deficiency a means for necessary expenses for creation of forest cultures.

The hard climatic and soil conditions, remoteness, requirement of creation of forest plantings, dictate necessity of application of mechanization. However, the undeveloped road network, sparseness of sites, absence of means of mechanization, weak material technical base reduces even more quality and efficiency of jobs. The bodies of agriculture, for all time of usage of

lands of State forest fund any measures on increase forests, efficiency of forest plantings, improvement of pastures have not made. Regular uncontrolled pasture of cattle during about 30 years have resulted in a wide circulation of erosive processes.

Protective forest breeding in the republic started to develop since 1969 and passed in two directions:

- reforestation of mountain slopes, ravines, gullies, and other inconvenient lands of collective farms and state farms;
- Creation forest shelter belts on irrigated lands.

Since 1988 of a making of forest shelter belts has not been not carried out, and the large attention to creation of pastures from forest shelterbelts from saxaul is given. In Leninabad and Khatlon provinces the similar jobs are annually carried out on 500 ha. These cultures improving herbage on sandy pastures on sand and simultaneously saxaul is a good forage for fine horned cattle.

The plantings from a walnut and pistachio were created as forest cultures, with soils protection and water guarding purpose, without taking into account the reception of valuable nut production.

Such plantings, naturally, can not form the basis preparations of nut production, the which need in national economy is very great.

The tendency of translation of nut growing on an intensive industrial basis recently was planned in the republic. However, the development of it restrains, first, by absence of material base, lack of means for financing jobs on a laying in a plantation. Despite of the above-stated obstacles silviculturists for last years have already made 1200 ha of a plantation of pistachio and walnut. Besides since 1964 on 3 million pieces of cuttings of a poplar for reception of business wood have been planed.

Forest vegetation in connection with distribution wild fruit on natural features are allocated on five large regions. Wild growing forest fruitors in the Republic are first of all huge, but still insufficiently used source of most valuable foodstuff. The forests of the republic are rich by medicinal grasses, where more than 50 species are growing, which use is authorized by bodies of public health services.

The new Forest Code of the Republic of Tajikistan, approved in 1999, substantially strengthens in the legal and ecological relation the protection of forests and stimulates rational conducting forestry.

For sustainable preservation and rational use of a biodiversity of forest ecosystems TSI Institute of forestry carries out the genetic inventory on basic forest-formation breeds, especially on nut trees.

The expansion of a network of nature-protection reserves and nature reservations is provided.

The forest fires put a significant loss to forestry and the ecological damage from it is estimated in tens of mln. TR. Therefore the improvement of a service of forest protection, construction and equipment fire-observant watch-towers, development of networks of fire-



prevention roads and illumination by a modern communication facility of putting out fire and transport is provided according to the established standards.

Last years the numerous centers of the wreckers and illnesses are registered. With the purpose of increase of protection, the work on a biological method of protection of forests and suppression of the wreckers and illnesses, both by chemical and biological methods will be continued.

In perfection and rational use of forest resources the large role is in forest management. For this purpose the organization of forest monitoring, conducting of zoning on forest management with the use of SP and introduction of a remote method of research of inventory is necessary, especially for juniper forest, pistachio forests and others vegetative formations.

# 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 <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 resources USSR on 01.01.1987, The statistical collection/Goscomles USSR, M, 1998. (in Russian).	H	Forest	1987	
Land fund of the Tajik SSR on 01.01.1990, Dushanbe, 1991, (in Russian).	H	Forest, OWL, OL and Land	1990	
Land fund of the Republic of Tajikistan on 01.01.1995, Dushanbe, 1996, (in Russian).	H	Forest, OWL, OL and Land	1995	
Land fund of the Republic of Tajikistan on 01.01.1999, Dushanbe, 2000, (in Tajik).	H	Forest, OWL, OL and Land	1999	
Land fund of the Republic of Tajikistan on 01.01.2000, Dushanbe, 2001, (in Tajik).	H	Forest, OWL, OL and Land	2000	
Land fund of the Republic of Tajikistan on 01.01.2002, Dushanbe, 2003, (in Tajik).	H	Forest, OWL, OL and Land	2002	
Land fund of the Republic of Tajikistan on 01.01.2003, Dushanbe, 2004, (in Tajik).	H	Forest, OWL, OL and Land	2003	
Environment protection of the Republic of Tajikistan /The statistical report of the Republic of Tajikistan on 1997-2002, Dushanbe, 2004, (in Russian).	H	Forest, OWL, OL and Land	1997-2002	

