



**Forestry Department**

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

**GLOBAL FOREST RESOURCES  
ASSESSMENT 2010**

**COUNTRY REPORT**

**ALBANIA**

FRA2010/002

Rome, 2010



## **The Forest Resources Assessment Programme**

Forests are crucial for the well-being of humanity. They provide foundations for life on earth through ecological functions, by regulating the climate and water resources and by serving as habitats for plants and animals. Forests also furnish a wide range of essential goods such as wood, food, fodder and medicines, in addition to opportunities for recreation, spiritual renewal and other services.

At present, the forests are under pressure from increasing demands of land-based products and services, which frequently lead to the conversion or degradation of forests into unsustainable forms of land use. When forests are lost or severely degraded, their capacity to function as regulators of the environment is also lost, increasing flood and erosion hazards, reducing soil fertility and contributing to the loss of plant and animal life. As a result, the sustainable provision of goods and services from forests is jeopardized.

At the present days of the global changes due of Green House Gases increasing mainly of the carbon in atmosphere, the forest play a main role for its sequestration and therefore, abatement of global change effect which are its increasing after-effect.

Also, the forests play the main role of water regulator on the earth and for drinking water security, to produce electric energy and to control the land by water erosion. Disappearance of the forest induce with itself land poverty and human spirit, its consequences are disability to get the sustainable development, poverty and human emigration.

In these conditions mankind is trying to be in consensus without the forest is impossible to protect the life on our planet.

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

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

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

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

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

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## Introduction

Descriptions on forests and their harvests have been written from the ancient times, from native and foreign authors, but the figures on forest situation of our country have begun to keep during the 12-18 years and during the first world war years by Austrians and during the 30-th years and the second world war years of last century by Italians, but not totally for all country, based to topographical maps prepared by them and no to an inventory of our forests.

More exact figures on forest situation have begun to have after the first forest inventory carried out during the years 1947-1953 based to topographical maps and collected informations by the forestry specialist teams during the surveyings and samplings in the forest areas.

Other inventories are carried out during the years 1967-1969 and 1984-1985 also, was carried out a landcovery with contemporaneous remote sensing method during the 1997 and 2003 years. Also starting from the year 1972 and at present by the forestry cadastre is made annual update of the forest situation figures. Unfortunately the figures of both remote sensing landcovery have remained unused, yet, because the forest area resulted the largest (less more than 1500000 hectare while after the forest inventory of 1984-1985 years and annual updating resulted less more than 1000000 hectare) and therefore, annual updating started from 1972 year and is continuing basing to the figures of forest inventory carried out during the years 1984-1985.

During the forest inventories of the 1967-1969 and 1984-1965 years were prepared the inventory planes (second level of forest assessment planes). These inventory planes hold all figures and all ideas on management of the forest like assessment planes, but there are not any action planes and costs, too, to fill up it.

Also, assessment planes to manage the forests started to prepare from the 50-th years for each one state high stem forest units (3000-5000 hectares), after the natural boundaries. These last years has started to prepare the forest management planes for each one commune and village forest unit, after their administrative boundaries.

International and European Organisms as Food and Agriculture Organization (FAO), Wood Section of United Nation Economic Commission for Europe-Geneva (UNECE/FAO), Ministerial Conference for Forest Protection in Europe (MCPFE) etc for each alternate changed 5 years after the methodologies discussed and approved by all participator countries, monitor sustainable forestry development in the European and World scales.

Without information have not the development.

The figures on forest situation are necessary to monitor and to verify their sustainable development and, to correct sustainable development strategies and programmes when result is endangered to get not and when must be improved.

Also, the figures on forest situation are very necessary to make the studies and to calculate on biomass, carbon, bioenergy production, wood and non-wood productions and services that they have to improve quality of life, to fight against global changes and poverty and emigration in the limited land area conditions to live.

We are not the land owners but its users, only and like the best paterfamilias must to let improved to future generations.

## 1 Table T1 – Extent of Forest and Other wooded land

### 1.1 FRA 2010 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds <i>in situ</i> . It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds <i>in situ</i> ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as “Forest” or “Other wooded land”.
Other land with tree cover (Subordinated to “Other land”)	Land classified as “Other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

### 1.2 National data

#### 1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
ARFCSCFF. 1991-1998. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Institute of Forest and Pasture Researches	M	-Forest area -High stem forest -Coppice -Other forest area -Brushes	1990-1998	
ARFCSCFF. 1999-2005. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2000-2004. General Directory of Forest and Pastures.	M	-Forest area -High stem forest -Coppice -Other forest area -Brushes	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2006-2007. Directory of Forest Development Policies	M	-Forest area -High stem forest -Coppice -Other forest area -Brushes	2006-2007	

## 1.2.2 Classification and definitions

National class	Definition
Forest area	Item 2/21. "Forest or Wood" was named a land area covered by a density forest tree group, into sustainable form or other scarce forest vegetation with an area more than 0.1 hectare and with a cover grade no less than 30 % that produce wood mass and affect on the environment and take care of forest functions.
High stem forest area	Area covered by seed regenerated forest
Coppice area	Area covered by sprouts regenerated forest
Brushes area	Item 2/26. "Brushes" was named the wood vegetation, with ramified stems from their base and no higher, wood structure distinguish them by the herbaceous vegetation, and the short stem and deficiency of the main stem distinguish them by the forest or wood.
Other forest area	Item 2/7. "Forest or wood fund" were included all forest and non-forest areas, following forest and non-forest resources, their infrastructure, including and naked areas, which establish a harmonik environment with forest and forest lands (clearings, rocks, denses and sandpits), shelterbelts, separated forest tree and brushes groups. Item 2/28. "Forest or Wooded lands" are land areas with tree, brushes and other non-forest tree, with a cover grade from 5 up to 30 percent, naked areas, clearings, rocks places, eroded and non-productive lands, sandpits, forest roads uncadastrated in the other funds of arable lands and ecologically connected and functionaly with national forest fund and that, altogether take care of the forest functions.

\*Our definitions on Forest area and Other forest area were approved by the law no.9385, date 04.05.2005 (items 2/7, 21, 26, 28) on forest and policy of forest service and it amended no.9791, date 23.07.2007.

\*\*High stem forest and Coppice forest areas are subclasses of forest area also, brushes area were included in Other wooded land area.

## 1.2.3 Original data

National Data																
FRA 2010 Classes	Forest Cover in "000" ha															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest	<b>788.8</b>	785.9	782.1	778.2	776.8	775.2	774.3	772.0	768.9	771.6	<b>769.3</b>	772.1	778.9	779.9	781.1	<b>782.4</b>
-High stem	<b>486.5</b>	483.2	479.1	474.7	473.0	471.2	470.3	468.7	463.7	464.1	<b>459.6</b>	460.7	459.5	456.0	456.4	<b>458.3</b>
-Coppice	<b>302.3</b>	302.7	303.0	303.5	303.8	304.0	304.0	303.3	305.2	307.5	<b>3097</b>	311.4	319.4	323.9	324.7	<b>324.1</b>
Other forest area	<b>NDA</b>	<b>NDA</b>	<b>NDA</b>	<b>NDA</b>	13.7	14.7	17.3	19.6	21.5	22.7	<b>23.9</b>	20.9	21.5	23.4	23.6	<b>23.8</b>
Brushes	<b>255.9</b>	255.7	255.9	255.1	254.9	254.8	255.9	256.1	256.1	256.1	<b>254.5</b>	257.9	257.3	258.5	259.3	<b>257.8</b>
Other	<b>1695</b>	1698	1702	1707	1695	1695	1693	1692	1693	1690	<b>1692</b>	1689	1682	1678	1676	<b>1676</b>
Inland water bodies	<b>135</b>	135	135	135	135	135	135	135	135	135	<b>135</b>	135	135	135	135	<b>135</b>
Total Area of Country	<b>2875</b>	2875	2875	2875	2875	2875	2875	2875	2875	2875	<b>2875</b>	2875	2875	2875	2875	<b>2875</b>



### 1.3 Analysis and processing of national data

#### 1.3.1 Calibration

The areas were checked with total area of land according to United Nations Organization Statistics.

#### 1.3.2 Estimation and forecasting

Estimation and forecasting

1990-2007 reported

2010 evaluated by mean of regression:

Category	Area in 000 ha forecasted for 2010
<b>Forest</b>	<b>776.3</b>
<b>Brushes</b>	<b>255.2</b>

Estimation and forecasting

1990-2007 reported

2010 evaluated by mean of regression.

**Forecasting for the years 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figures, was found.**

**The found regressions are following:**

Forest	$y = 0.0014x^3 + 0.2366x^2 - 4.7567x + 793.99$	$R^2 = 0.9171$
High stem forests	$y = 0.001x^3 + 0.0772x^2 - 3.5148x + 489.35$	$R^2 = 0.9825$
Coppice forests	$y = 0.0005x^3 + 0.1594x^2 - 1.2419x + 304.64$	$R^2 = 0.9467$
Brushes	$y = -0.0021x^3 + 0.0831x^2 - 0.6731x + 256.71$	$R^2 = 0.7073$
Other forest	$y = -0.006x^3 - 0.0224x^2 + 3.7064x - 7.1113$	$R^2 = 0.9164$
Área		