## 1.2.2 Classification and definitions

National class	Definition
<b>Forest</b>	Natural complex in which communities the trees of one or many species growing close from each other and forming more or less close forest stand prevail, the areas more than 0.1 ra.
<b>Forest land</b>	The lands covered and uncovered by forests, but intended for its restoration and given for needs of forestry.
<b>Other wooded land</b>	The lands covered by bush vegetation and rare stood trees, groups of trees growing on fields, along coastal zone of the mountain rivers.
<b>Other land with trees</b>	Urban park, squares and gardens

## 1.2.3 Original data

FRA 2005 Categories	Area (1000 hectares)				
	1987	1990	1997	2000	2003
Forest	380	408	410	410	410
Other wooded land	142	142	142	142	142
Other land	13474	13446	13444	13444	13444
...of which with tree cover <sup>1)</sup>	106	102	102	102	102
Inland water bodies	259	259	259	259	259
<b>TOTAL</b>	<b>14255</b>	<b>14255</b>	<b>14255</b>	<b>14255</b>	<b>14255</b>

## 1.3 Analysis and processing of national data

### 1.3.1 Calibration

The total country area as presented here are those published in a year-book «Land fund of the Republic of Tajikistan» and which are approved by the Decision of the Government of the Republic of Tajikistan. This area differs from the figures held by UN Statistics Division and FAOSTAT and the country has initiated a process to update theses figures.

### 1.3.2 Estimation and forecasting

As in archive of the State committee on land management of the Republic of Tajikistan since 1958 exist the yearbook «*Land funds of the Republic of Tajikistan*», there is no necessity makes an estimation of the existing data. The forecast for 2005 is made on the basis of annual data of the State committee on land management of the Republic of Tajikistan.

## 1.4 Reclassification into FRA 2005 classes

Not applied

## 1.5 Data for National reporting table T1

FRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Forest	408	410	410
Other wooded land	142	142	142
Other land	13446	13444	13444
...of which with tree cover <sup>1)</sup>	106	102	102
Inland water bodies	259	259	259
<b>TOTAL</b>	<b>14255</b>	<b>14255</b>	<b>14255</b>

- 1) Area of “Other land with tree cover” is included in the area reported under “Other land” and should therefore be excluded when calculating the total area for the country.

## 1.6 Comments to National reporting table T1

We can't base on the data resulted by FAOSTAT, as they are not correspond to officially published data in a year-book «Land fund of the Republic of Tajikistan» which approves by the Decision of the Government of the Republic of Tajikistan.

## 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
Land fund of the Tajik SSR on 01.01.1990, Dushanbe, 1991, (in Russian).	H	Forest, OWL, OL and Land	1990	
Land fund of the Republic of Tajikistan on 01.01.1995, Dushanbe, 1996, (in Russian).	H	Forest, OWL, OL and Land	1995	
Land fund of the Republic of Tajikistan on 01.01.2000, Dushanbe, 2001, (in Tajik).	H	Forest, OWL, OL and Land	2000	
Land fund of the Republic of Tajikistan on 01.01.2002, Dushanbe, 2003, (in Tajik).	H	Forest, OWL, OL and Land	2002	
Land fund of the Republic of Tajikistan on 01.01.2003, Dushanbe, 2004, (in Tajik).	H	Forest, OWL, OL and Land	2003	

#### 2.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 2.2.3 Original data

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership	N/A	N/A	N/A	75
Public ownership	408	360	142	67
Other ownership	N/A	50	N/A	N/A
<b>TOTAL</b>	408	410	142	142

## 2.3 Analysis and processing of national data

### 2.3.1 Calibration

Not applied

### 2.3.2 Estimation and forecasting

Not applied

## 2.4 Reclassification into FRA 2005 classes

Not applied

## 2.5 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest		Other wooded land	
	1990	2000	1990	2000
Private ownership	0	0	0	75
Public ownership	408	360	142	67
Other ownership	0	50	0	0
<b>TOTAL</b>	<b>408</b>	<b>410</b>	<b>142</b>	<b>142</b>

## 2.6 Comments to National reporting table T2

Till 1997 all large forests belonged to the state. However according to Decision of the Government of the Republic of Tajikistan about reorganization of collective farms and state farms, a part of forests which have been located in territory of these state and collective farms have been transferred on constant using to farms. In 1995 a part of the lands from a category «*Other sites of the land covered by forest vegetation*» also have been transferred to a private property without the right of sale and purchase and basically is used as the pasture lands.

### 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
Environment protection of the Republic of Tajikistan /The statistical report of the Republic of Tajikistan on 1997-2002, Dushanbe, 2004, (in Russian).	H	Forest, OWL, OL and Land	1997-2002	
National action program to combat desertification in Tajikistan, Dushanbe, 2000	H	Forest, OWL, OL and Land	1990-2000	
Land fund of the Republic of Tajikistan on 01.01.1995, Dushanbe, 1996, (in Russian).	H	Forest, OWL, OL and Land	1995	
Land fund of the Republic of Tajikistan on 01.01.2003, Dushanbe, 2004, (in Tajik).	H	Forest, OWL, OL and Land	2003	
The statistical Year-book of the Republic of Tajikistan on 1991, Dushanbe, 1992	H	Forest	1975-1991	
The statistical Year-book of the Republic of Tajikistan on 2001, Dushanbe, 2002	H	Forest	1990-2001	

### 3.2.2 Classification and definitions

National class	Definition
Protection of soil and water	<i>Soil protecting (anti-erosion) forests. Forests for field protection. Forests of protective zones for mountain river banks. Forests for mountain slope protection. Ravine forests. Forest of desert and semi- desert areas.</i>
Conservation of biodiversity	<i>Forests of strict reserves (zapovedniks), national park, wildlife preserves (zakaznik);</i>

### 3.2.3 Original data

FRA 2005 Categories / Designated function	Area (1000 hectares)							
	Primary function				Total area with function			
	1990	1997	2000	2003	1990	1997	2000	2003
<b>Forest</b>								
Production	22	22	22	22	22	22	22	22
Protection of soil and water	54	44	44	54	54	44	44	54
Conservation of biodiversity	332	344	344	332	332	344	344	332
Social services	0	0	0	0	20	20	20	25
Multiple purpose	0	0	0	0		not appl.	not appl.	not appl.
No or unknown function	0	0	0	0		not appl.	not appl.	not appl.
<b>Total - Forest</b>	408	410	410	410		not appl.	not appl.	not appl.
<b>Other wooded land</b>								
Production	0	0	0	0				
Protection of soil and water	142	142	142	142	142	142	142	142
Conservation of biodiversity	0	0	0	0	142	142	142	142
Social services	0	0	0	0				
Multiple purpose	0	0	0	0		not appl.	not appl.	not appl.
No or unknown function	0	0	0	0		not appl.	not appl.	not appl.
<b>Total – Other wooded land</b>	142	142	142	142		not appl.	not appl.	not appl.