**For X=5 the forecasting figures of the year 2010 in the table T 1, was taken place.**

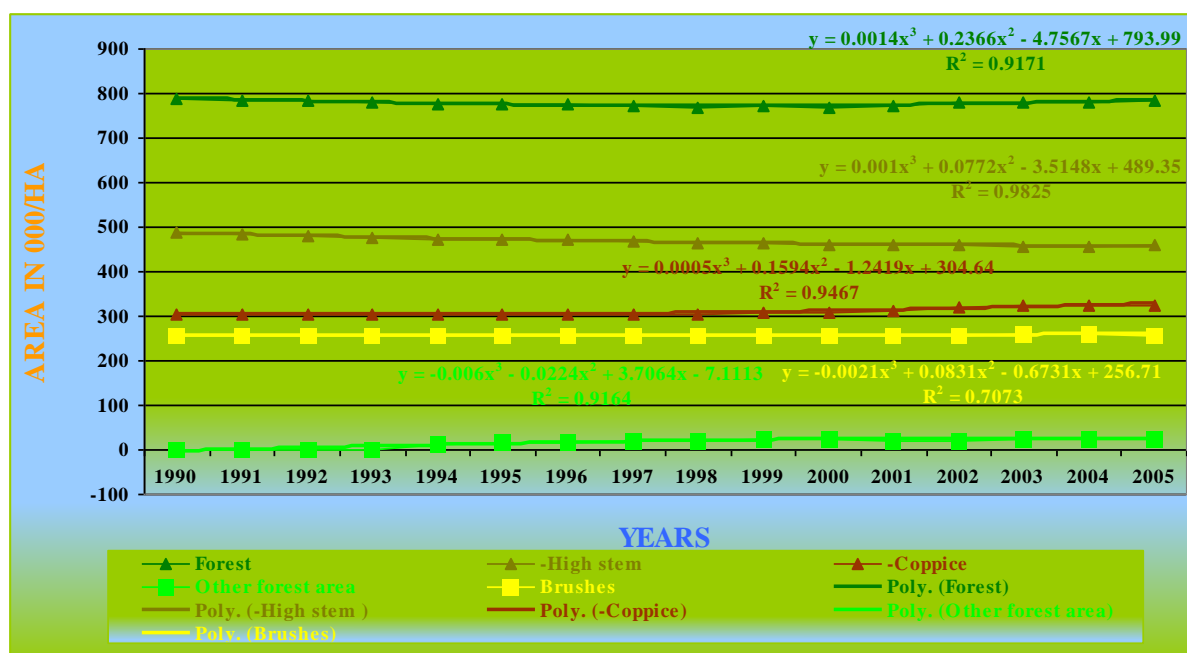


Fig.no.1-Area after classes-High stems forest, Coppice and Brushes

### 1.3.3 Reclassification into FRA 2010 categories

Reclassification

National classes	Percentage of national classes belong to FRA classes			
	Forest	Other wooded land	Other land with forest tree	Other land
Forest				
-High stem	100			
-Coppice	100			
Other forest area				100
Shrubs		100		
Other				100

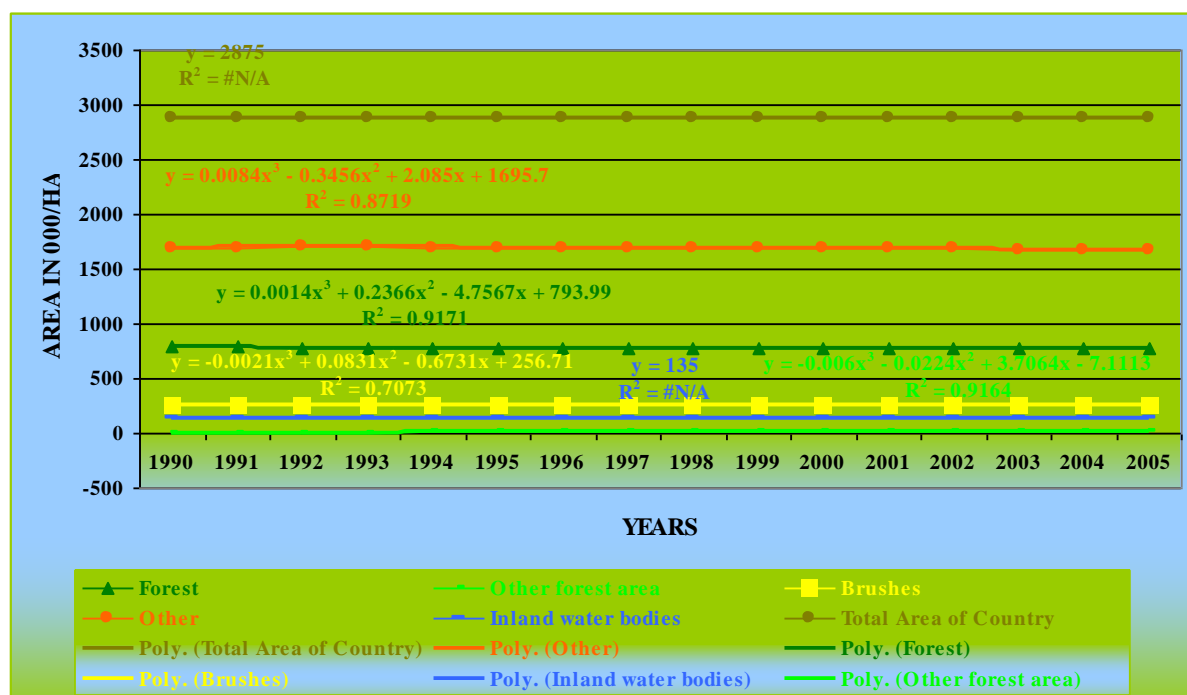


Fig.no.2-Area after classes-Forest, Other forest area, Brushes or Other wooded land area and Other land area, Inland water body's area and Total area of country.

#### 1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	789	769	782	776.3
Other wooded land	256	255	258	255.2
Other land	1695	1716	1700	1708.5
...of which with tree cover	n.a.	n.a.	n.a.	n.a.
Inland water bodies	135	135	135	135
<b>TOTAL</b>	<b>2875</b>	<b>2875</b>	<b>2875</b>	<b>2875</b>

## 1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	Our definition is some different but processing were made adaptable.	Forest area for the 2010 year prognoses to be less than it of the 1990 year but larger than it of the 2000 year and less than it of 2005 year.
Other wooded land	Our definition is some different but adaptable. Except it, in agree with the definition, in this area was included also the forest area treated with clearing cutting but that was not regenerated naturally and by reforestations, too, but prognosed to remain the forest.	Other wood land area for the 2010 year prognoses to be less than it of the 1990 year but larger than it of the 2000 year and less than it of the 2005 year.
Other land	There were included all other areas that are not included in the forests, Other wooded lands and Inland water bodies.	Other land area for the 2010 year prognoses to be more than it of the 1990 year but less than it of the 2000 year and more than it of the 2005 year.
Other land with tree cover		
Inland water bodies	There was used the same FAO's definition and figures.	Inland water bodies prognoses to remain unchanged.

Other general comments to the table

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping	
Field inventory	2014-2015
Remote sensing survey / mapping	2013

## 2 Table T2 – Forest ownership and management rights

### 2.1 FRA 2010 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Individuals (sub-category of Private ownership)	Forest owned by individuals and families.
Private business entities and institutions (sub-category of Private ownership)	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities (sub-category of Private ownership)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities (sub-category of Private ownership)	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
<b>Categories related to the holder of management rights of public forest resources</b>	
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals/households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

## 2.2 National data

### 2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
ARFCSCFF. 1991-1998. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Institute of Forest and Pasture Researches	M	Private ownership Public ownership	1990-1998	
ARFCSCFF. 1999-2005. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2000-2004. General Directory of Forest and Pastures.	M	Private ownership Public ownership	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2006-2007. Directory of Forest Development Policies	M	Private ownership Public ownership	2006-2007	

### 2.2.2 Classification and definitions

Item 2/19-“Forest or Wood ownership” is a forest fund area, with a different largeness, together with its infrastructure, which is public ownership possess by central power or communal power, or private ownership.

### 2.2.3 Original data

#### National Data

FRA 2010 Categories	Area in "000" ha															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
Private ownership	<b>0.0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	<b>6.8</b>	8.2	9.3	10.6	12.9	<b>13.0</b>
Public ownership	<b>788.8</b>	785.9	782.1	778.2	776.8	775.2	774.3	772.0	769.1	768.1	<b>762.4</b>	763.9	769.6	769.3	768.2	<b>769.4</b>
Other ownerships	<b>0.0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.0</b>	0.0	0.0	0.0	0.0	<b>0.0</b>
TOTAL	<b>788.8</b>	785.9	782.1	778.2	776.8	775.2	774.3	772.0	769.1	771.6	<b>769.2</b>	772.3	778.9	779.9	781.1	<b>782.4</b>

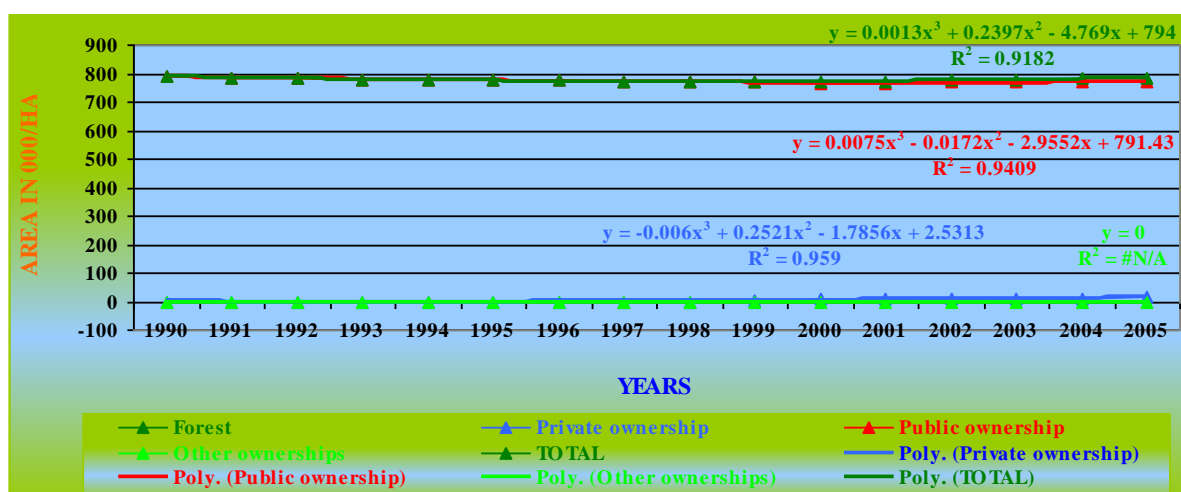


Fig.no.3-Area after classes of forest ownership-Private, Public and Total

National Data

FRA 2010 Categories	Area in "000" ha															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other Wooded Land																
Private ownership	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.3	3.3	3.3	3.6	4.1	4.5
Public ownership	255.9	255.7	255.9	255.1	254.9	254.8	255.9	256.1	256.1	254.9	252.2	254.7	253.9	254.9	255.2	253.3
Other ownerships	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	255.9	255.7	255.9	255.1	254.9	254.8	255.9	256.1	256.1	256.1	254.5	258.0	257.2	258.5	259.3	257.8