## 3.3 Analysis and processing of national data

### 3.3.1 Calibration

Not applied

### 3.3.2 Estimation and forecasting

Not applied

## 3.4 Reclassification into FRA 2005 classes

Not applied



### 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
<b>Forest</b>						
Production	22	22	22	22	22	22
Protection of soil and water	54	44	44	54	44	44
Conservation of biodiversity	332	344	344	332	344	344
Social services	0	0	0			
Multiple purpose	0	0	0	not appl.	not appl.	not appl.
No or unknown function	0	0	0	not appl.	not appl.	not appl.
<b>Total - Forest</b>	<b>408</b>	<b>410</b>	<b>410</b>	<b>not appl.</b>	<b>not appl.</b>	<b>not appl.</b>
<b>Other wooded land</b>						
Production	0	0	0			
Protection of soil and water	142	142	142	142	142	142
Conservation of biodiversity	0	0	0	142	142	142
Social services	0	0	0			
Multiple purpose	0	0	0	not appl.	not appl.	not appl.
No or unknown function	0	0	0	not appl.	not appl.	not appl.
<b>Total – Other wooded land</b>	<b>142</b>	<b>142</b>	<b>142</b>	<b>not appl.</b>	<b>not appl.</b>	<b>not appl.</b>

### 3.6 Comments to National reporting table T3

## 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
The statistical Year-book of the Tajik Forestry Association Production	H	Forest	1987-2003	

#### 4.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 4.2.3 Original data

FRA 2005 Categories	Area (1000 hectares)							
	Forest				Other wooded land			
	1990	1995	2000	2003	1990	1995	2000	2003
Primary	297	297	297	297	0	0	0	0
Modified natural	0	12	12	12	10	10	10	10
Semi-natural	35	35	35	35	10	10	10	10
Productive plantation	22	22	22	22	0	0	0	0
Protective plantation	54	44	44	44	122	122	122	122
<b>TOTAL</b>	<b>408</b>	<b>410</b>	<b>410</b>	<b>410</b>	<b>142</b>	<b>142</b>	<b>142</b>	<b>142</b>

### 4.3 Analysis and processing of national data

#### 4.3.1 Calibration

Not applied

### 4.3.2 Estimation and forecasting

As during 2000-2003 years no strong change is observed, the forecast for 2005 remains as the last years.

### 4.4 Reclassification into FRA 2005 classes

Not applied

### 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	297	297	297	0	0	0
Modified natural	0	12	12	10	10	10
Semi-natural	35	35	35	10	10	10
Productive plantation	22	22	22	0	0	0
Protective plantation	54	44	44	122	122	122
<b>TOTAL</b>	<b>408</b>	<b>410</b>	<b>410</b>	<b>142</b>	<b>142</b>	<b>142</b>

### 4.6 Comments to National reporting table T4

Forests of Tajikistan existing during thousands years, have undergone strong degradation. For last hundred years the general forest areas were strongly reduced and consequently concept virgin forests in mountain territory relative. Though for last 10 years the forest area of Tajikistan has remained without change, but in some places reduction parameters of density of forests is observed.

## 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	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
See Table 1	H	Forest	1987-2003	
The statistical Year-book of the Tajik Forestry Association Production	H	Forest	1987-2003	
Environment protection of the Republic of Tajikistan /The statistical report of the Republic of Tajikistan on 1997-2002, Dushanbe, 2004, (in Russian).	H	Forest, OWL, OL and Land	1997-2002	
National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity of the Republic of Tajikistan, Dushanbe, 2003	H	Forest	1987- 2000	

#### 5.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 5.2.3 Original data

FRA 2005 Categories	Volume (million cubic meters over bark)									
	Forest					Other wooded land				
	1987	1990	1997	2000	2003	1987	1990	1995	2000	2003
Growing stock	5.7	5.7	5.5	5.3	5.2	0.6	0.6	0.5	0.5	0.5
Commercial growing stock	0	0	0	0	0	0	0	0	0	0

### 5.3 Analysis and processing of national data

#### 5.3.1 Calibration

Not applied

### 5.3.2 Estimation and forecasting

The data for 1990 have been received on the basis of existing contemporary records Forest production association, and for 2005 as a result of interpolation of the existing data for the period of 2000-2003.

### 5.4 Reclassification into FRA 2005 classes

Not applied

### 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	5.7	5.3	5.1	0.6	0.5	0.5
Commercial growing stock	0	0	0	0	0	0

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

### 5.6 Comments to National reporting table T5

There is information only about stocks of forests within the limits of the state forests, which concern to the State committee of preservation of the environment and a forestry. On other sectors the data are absent.

## 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	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Environment protection of the Republic of Tajikistan /The statistical report of the Republic of Tajikistan on 1997-2002, Dushanbe, 2004, (in Russian).	H	Forest, OWL, OL and Land	1997-2002	
National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity of the Republic of Tajikistan, Dushanbe, 2003	H	Forest	1987- 2000	

#### 6.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 6.2.3 Original data

FRA 2005 Categories	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	1995	2000	2003	1990	1995	2000	2003
Above-ground biomass	4.4	4.0	4.0	4.0	0.7	0.6	0.6	0.6
Below-ground biomass	1.7	1.6	1.6	1.6	0.2	0.1	0.1	0.1
Dead wood biomass	0.4	0.3	0.3	0.3	ID	ID	ID	ID
<b>TOTAL</b>	6.5	5.9	5.9	5.9	0.9	0.7	0.7	0.7

### 6.3 Analysis and processing of national data

#### 6.3.1 Calibration

Not applied

**6.3.2 Estimation and forecasting**

Not applied

**6.4 Reclassification into FRA 2005 classes**

Not applied

**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	4.4	4.0	4.0	0.7	0.6	0.6
Below-ground biomass	1.7	1.6	1.6	0.2	0.1	0.1
Dead wood biomass	0.4	0.3	0.3	ID	ID	ID
<b>TOTAL</b>	6.5	5.9	5.9	0.9	0.7	0.7

**6.6 Comments to National reporting table T6**

During filling the given table the data resulted in «National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity of the Republic of Tajikistan » (Dushanbe, 2003) and the data taking place in archives Forest Production association have been used. According to technique of FRA 2005 have been counted up a general biomass of the basic forest forming species.

## 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, fomic, 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
National Strategy and Action Plan on Change Climate of the Republic of Tajikistan, Dushanbe, 2002	H	Forest	1987- 2000	

#### 7.2.2 Classification and definitions

Comply with FRA 2005 definitions

### 7.3 Analysis and processing of national data

Biomass data from table T6 were used and a carbon content of 0.5 was applied.



## 7.4 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	2.20	2.00	2.00	0.35	0.30	0.30
Carbon in below-ground biomass	0.85	0.80	0.80	0.10	0.05	0.05
<b>Sub-total: Carbon in living biomass</b>	<b>3.05</b>	<b>2.80</b>	<b>2.80</b>	<b>0.45</b>	<b>0.35</b>	<b>0.35</b>
Carbon in dead wood	0.20	0.15	0.15	ID	ID	ID
Carbon in litter	ID	ID	ID	ID	ID	ID
<b>Sub-total: Carbon in dead wood and litter</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>ID</b>	<b>ID</b>	<b>ID</b>
Soil carbon to a depth of 30 cm	35.0	32.0	28.0	4.0	3.5	3.0
<b>TOTAL CARBON</b>	<b>38.3</b>	<b>35.0</b>	<b>31.0</b>	<b>4.5</b>	<b>3.9</b>	<b>3.4</b>

## 7.5 Comments to National reporting table T7

The data resulted in National report on climate change have been used. Other officially published data now do not exist.

## 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 bacterium, 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
The statistical Year-book of the Tajik Forestry Association Production	H	Forest	1987-2003	

#### 8.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 8.2.3 Original data

FRA-2005 Categories	Average annual area affected (1000 hectares)			
	Forests		Other wooded land	
	1990	2000	1990	2000
Disturbance by fire	0.1	1.1	0.2	3.0
Disturbance by insects	13.9	103.4	2.4	12.6
Disturbance by diseases	2.9	6.0	0.1	0.5
Other disturbance	ins	ins	ins	ins

### 8.3 Analysis and processing of national data

#### 8.3.1 Estimation and forecasting

The average for 1990 is obtained, using the data of 1987-1995, and the average for the 2000 is calculated respectively using the data of 1998-2000.