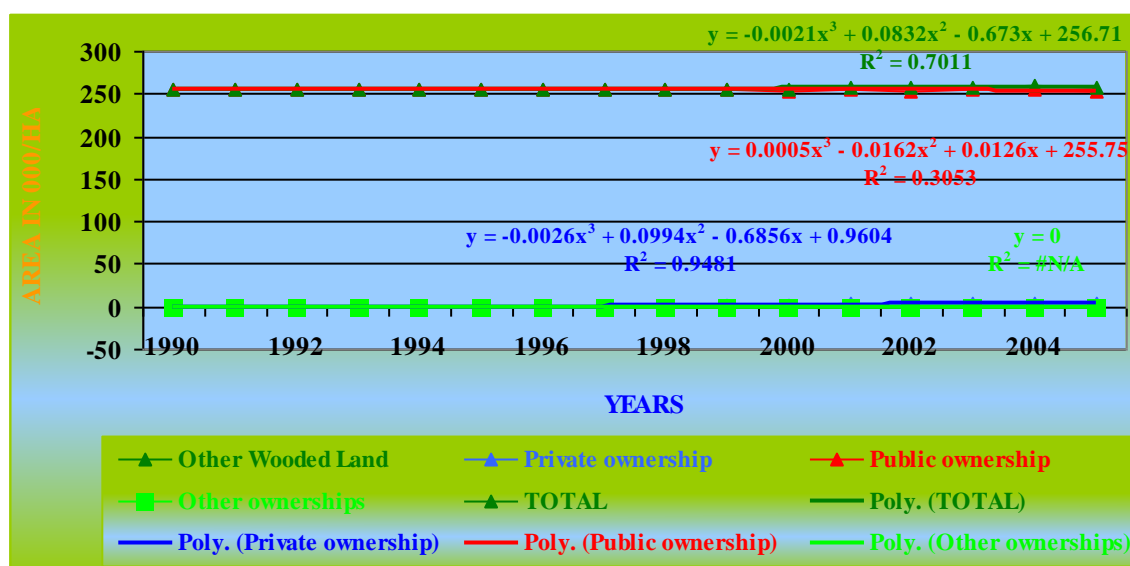


Fig.no.4-Area after classes of other wooded land ownership-Private, Public and Total

## 2.3 Analysis and processing of national data

### 2.3.1 Calibration

Need not.



### 2.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Forest		
Private ownerships	$y = 0.0278x^3 - 0.4655x^2 + 3.7353x + 0.4429$	$R^2 = 0.9802$
Public ownership	$y = 0.0075x^3 - 0.0172x^2 - 2.9552x + 791.43$	$R^2 = 0.9409$
Other ownerships		
Total area	$y = 0.0013x^3 + 0.2397x^2 - 4.769x + 794$	$R^2 = 0.9182$
Other wooded land		
Private ownership	$y = 0.0333x^3 - 0.4643x^2 + 2.3738x - 0.7571$	$R^2 = 0.9866$
Public ownership	$y = 0.0005x^3 - 0.0162x^2 + 0.0126x + 255.75$	$R^2 = 0.3053$
Other ownerships		
Total area	$y = -0.0021x^3 + 0.0832x^2 - 0.673x + 256.71$	$R^2 = 0.7011$

**For X=5 the forecasting figure of the year 2010 in the table T 2, was taken place.**

### 2.3.3 Reclassification into FRA 2010 categories

Need not.

**Data for Table T2****Table 2a - Forest ownership**

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	788.8	762.4	769.4
Private ownership	0.0	6.8	13.0
...of which owned by individuals	0.0	6.8	13.0
...of which owned by private business entities and institutions	0.0	0.0	0.0
...of which owned by local communities	0.0	0.0	0.0
...of which owned by indigenous / tribal communities	0.0	0.0	0.0
Other types of ownership	0.0	0.0	0.0
<b>TOTAL</b>	<b>788.8</b>	<b>769.2</b>	<b>782.4</b>

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

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

**Table 2b - Holder of management rights of public forests**

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	788.8	713.1	550.8
Individuals	0.0	0.0	0.0
Private corporations and institutions	0.0	0.0	0.0
Communities	0	49.3	218.6
Other	0.0	0.0	0.0
<b>TOTAL</b>	<b>788.8</b>	<b>762.4</b>	<b>769.4</b>

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

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

## 2.4 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership	<p>The definitions were approved by the law no.9385, date 04.05.2005 (item 2/19) on forest and forest service and appendix of the law no.9791, date 23.07.2007.</p> <p>Communal forest area was included in Public ownership</p> <p>There are some differences between two definitions but adaptable because there are some regulations on forest transfer critters from state to community and by agreement.</p>	Forest and other wooded land public ownership area would be reducing.
Private ownership	<p>There are some differences between two definitions but adaptable because there are some regulations on forest transfer critters from state to privates and by agreement.</p>	Forest and other wooded land private ownership areas will be increasing slowly.
Other types of ownership	The same as FAO definition.	It is not started, yet but for the future the other types of ownership areas to increase, are prognosed.
Management rights	<p>The community forests are the public forests but given to community to use after the management planes and an agreement signed by community and Forest Service.</p>	Management rights of community and private, too, will be increasing.

Other general comments to the table

### 3 Table T3 – Forest designation and management

#### 3.1 FRA 2010 Categories and definitions

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

### 3.2 National data

#### 3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
ARFCSCFF. 1991-1998. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Former Institute of Forest and Pasture Researches	M	Production Protection of soil and water Conservation of biodiversity Social services Multiple purpose No or unknown function	1990-1998	
ARFCSCFF. 1999-2005. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 2000-2004. Former General Directory of Forest and Pastures.	M	Production Protection of soil and water Conservation of biodiversity Social services Multiple purpose No or unknown function	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2006-2007. Directory of Forest Development Policies	M	Production Protection of soil and water Conservation of biodiversity Social services Multiple purpose No or unknown function	2006-2007	

#### 3.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

### 3.2.3 Original data

#### National Data

FRA 2010 Categories/ Designated function	Forest Area in “000” ha															
	Primary function															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Forest</b>																
<b>Production</b>	685.0	683.3	680.0	677.7	676.5	675.3	646.4	638.5	638.6	628.4	620.0	623.5	609.8	605.6	610.3	611.3
<b>Protection of soil and water</b>	86.9	86.0	85.8	84.3	83.7	83.1	83.5	87.1	85.1	102.6	96.8	130.8	129.1	134.3	130.8	131.1
<b>Conservation of biodiversity</b>	16.9	16.6	16.3	16.3	16.6	16.8	44.5	46.4	45.4	40.6	52.4	18.0	40.0	40.0	40.0	40.0
<b>Social services</b>	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
<b>Multiple purpose</b>	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
<b>No or unknown function</b>	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
<b>TOTAL</b>	788.8	785.9	782.1	778.3	776.8	775.2	774.4	772.0	769.1	771.6	769.2	772.3	778.9	779.9	781.1	782.4

NDA-No data available

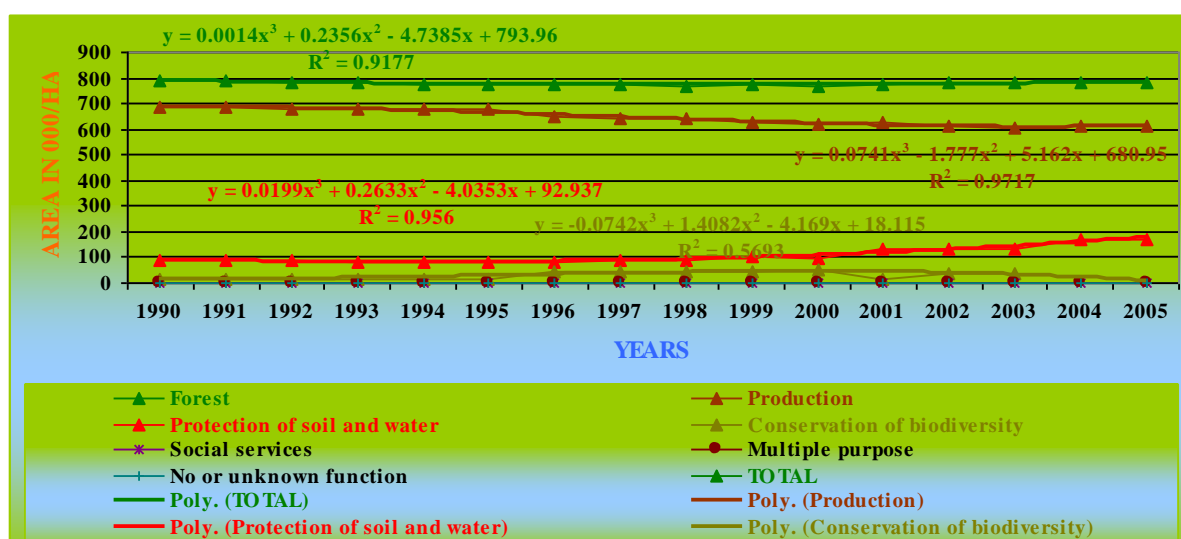


Fig.5-Area of forest after functions-Production, Protection of soil and water and Conservation of biodiversity

National Data

FRA 2010 Categories/ Designated function	Other Wooded Land Area in “000” ha															
	Primary function															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other wooded land area																
Production	226.3	226.1	226.3	227.2	227.0	226.8	221.6	219.3	221.2	211.4	217.1	221.5	217.4	215.0	216.1	215.9
Protection of soil and water	25.8	24.7	25.8	24.1	24.1	24.2	24.5	24.9	25.2	27.3	25.5	18.5	21.8	25.5	25.3	23.9
Conservation of biodiversity	3.9	4.9	3.9	3.8	3.8	3.8	9.8	11.9	9.7	17.4	11.9	18.0	18.0	18.0	18.0	18.0
Social services	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
Multiple purpose	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
No or unknown function	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
TOTAL	255.9	255.7	256.0	255.1	254.9	254.8	255.9	256.1	256.1	256.1	254.5	258.0	257.2	258.5	259.3	257.8