### 8.4 Reclassification into FRA 2005 classes

Not applied

## 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	0.1	1.1	0.2	3.0
Disturbance by insects	13.9	103.4	2.4	12.6
Disturbance by diseases	2.9	6.0	0.1	0.5
Other disturbance	ID	ID	ID	ID

## 8.6 Comments to National reporting table T8

The data in the column « other infringement » make insignificant sizes.

## 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
Zaprigaeva V.I. Forestry resources in the Pamirs Alai, Nauka, Leningrad, 1976 (in Russian)	H	Forest	1976	
National Strategy and Action Plan on Change Climate of the Republic of Tajikistan, Dushanbe, 2002	H	Forest	1987- 2000	
The IUCN Plant Red Data Book, 1978	H	Forest		

#### 9.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 9.2.3 Original data

FRA 2005 Categories	Number of species (year 2000)
Native tree species	268
Critically endangered tree species	1
Endangered tree species	0
Vulnerable tree species	0

### 9.3 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	268
Critically endangered tree species	1
Endangered tree species	0
Vulnerable tree species	0

### 9.4 Comments to National reporting table T9

*Malus Sieversii* including in the IUCN Plant Red Data Book (1978).

## 10 Table T10 – Growing stock composition

### 10.1 FRA 2005 Categories and definitions

List of species names (scientific and common names) of the ten most common species.

Juniper	<i>Juniperus L.</i>
Pistachio	<i>Pistacia L.</i>
Maple	<i>Acer L.</i>
Persian walnut	<i>Juglans regia</i>
Poplar/Aspen/Cottonwood	<i>Populus L.</i>
Brich	<i>Betula L.</i>
Almond	<i>Amygdalus L.</i>
Willow	<i>Salix L.</i>
Elm	<i>Ulmus L.</i>
Myrobalan plum	<i>Prunus L.</i>

### 10.2 National data

#### 10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Environment protection of the Republic of Tajikistan /The statistical report of the Republic of Tajikistan on 1997-2002, Dushanbe, 2004, (in Russian).	H	Forest, OWL, OL and Land	1997-2002	
National action program to combat desertification in Tajikistan, Dushanbe, 2000	H	Forest, OWL, OL and Land	1990-2000	

#### 10.2.2 Original data

FRA 2005 Categories / Species name (Scientific name and common name)	Growing Stock in Forests (million cubic meters)	
	1990	2000
Juniper – <i>Juniperus L.</i>	3.5	3.3
Pistachio – <i>Pistacia L.</i>	0.42	0.40
Maple – <i>Acer L.</i>	0.38	0.34
Persian walnut – <i>Juglans regia</i>	0.35	0.32
Poplar/Aspen/Cottonwood– <i>Populus L.</i>	0.27	0.25
Brich – <i>Betula L.</i>	0.05	0.05
Almond – <i>Amygdalus L.</i>	0.03	0.03
Willow – <i>Salix L.</i>	0.03	0.03
Elm – <i>Ulmus L.</i>	0.03	0.03
Myrobalan plum – <i>Prunus L.</i>	0.03	0.03
Remainder of species	0.57	0.52
<b>TOTAL</b>	<b>5.66</b>	<b>5.30</b>

### 10.3 Analysis and processing of national data

#### 10.3.1 Calibration

Not applied

#### 10.3.2 Estimation and forecasting

Not applied

### 10.4 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
Juniper – <i>Juniperus</i> L.	3.5	3.3
Pistachio – <i>Pistacia</i> L.	0.42	0.40
Maple – <i>Acer</i> L.	0.38	0.34
Persian walnut – <i>Juglans regia</i>	0.35	0.32
Poplar/Aspen/Cottonwood– <i>Populus</i> L.	0.27	0.25
Birch – <i>Betula</i> L.	0.05	0.05
Almond – <i>Amygdalus</i> L.	0.03	0.03
Willow – <i>Salix</i> L.	0.03	0.03
Elm – <i>Ulmus</i> L.	0.03	0.03
Myrobalan plum – <i>Prunus</i> L.	0.03	0.03
Remainder of species	0.57	0.52
<b>TOTAL</b>	<b>5.66</b>	<b>5.30</b>

## 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
Tajik statistical Yearbook of Forestry 2003, Dushanbe, 2003 (in Russian)	H	Wood removal	1990- 2003	

#### 11.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 11.2.3 Original data

FRA 2005 Categories	Volume in 1000 cubic meters of roundwood over bark										
	Forest										
	1990	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003
Woodfuel	5.8	6.0	6.1	6.2	6.3	6.4	6.5	6.5	6.5	6.5	6.5

### 11.3 Analysis and processing of national data

#### 11.3.1 Estimation and forecasting

The data for 2005 are obtained when extrapolating the data of 1999-2003

#### 11.4 Reclassification into FRA 2005 classes

Not applied.



### 11.5 Data for National reporting table T11

FRA 2005 Categories	Volume in 1000 cubic meters of roundwood over bark					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	0	0	0	0	0	0
Woodfuel	5.8	6.5	6.5	0	0	0
<b>TOTAL for Country</b>	5.8	6.5	6.5	0	0	0

### 11.6 Comments to National reporting table T11

So all forests of Tajikistan concern to the first category in them do not make industrial round wood. There are only sanitary cuttings.

## 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
Tajik statistical Yearbook of Forestry 2003, Dushanbe, 2003 (in Russian)	H	Wood removal	1990- 2003	

#### 12.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 12.2.3 Original data

FRA 2005 Categories	Value of roundwood removal (1000 USD)		
	Forest		
	1990	2000	2005
Woodfuel	29	32.5	32.5

### 12.3 Analysis and processing of national data

#### 12.3.1 Estimation and forecasting

The volumes of timber for 2005 are used from the table T 11.5 and wood prices estimated as average prices for 1999-2003 where fuel wood- 15 somoni. The value was calculated, using the exchange rate of 2003, which was 1USD= 3.00 somoni.

### 12.4 Reclassification into FRA 2005 classes

Not applied.

## 12.5 Data for National reporting table T12

FRA 2005 Categories	Value of roundwood removal (1000 USD)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	0	0	0	0	0	0
Woodfuel	29	32.5	32.5	0	0	0
<b>TOTAL for Country</b>	29	32.5	32.5	0	0	0

## 12.6 Comments to National reporting table T12

The data for 1990 have been taken from Archive of the State committee of a forestry of Tajik SSR (since 1992 renamed to Forestry production association = nowadays Agency of a forestry and hunting).

## 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
<u>Plant products / raw material</u>
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. 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

#### 13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Tajik statistical Yearbook of Forestry 2003, Dushanbe, 2003 (in Russian)	H	Wood removal	1990-2003	

#### 13.2.2 Classification and definitions

The national data is presented in Table 13.2.3. The data is distributed according to FRA requirements.

#### 13.2.3 Original data

FRA 2005 Categories	Scale factor	Unit	NWFP removal				
			1990	2000	2001	2002	2003
<u>Plant products / raw material</u>							
1. Food (Pistachio, Almond, Persian walnut fruits, <i>Rheum</i> and <i>Allium Oschaninii</i> )		ton	455	252	286	325	349
2. Fodder		ton	ID	ID	ID	ID	ID
3. Raw material for medicine and aromatic products		ton	470	7	6	5	5

### 13.3 Analysis and processing of national data

#### 13.3.1 Estimation and forecasting

The amounts for 2005 are obtained when extrapolating the data of 2000 –2003.