NDA-No data available

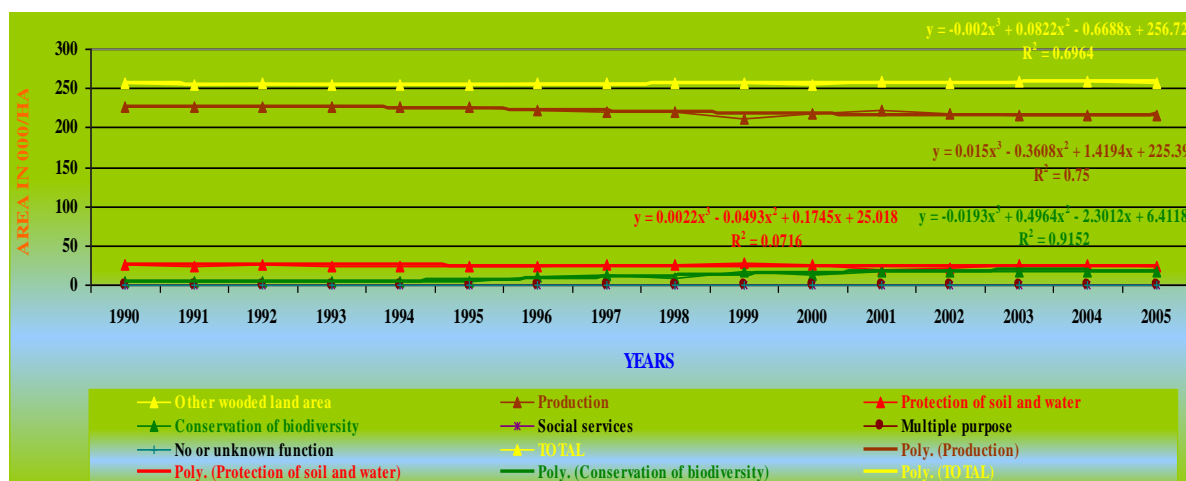


Fig.6-Area of other wooded land after functions-Production, Protection of soil and water, Conservation of biodiversity and Total

### 3.3 Analysis and processing of national data

#### 3.3.1 Calibration

Need not.

### 3.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the years 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Forest		
Forest Production	$y = 0.0741x^3 - 1.777x^2 + 5.162x + 680.95$	$R^2 = 0.9717$
Protection of soil and water Conservation of biodiversity	$y = -0.0523x^3 + 1.7132x^2 - 11.925x + 102.94$	$R^2 = 0.8949$
	$y = -0.0204x^3 + 0.2993x^2 + 2.0244x + 10.079$	$R^2 = 0.536$
Other wooded land		
Production	$y = 0.015x^3 - 0.3608x^2 + 1.4194x + 225.39$	$R^2 = 0.75$
Protection of soil and water Conservation of biodiversity	$y = 0.0022x^3 - 0.0493x^2 + 0.1745x + 25.018$	$R^2 = 0.0716$
	$y = -0.0193x^3 + 0.4964x^2 - 2.3012x + 6.4118$	$R^2 = 0.9152$

For X=5 the forecasting figure of the year 2010 in the table T 3, was taken place.

NDA-No data available

\*There is a programme of Ministry of Environment, Forestry and Water Management to make double the area of protection zones from 2006 year up to 2009 year, but it is not identified, yet which part of the area to be composed by forest, other wooded lands etc. also which part will be to protect the lands by erosion and waters, biodiversity conservation etc.

### 3.3.3 Reclassification into FRA 2010 categories

Need not.



### 3.4 Data for Table T3

**Table 3a – Primary designated function**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	685.0	620.0	611.3	614.2
Protection of soil and water	86.9	96.8	131.1	131.1
Conservation of biodiversity	16.8	52.4	40.0	31.0
Social services	0	0	0	0
Multiple use	0	0	0	0
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
<b>TOTAL</b>	<b>788.8</b>	<b>769.2</b>	<b>782.4</b>	<b>776.3</b>

**Table 3b – Special designation and management categories**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	788.8	769.2	782.4	776.3
Forest area within protected areas	103.7	149.2	171.1	162.1
Forest area under sustainable forest management	788.8	769.2	782.4	776.3
Forest area with management plan	788.8	769.2	782.4	776.3

### 3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production	The figures from annual updated forest area reports by Forest Cadastre, were taken	Production forest and other wooded land areas would be reducing.
Protection of soil and water	The figures from annual updated forest area reports by Forest Cadastre, were taken	Protection forest and other wooded land area of soil and water would be fluctuating up and down during of the year's period.
Conservation of biodiversity	The figures from annual updated forest area reports by Forest Cadastre were taken.	Conservation of biodiversity would be fluctuating up and down during of the year's period.
Social services	Increasing of social needs will make indispensable the preparing of management planes to design the forests with primary functions in this line, as soon as possible.	
Multiple use	Increasing of multiple needs will make indispensable the preparing of management planes to design the forests with primary functions in this line, as soon as possible.	

Other		
No / unknown designation		
Area of permanent forest estate		For the future it will be increasing by reforestations on the refused lands (unusable crop lands refused by farmers during the redistribution of lands after changed social system), abandoned lands and on eroded lands and riverbanks.
Forest area within protected areas		It is increasing.
Forest area under sustainable forest management	All forest area is under sustainable forest management.	
Forest area with management plan		All forest area have been covered by management plane for each state forest unit (one forest unit=3000-5000 hectare). At present is continuing to prepare the management plans after village and community forests, after changings of the forest ownership, parallel.

<b>Other general comments to the table</b>

## 4 Table T4 – Forest characteristics

### 4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	A species, subspecies or lower taxon, occurring <u>outside</u> its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
<b>Characteristics categories</b>	
Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
Other naturally regenerated forest of introduced species (sub-category)	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species (sub-category)	Planted forest, where the planted/seeded trees are predominantly of introduced species.
<b>Special categories</b>	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

### 4.2 National data

#### 4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
ARFCSCFF. 1991-1998. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Institute of Forest and Pasture Researches	M	Primary forest Other naturally regenerated forests Other naturally regenerated forest of introduced species Planted forest Planted forest of introduced species	1990-1998	
ARFCSCFF. 1999-2005. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 2000-2005. General Directory of Forest and Pastures.	M	Primary forest Other naturally regenerated forests Other naturally regenerated forest of introduced species Planted forest Planted forest of introduced species	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2006-2007. Directory of Forest Development Policies	M	Primary forest Other naturally regenerated forests Other naturally regenerated forest of introduced species Planted forest Planted forest of introduced species	2006-2007	

## 4.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

National class	Definition
Primary forest	Virgin forests or undisturbed by man activity
Other naturally regenerated forests	Naturally regenerated forests by seed or sprouts after the applied cutting systems in the native specie forests.
Other naturally regenerated forest of introduced species	Naturally regenerated forests by seed or sprouts after the applied cutting systems in the introduced specie forests.
Planted forest	Man-made forests by native and introduced species
Planted forest of introduced species	Man-made forests by introduced species
Rubber plantations	There are not in ALBANIA
Mangroves	There are not in ALBANIA
Bamboo	There are not in ALBANIA

## 4.2.3 Original data

### National Data

FRA 2010 Categories	Forest Area in "000" ha															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
Primary	<b>84.8</b>	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	<b>84.8</b>	84.8	84.8	84.8	84.8	<b>84.8</b>
Other naturally regenerated forest	<b>600.7</b>	600.0	596.0	599.0	594.0	599.4	599.8	599.2	598.8	593.4	<b>588.0</b>	598.9	598.5	606.0	599.7	<b>599.4</b>
...of which of introduced species																
Planted forest	<b>103.3</b>	101.1	101.3	94.5	98.0	91.0	89.8	88.0	85.5	93.4	<b>96.4</b>	88.6	95.6	89.1	96.6	<b>98.2</b>
...of which of introduced species	<b>12.98</b>	10.87	9.27	7.95	7.21	6.49	6.08	7.22	5.34	5.46	<b>4.85</b>	4.51	5.79	5.73	5.67	<b>5.47</b>
<b>TOTAL</b>	<b>788.8</b>	785.9	782.1	778.3	776.8	775.2	774.4	772.0	769.1	771.6	<b>769.2</b>	772.3	778.9	779.9	781.1	<b>782.4</b>