#### 13.4 Reclassification into FRA 2005 classes

Not applied

#### 13.5 Data for National reporting table T13

FRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	2000	2005
<u>Plant products / raw material</u>					
1. Food		ton	455	252	413
2. Fodder		ton	ID	ID	ID
3. Raw material for medicine and aromatic products		ton	470	7	5
4. Raw material for colorants and dyes			0	0	0
5. Raw material for utensils, handicrafts & construction			0	0	0
6. Ornamental plants			0	0	0
7. Exudates			0	0	0
8. Other plant products			0	0	0
			0	0	0
<u>Animal products / raw material</u>			0	0	0
9. Living animals			0	0	0
10. Hides, skins and trophies			0	0	0
11. Wild honey and bee-wax			0	0	0
12. Bush meat			0	0	0
13. Raw material for medicine			0	0	0
14. Raw material for colorants			0	0	0
15. Other edible animal products			0	0	0
16. Other non-edible animal products			0	0	0

#### 13.6 Comments to National reporting table T13

Other activity in forests of Tajikistan it is not made.

## 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
<u>Plant products / raw material</u>
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. 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
Tajik statistical Yearbook of Forestry 2003, Dushanbe, 2003 (in Russian)	H	Wood removal	1990-2003	

#### 14.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 14.2.3 Original data

FRA 2005 Categories	Scale factor	Unit	Value of the of NWFP removed (1000 USD)				
			1990	2000	2001	2002	2003
<u>Plant products / raw material</u>							
1. Food (Pistachio, Almond, Persian walnut fruits, <i>Rheum</i> and <i>Allium Oschaninii</i> )		ton	76	42	47	54	58
2. Fodder		ton	ID	ID	ID	ID	ID
3. Raw material for medicine and aromatic products		ton	47	0.7	0.6	0.5	0.5

### 14.3 Analysis and processing of national data

#### 14.3.1 Estimation and forecasting

The data of 2005 are derived, when extrapolating the data of 2000-2003

### 14.4 Reclassification into FRA 2005 classes

Not applied

### 14.5 Data for National reporting table T14

FRA 2005 Categories	Value of the of NWFP removed (1000 USD)		
	1990	2000	2005
<u>Plant products / raw material</u>			
1. Food	76	42	69
2. Fodder	ins	ins	ins
3. Raw material for medicine and aromatic products	47	0.7	0.5
4. Raw material for colorants and dyes	0	0	0
5. Raw material for utensils, handicrafts & construction	0	0	0
6. Ornamental plants	0	0	0
7. Exudates	0	0	0
8. Other plant products	0	0	0
<u>Animal products / raw material</u>			
9. Living animals	0	0	0
10. Hides, skins and trophies	0	0	0
11. Wild honey and bee-wax	0	0	0
12. Bush meat	0	0	0
13. Raw material for medicine	0	0	0
14. Raw material for colorants	0	0	0
15. Other edible animal products	0	0	0
16. Other non-edible animal products	0	0	0
<b>TOTAL</b>	123	42,7	69,5

### 14.6 Comments to National reporting table T14

The prices on Pistachio, Almond, Persian walnut fruits, *Rheum* and *Allium Oschaninii* per 2000-2003 averaged 0.5 somony/kg. The rate exchanges 1 USD = 3.00 somony

## 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
Tajik statistical Yearbook of Forestry 2003, Dushanbe, 2003 (in Russian)	H	Employment in forestry	1990- 2003	none

#### 15.2.2 Classification and definitions

Comply with FRA 2005 definitions

#### 15.2.3 Original data

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods	0	0
Provision of services	3	3
Unspecified forestry activities	2	2
<b>TOTAL</b>	<b>5</b>	<b>5</b>

### 15.3 Analysis and processing of national data

#### 15.3.1 Estimation and forecasting

Not applied

### 15.4 Reclassification into FRA 2005 classes

Not applied



### 15.5 Data for National reporting table T15

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods	0	0
Provision of services	3	3
Unspecified forestry activities	2	2
<b>TOTAL</b>	<b>5</b>	<b>5</b>

### 15.6 Comments to National reporting table T15

Figures concern only to personnel working in the field of forestry.