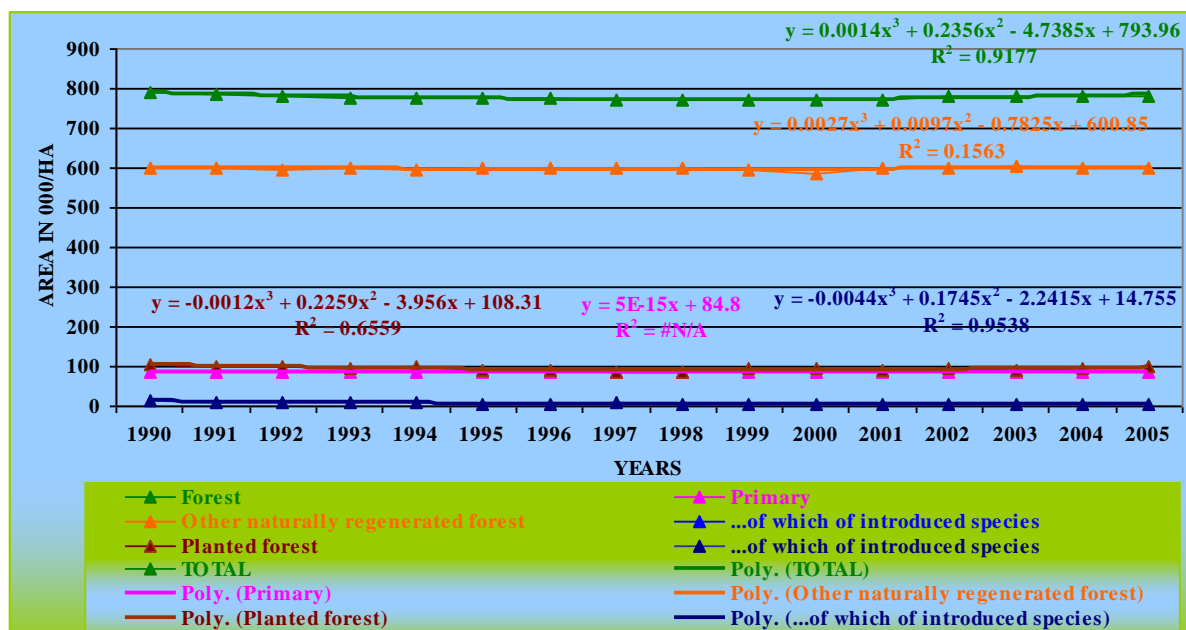


Fig.7. Forest area after characteristics

FRA 2010 Categories	Other wooded land Area in "000" ha															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other wooded land																
Primary																
Other naturally regenerated other wooded land	<b>254.2</b>	253.8	254.5	247.9	247.9	253.9	255.2	251.1	255.3	255.1	<b>253.7</b>	257.4	256.8	258.2	258.8	<b>257.3</b>
...of which of introduced species																
Planted other wooded land	<b>1.70</b>	1.89	1.51	7.19	6.97	0.92	0.7	5.03	0.8	0.96	<b>0.77</b>	0.56	0.44	0.30	0.47	<b>0.47</b>
...of which of introduced species	<b>1.05</b>	1.28	0.99	0.74	0.52	0.44	0.27	0.57	0.31	0.29	<b>0.18</b>	0.17	0.13	0.12	0.13	<b>0.15</b>
<b>TOTAL</b>	<b>255.9</b>	255.7	256.0	255.1	254.9	254.8	255.9	256.1	256.1	256.1	<b>254.5</b>	258.0	257.2	258.5	259.3	<b>257.8</b>

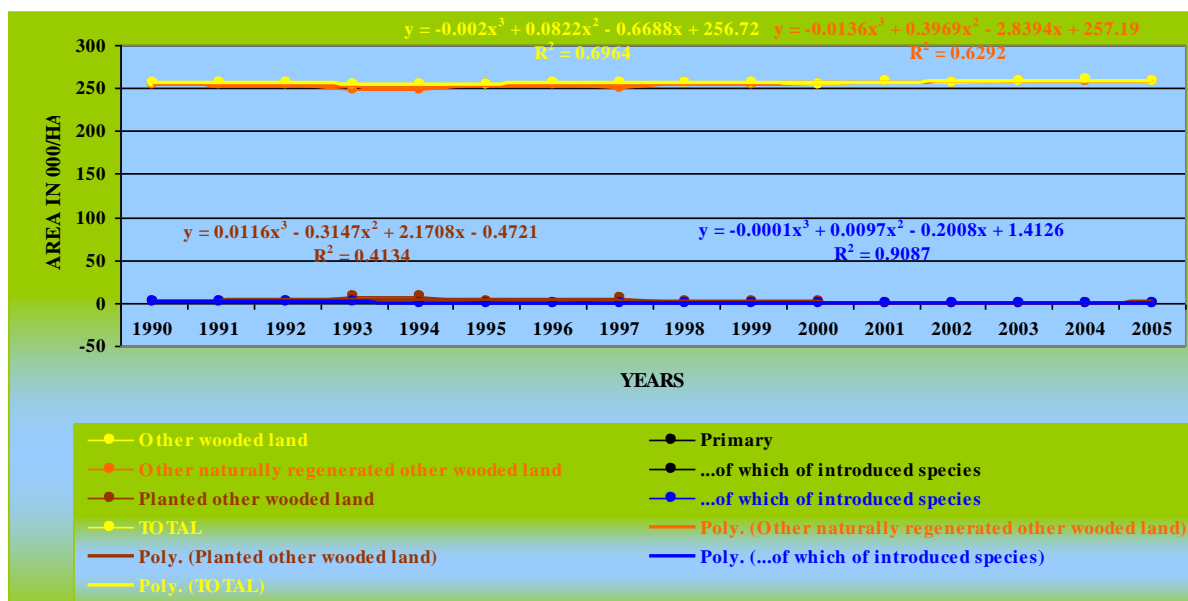


Fig.8. Other wooded land area after characteristics

### 4.3 Analysis and processing of national data

#### 4.3.1 Calibration

Need not

### 4.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the years 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Forest	$y = 0.0014x^3 + 0.2356x^2 - 4.7385x + 793.96$	R2 = 0.9177
Primary	$y = 5E-15x + 84.8$	R2 = #N/A
Other naturally regenerated	$y = 0.0027x^3 + 0.0097x^2 - 0.7825x + 600.85$	R2 = 0.1563
Other naturally regenerated of introduced species		
Planted forest		
Planted forest of introduced species		
Rubber plantations		
Mangroves		
Bamboo		
Other wooded land	$y = -0.002x^3 + 0.0822x^2 - 0.6688x + 256.72$	R2 = 0.6964
Primary		
Other naturally regenerated	$y = -0.0136x^3 + 0.3969x^2 - 2.8394x + 257.19$	R2 = 0.6292
Other naturally regenerated of introduced species		
Planted other wooded land	$y = 0.0116x^3 - 0.3147x^2 + 2.1708x - 0.4721$	R2 = 0.4134
Planted other wooded land of introduced species	$y = -0.0001x^3 + 0.0097x^2 - 0.2008x + 1.4126$	R2 = 0.9087
Rubber plantations		
Mangroves		
Bamboo		

**For X=5 the forecasting figure of the year 2010 in the table T 4, was taken place.**

### 4.3.3 Reclassification into FRA 2010 categories

Need not

#### 4.4 Data for Table T4

**Table 4a**

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	84.8	84.8	84.8	84.8
Other naturally regenerated forest	600.7	588.0	599.4	597.5
...of which of introduced species	0	0	0	0
Planted forest	103.3	96.4	98.2	94.0
...of which of introduced species	13.0	4.9	5.5	7.4
<b>TOTAL</b>	<b>788.8</b>	<b>769.2</b>	<b>782.4</b>	<b>776.3</b>

**Table 4b**

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

#### 4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest	The figures were based to a study carried out at during the 1996-1997 by financial supporting of World Bank in the framework of the project on Forestry Development in ALBANIA.	Will remain unchanged.
Other naturally regenerating forest	The figures represent all forest area regenerated by seeds and sprouts without changed the naturally forest species composition.	Prognosed to change with up and down fluctuations values.
Planted forest	The figures were taken by the annual updated report on forest situation from Forest Cadastre (that has remained to found the forest, after planted).	Prognosed to change with up and down fluctuations values.
Rubber plantations		
Mangroves		
Bamboo		

Other general comments to the table



## 5 Table T5 – Forest establishment and reforestation

### 5.1 FRA 2010 Categories and definitions

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

### 5.2 National data

#### 5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
ARFCSCFF. 1991-1998. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Institute of Forest and Pasture Researches	M	Afforestation Reforestation Natural expansion of forest	1990-1998	
ARFCSCFF. 1999-2003. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 2000-2005. General Directory of Forest and Pastures.	M	Afforestation Reforestation Natural expansion of forest	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2006-2007. Directory of Forest Development Policies	M	Afforestation Reforestation Natural expansion of forest	2006-2007	

#### 5.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

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

#### 5.2.3

### 5.2.4 Original data

FRA 2010 Categories	Forest Area in “000” ha															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
Afforestation																
Reforestation	3.15	1.86	2.3	0.11	0.00	0.08	0.01	0.48	0.01	0.01	0.11	0.12	0.19	0.18	0.20	0.23
Natural expansion of forest	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
<b>TOTAL</b>	<b>3.15</b>	<b>1.86</b>	<b>2.3</b>	<b>0.11</b>	<b>0.00</b>	<b>0.08</b>	<b>0.01</b>	<b>0.48</b>	<b>0.01</b>	<b>0.01</b>	<b>0.11</b>	<b>0.12</b>	<b>0.19</b>	<b>0.18</b>	<b>0.20</b>	<b>0.23</b>

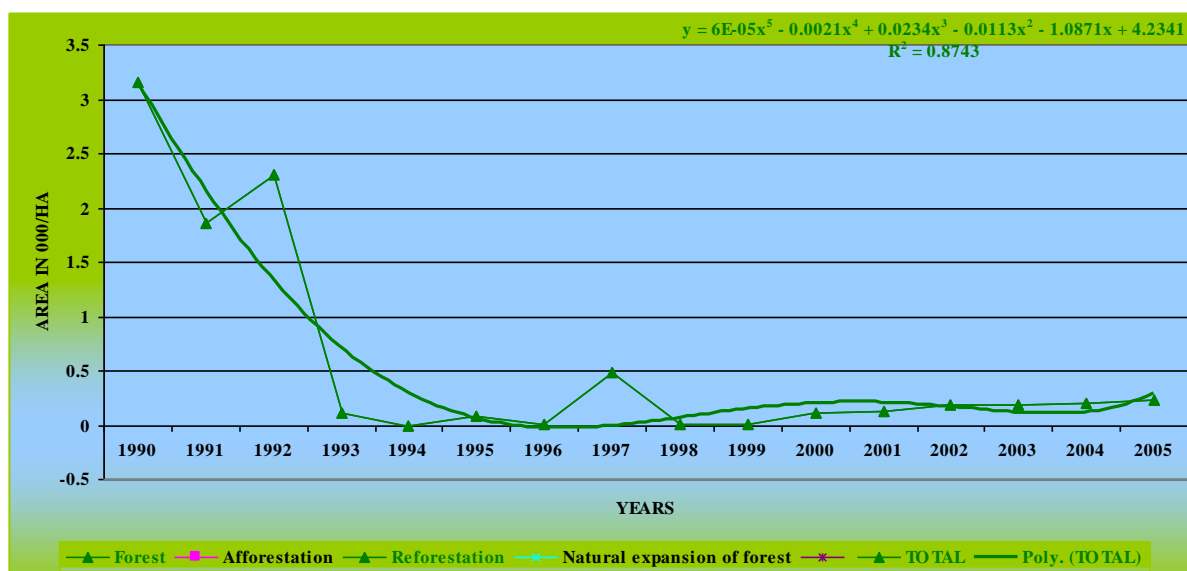


Fig 9. Reforestation area

## 5.3 Analysis and processing of national data

### 5.3.1 Calibration

Need not

### 5.3.2 Estimation and forecasting

Not needed.

### 5.3.3 Reclassification into FRA 2010 categories

Need not

## 5.4 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species <sup>1)</sup> (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Reforestation	2897.2	90.17	215.3	12.15	77.59	121.0
...of which on areas previously planted	0	0	0	0	0	0
Natural expansion of forest	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

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

## 5.5 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation	The figures of annual forest establishment hectares/year show the planted area every year during the respective years of the 1990-2005 years period.	Last years reforestation area was increased but the lowest than those before and during the first years of ninety years, yet.
Natural expansion of forest		

### Other general comments to the table

To introduced species were included the reforestations established with Black locust (*Robinia pseudoacacia* L.) specie and Poplar hybrids (*Populus x euroamericana* (Dode) Guinnier I 214).

## 6 Table T6 – Growing stock

### 6.1 FRA 2010 Categories and definitions

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

### 6.2 National data

#### 6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
ARFCSCFF. 1991-1998. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Former Institute of Forest and Pasture Researches	M	Growing stock Growing stock of commercial species	1990-1998	
ARFCSCFF. 1999-2005. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 2000-2005. General Directory of Forest and Pastures.	M	Growing stock Growing stock of commercial species	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of Country Forest Fund. 2006-2007. Directory of Forest Development Policies	M	Growing stock Growing stock of commercial species	2006-2007	

#### 6.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

### 6.2.3 Original data

#### National Data

National Data																
FRA 2010 Categories	Volume (million cubic meters over bark)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Forest</b>																
<b>Growing stock</b>	<b>75.2</b>	74.6	74.3	74.6	75.6	76.0	76.6	80.3	74.6	75.3	<b>75.8</b>	76.4	77.8	77.6	75.3	<b>74.4</b>
<b>Commercial growing stock</b>	<b>75.2</b>	74.6	74.3	74.6	75.6	76.0	76.6	80.3	74.6	75.3	<b>75.8</b>	76.4	77.8	77.6	75.3	<b>74.4</b>
<b>TOTAL</b>	<b>75.2</b>	74.6	74.3	74.6	75.6	76.0	76.6	80.3	74.6	75.3	<b>75.8</b>	76.4	77.8	77.6	75.3	<b>74.4</b>

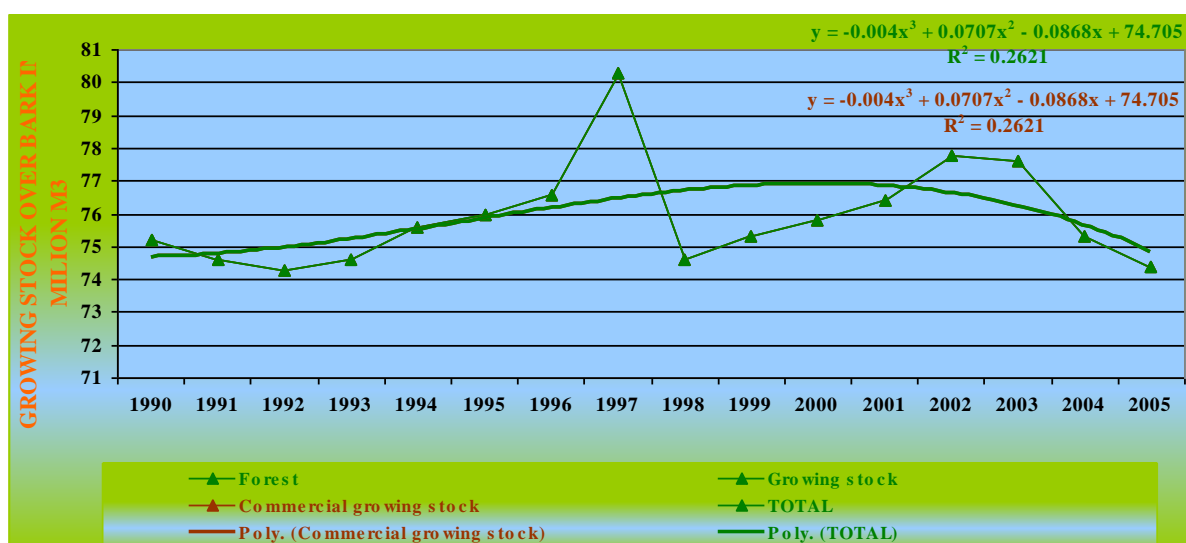


Fig.no.9-Growing stock of the forest-Growing stock and Commercial growing stock

National Data

FRA 2010 Categories	Volume (million cubic meters over bark)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other wooded land																
Growing stock	6.9	6.8	6.9	7.1	7.2	7.4	7.6	8.0	7.8	8.0	8.0	7.9	7.8	8.0	7.8	7.9
Commercial growing stock	6.9	6.8	6.9	7.1	7.2	7.4	7.6	8.0	7.8	8.0	8.0	7.9	7.8	8.0	7.8	7.9
TOTAL	6.9	6.8	6.9	7.1	7.2	7.4	7.6	8.0	7.8	8.0	8.0	7.9	7.8	8.0	7.8	7.9

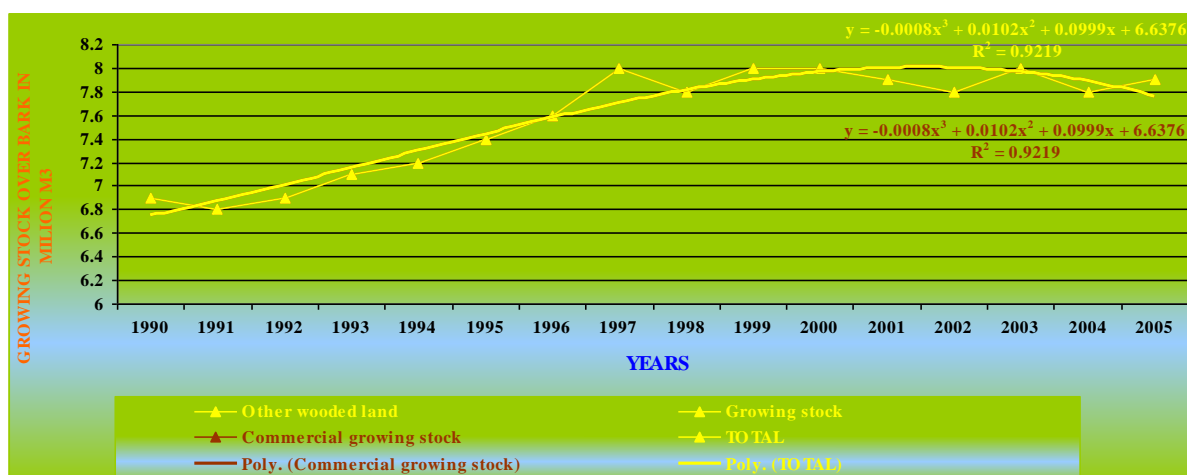


Fig.no.10-Growing stock of the other wooded land-Growing stock and Commercial growing stock

## National Data

FRA 2010 Categories/ Species name (Scientific name and common name)	Growing Stock in Forests (Million cubic meters)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
1.Fagus silvatica L. - Beech	<b>37.8</b>	37.6	37.5	37.7	38.0	38.3	38.5	38.4	37.5	37.9	<b>37.9</b>	38.4	38.6	38.4	37.6	<b>37.2</b>
2.Quercus sp. L.- Oaks	<b>15.1</b>	14.7	14.3	14.3	14.4	14.5	14.8	14.7	13.9	14.0	<b>14.3</b>	14.4	14.5	14.8	14.5	<b>14.5</b>
3. Pinus nigra Arn. - Black pine	<b>10.4</b>	10.6	10.7	10.9	11.1	11.3	11.3	11.3	11.2	11.3	<b>11.4</b>	11.3	12.0	12.0	10.9	<b>10.6</b>
4.Other broadleaves	<b>4.6</b>	4.4	4.3	4.2	4.3	4.3	4.3	4.3	4.3	4.4	<b>4.4</b>	4.5	4.6	4.6	4.5	<b>4.5</b>
5.Abies alba L.- Silver fir	<b>3.9</b>	3.9	3.9	3.9	4.0	4.0	4.0	4.0	3.9	4.0	<b>4.0</b>	4.0	4.1	3.9	3.9	<b>3.8</b>
6.Other coniferous	<b>3.5</b>	3.5	3.5	3.5	3.6	3.7	3.7	3.7	3.7	3.7	<b>3.8</b>	3.8	4.0	3.9	3.9	<b>3.7</b>
<b>TOTAL</b>	<b>75.2</b>	74.7	74.2	74.5	75.4	76.1	76.6	76.4	74.5	75.3	<b>75.8</b>	76.4	77.8	77.6	75.3	<b>74.4</b>

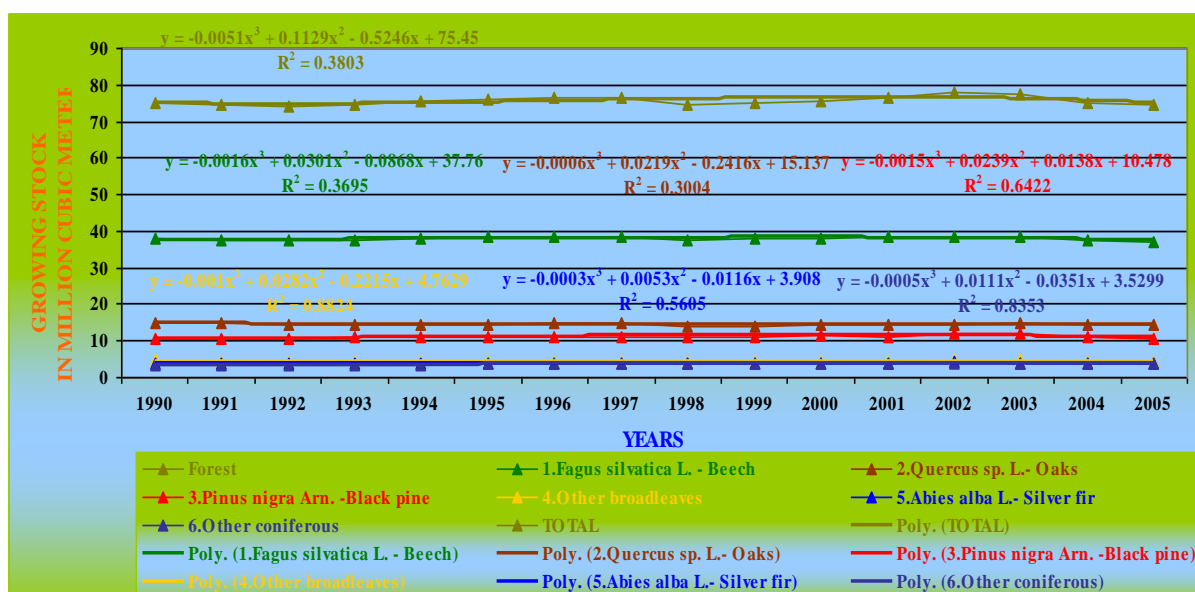


Fig.no.26.-Growing stock composition of forest after species

National Data

FRA 2010 Categories/ Species name (Scientific name and common name)	Growing Stock in Other Wooded Lands (Million cubic meters)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other Wooded Lands																
7.Carpinus orientalis L.- Hornbeam	2.9	2.8	2.8	2.9	3.0	3.1	3.1	3.1	3.2	3.2	3.2	3.0	3.0	3.1	2.9	2.9
8.Arbutus unedo L.- Strawberry	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6
9.Other shrubs	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.4	2.4
TOTAL	6.9	6.8	6.9	7.0	7.3	7.5	7.6	7.7	7.8	8.0	8.0	7.9	7.8	8.0	7.9	7.9



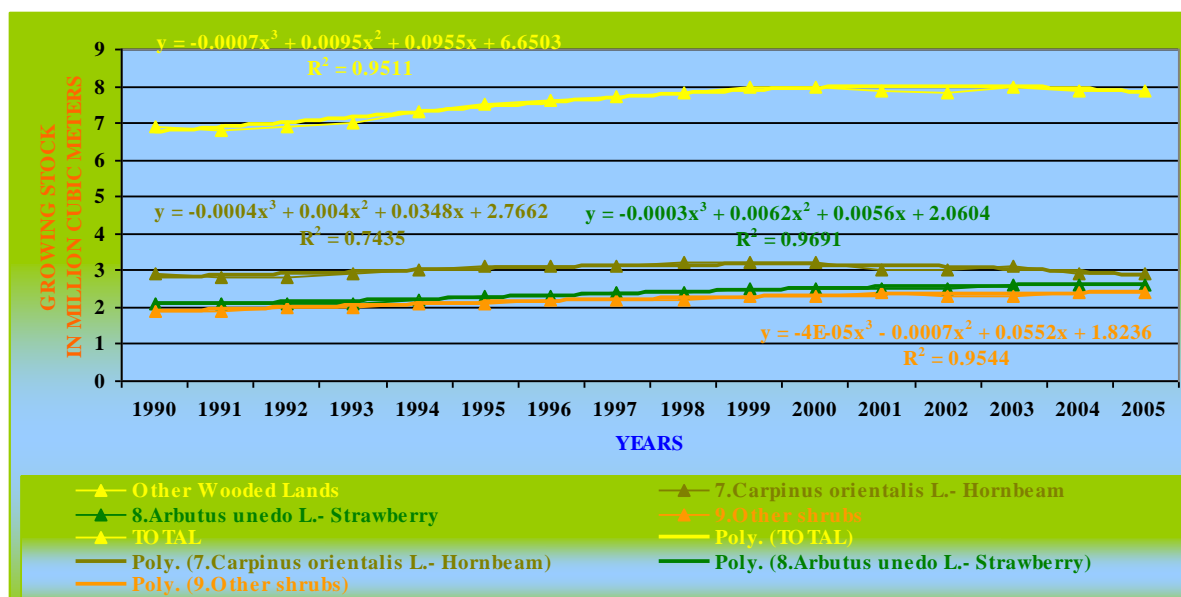


Fig.no.27.-Growing stock composition of other wooded land after species

### 6.3 Analysis and processing of national data

#### 6.3.1 Calibration

Need not

#### 6.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Forest		
Growing Stock	$y = -0.004x^3 + 0.0707x^2 - 0.0868x + 74.705$	$R^2 = 0.2621$
Commercial	$y = -0.004x^3 + 0.0707x^2 - 0.0868x + 74.705$	$R^2 = 0.2621$
Growing Stock		

**For X=5 the forecasting figures of the years 2010 in the table T 6, were taken place.**

### Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the years 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

#### Forests

Fagus silvatica L.-Beech	$y = -0.0016x^3 + 0.0301x^2 - 0.0868x + 37.76$	$R^2 = 0.3695$
Quercus sp.L.-Oaks	$y = -0.0006x^3 + 0.0219x^2 - 0.2416x + 15.137$	$R^2 = 0.3004$
Pinus nigra Arn.-Black pine	$y = -0.0015x^3 + 0.0239x^2 + 0.0138x + 10.478$	$R^2 = 0.6422$
Abies alba L.-Silver fir	$y = -0.0003x^3 + 0.0053x^2 - 0.0116x + 3.908$	$R^2 = 0.5605$
Other broadleaves	$y = -0.001x^3 + 0.0282x^2 - 0.2215x + 4.7629$	$R^2 = 0.8824$
Other coniferous	$y = -0.0005x^3 + 0.0111x^2 - 0.0351x + 3.5299$	$R^2 = 0.8353$

**For X=5 the forecasting figure of the year 2010 in the table T 6a, was taken place**

### Growing stock composition

FRA 2005 Categories / Species name (Scientific name and common name)	Growing Stock in Forests (Million cubic meters)	
	1990	2000
Forest		
1. -Fagus silvatica L.-Beech	37.774	37.928
2. -Quercus sp. L.-Oaks	15.067	14.346
3. -Pinus nigra Arn. -Black pine	10.370	11.370
4. -Abies alba L.-Silver fir	3.928	3.956
Other broadleaves	4.566	4.415
Other coniferous	3.543	3.807
<b>TOTAL</b>	<b>75.248</b>	<b>75.822</b>

### 6.3.3 Reclassification into FRA 2010 categories

Need not

## 6.4 Data for Table T6

**Table 6a – Growing stock**

FRA 2010 category	Volume (million cubic meters over bark)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	75.2	75.8	74.4	75.0	6.9	8.0	7.9	7.3
... of which coniferous	17.8	19.1	18.2	18.5	0	0	0	0
... of which broadleaved	<b>57.4</b>	<b>56.7</b>	<b>56.2</b>	<b>56.5</b>	6.9	8.0	7.9	7.3
Growing stock of commercial species	75.2	75.8	74.4	75.0	6.9	8.0	7.9	7.3

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

FRA 2010 category / Species name			Growing stock (million cubic meters)		
Rank	Scientific name	Common name	1990	2000	2005
1 <sup>st</sup>	Fagus silvatica L.	Beech	37.774	37.928	37.240
2 <sup>nd</sup>	Quercus sp. L.	Oaks	15.067	14.346	14.508
3 <sup>rd</sup>	Pinus nigra Arn.	Black pine	10.370	11.370	10.647
4 <sup>th</sup>	Abies alba L.	Silver fir	3.928	3.956	3.830
5 <sup>th</sup>					
6 <sup>th</sup>					
7 <sup>th</sup>					
8 <sup>th</sup>					
9 <sup>th</sup>					
10 <sup>th</sup>					
Remaining			8.109	8.222	8.177
<b>TOTAL</b>			<b>75.248</b>	<b>75.822</b>	<b>74.402</b>

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

**Table 6c – Specification of threshold values**

Item	Value	Complementary information
Minimum diameter (cm) at breast height <sup>1</sup> of trees included in growing stock (X)	2	The figures were taken by National Volume and Yield Tables for the main species.
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	2	The figures were taken by National Volume and Yield Tables for the main species.
Minimum diameter (cm) of branches included in growing stock (W)	2	The figures were taken by National Volume and Yield Tables for the main species.
Volume refers to “above ground” (AG) or “above stump” (AS)	AG	The National Volume and Yield Tables for the main species given the above ground volume and productivity.

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

## 6.5 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock	Consider the calculated volume after the volume and yield tables.	Growing stock for each one and total of forest and other wooded land species would be fluctuating up and down values after years.
Growing stock of broadleaved / coniferous	Consider the calculated volume after the volume and yield tables.	Growing stock for each one and total of forest and other wooded land species would be fluctuating up and down values after years.
Growing stock of commercial species	Consider the calculated volume after the volume and yield tables.	Growing stock of commercial species for each one and total of forest and other wooded land species would be fluctuating up and down values after years.
Growing stock composition	Consider the total volume and productivity after main species. To “Other broadleaves, Other coniferous, Other brushes” were included all not so important species by growing stock quantity point of view.	More importante specie is Beech ( <i>Fagus silvatica L.</i> ).It has the biggest volume and productivity, too. Oak forests compose the largest area but the productivity is the lowest than the beech specie forests.

Other general comments to the table

## 7 Table T7 – Biomass stock

### 7.1 FRA 2010 Categories and definitions

Category	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.

### 7.2 National data

#### 7.2.1 Data sources

Biomass calculation was made basing to the figures of growing stock to Tables 6.

#### 7.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

#### 7.2.3 Original data

National Data																
FRA 2010 Categories	Biomass (million metric tones oven-dry weight)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
Above-ground biomass	<b>74.6</b>	73.9	73.4	73.7	74.4	75.2	75.7	74.8	73.6	74.3	<b>74.8</b>	75.4	76.7	76.3	74.0	<b>73.2</b>
Below-ground biomass	<b>23.8</b>	23.6	23.4	23.5	23.7	23.9	24.1	23.9	23.4	23.6	<b>23.8</b>	24.0	24.4	24.4	23.6	<b>23.4</b>
Dead wood biomass	<b>28.9</b>	28.8	28.7	28.5	28.5	28.4	28.4	28.3	28.2	28.3	<b>28.2</b>	28.3	28.5	28.5	28.6	<b>28.6</b>
<b>TOTAL</b>	<b>127.3</b>	126.3	125.5	125.7	126.6	127.5	128.2	127.0	125.2	126.2	<b>126.8</b>	127.7	129.6	129.2	126.2	<b>125.2</b>

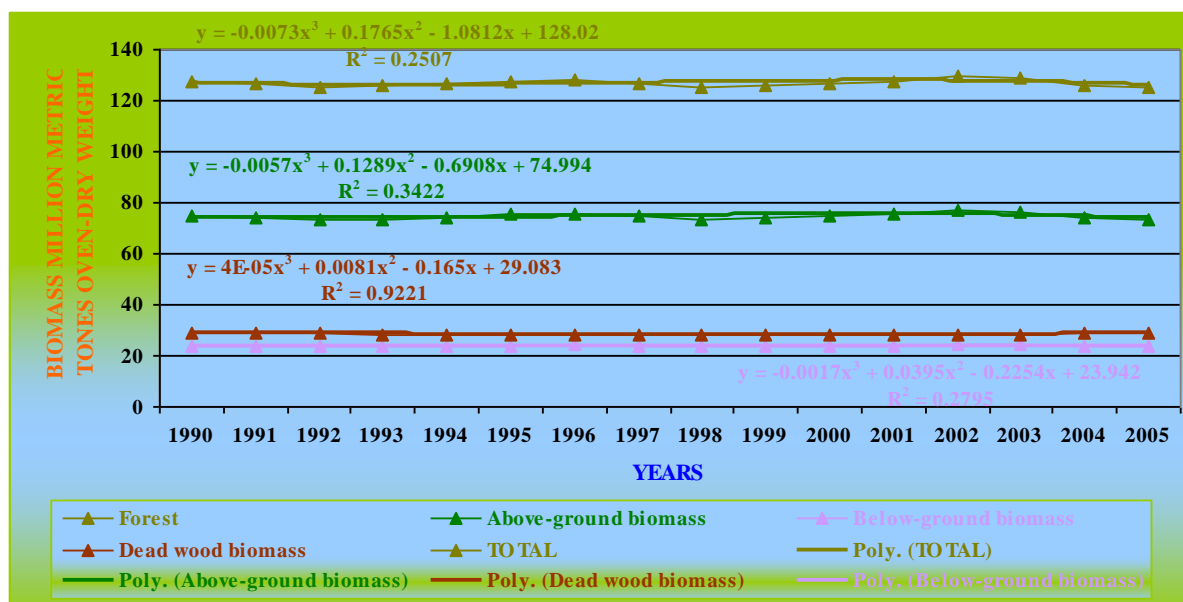


Fig.no.11-Biomass stock of the forest-Above-ground, Below-ground, Dead wood and Total

National Data

FRA 2010 Categories	Biomass (million metric tones oven-dry weight)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other wooded land																
Above-ground biomass	7.5	7.5	7.5	7.7	7.9	8.1	8.3	8.4	8.6	8.7	8.7	8.6	8.5	8.7	6.0	6.1
Below-ground biomass	21.3	21.1	21.3	21.9	22.4	22.9	23.3	23.8	24.2	24.7	24.7	24.4	24.1	24.7	17.1	17.3
Dead wood biomass	9.6	9.6	9.5	9.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.8	9.7	9.8	10.3	10.3
TOTAL	38.4	38.2	38.3	39.3	39.9	40.6	41.2	41.8	42.4	43.0	43.0	42.8	42.3	43.2	33.4	33.7

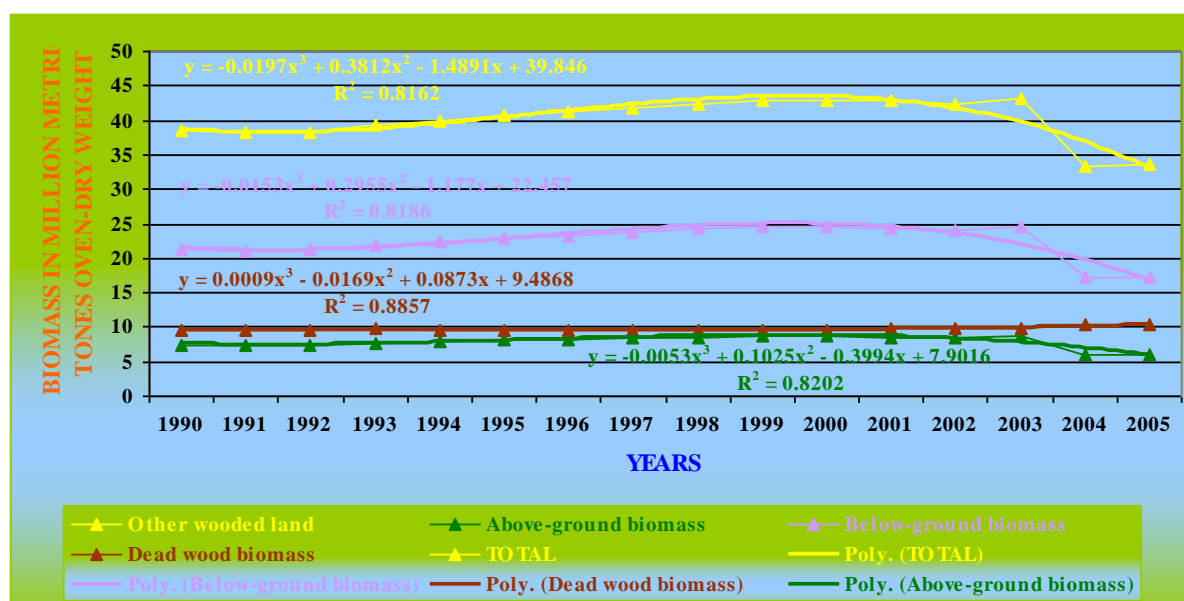


Fig.no.12-Biomass stock of the other wooded land-Above-ground, Below-ground, Dead wood and Total

Thresholds used by the country are the following:

Biomass was calculated after the Guidelines for Country Reporting to FRA 2010 and Methodologies of International Panel of Climate Change, 1996 and 2003 years.

Above-ground biomass was calculated multiplying the growing stock of each one specie with their dry matter gravity weight getting from regional study (Published to Arboricoltura da legno, Pioppicoltura No.8. Agosto, 1973, P.192-Itali/Arboriculture of wood, Poplar Cultivation no.8. August, 1973, P.192-Italy) and with biomass expansion factor (over bark) (after Table 5.8) as follow, were used:

	Gravity weight Ton dry matter/m <sup>3</sup> Fresh volume	Biomass expansion factor (over bark)
Coniferous	0.60	1.3
Pinus nigra Arn.-Black pine	0.65	
Abies alba Mill.-Silver fir	0.47	
Other coniferous	0.65	
Broadleaves	0.75	1.4
Fagus silvatica L.-Beech	0.74	
Quercus sp.L.-Oaks	0.82	
Quercus vallonca L.	0.93	
Other broadleaves	0.62	
Bushes		1.0
Carpinus orientalis L.-Hornbeam	0.85	
Arbutus unedo L.-Strawberry	0.70	
Other bushes	0.77	

Below-ground biomass was calculated using reports with above-ground biomass (after Table 5.3), as follow:

Coniferous	
Pinus nigra Arn.-Black pine	0.32
Abies alba Mill.-Silver fir	0.32
Other coniferous	0.32
Broadleaves	
Fagus silvatica L.-Beech	0.26
Quercus sp.L.-Oaks	0.43
Quercus vallonea L.	0.43
Other broadleaves	0.43
Bushes	2.83
Carpinus orientalis L.-Hornbeam	2.83
Arbutus unedo L.-Strawberry	2.83
Other bushes	2.83

The report 0.43 instead of 0.35 for oak forests selected because our oak forest have the average above ground biomass more less 75 t/ha<sup>-1</sup> therefore, we have selected the value of other broadleaf forest with average above ground biomass more less 75 t/ha<sup>-1</sup> (Appendix 5- Table 5.3). For bushes value 2.83 was taken to the Table 5.5 of FRA 2005 Guide.

### 7.3 Analysis and processing of national data

#### 7.3.1 Calibration

Need not

#### 7.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 calculated

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Forest		
Above-ground biomass	$y = -0.0057x^3 + 0.1289x^2 - 0.6908x + 74.994$	$R^2 = 0.3422$
Below-ground biomass	$y = -0.0017x^3 + 0.0395x^2 - 0.2254x + 23.942$	$R^2 = 0.2795$
Dead wood biomass	$y = 4E-05x^3 + 0.0081x^2 - 0.165x + 29.083$	$R^2 = 0.9221$
Other wooded land		
Above-ground biomass	$y = -0.0053x^3 + 0.1025x^2 - 0.3994x + 7.9016$	$R^2 = 0.8202$
Below-ground biomass	$y = -0.0153x^3 + 0.2955x^2 - 1.177x + 22.457$	$R^2 = 0.8186$
Dead wood biomass	$y = 0.0009x^3 - 0.0169x^2 + 0.0873x + 9.4868$	$R^2 = 0.8857$



For X=5 the forecasting figure of the year 2010 in the table T 7, was taken place.

#### 7.4 Data for Table T7

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass	74.6	74.8	73.2	74.1	7.5	8.7	6.1	7.8
Below-ground biomass	23.8	23.8	23.4	23.6	21.3	24.7	17.3	22.0
Dead wood	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>TOTAL</b>								

#### 7.5 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass	Calculated figures considering the wood volume after species and specie groups and density weight for main species.	Forest and Other wooded land above ground biomass would be up and down fluctuating values after years.
Below-ground biomass	Calculated figures considering the above-ground wood volume after species and specie groups and reports below-ground biomass/above-ground biomass factors.	Forest and Other wooded land below ground biomass would be up and down fluctuating values after years.
Dead wood		

#### Other general comments to the table

Total forest biomass would be up and down fluctuating values after years.

## 8 Table T8 – Carbon stock

### 8.1 FRA 2010 Categories and definitions

Category	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

### 8.2 National data

#### 8.2.1 Data sources

Carbon calculation was made basing to the figures of biomass to Table 7.

#### 8.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

#### 8.2.3 Original data

Carbon in above-ground, in below-ground and in dead wood after the Guidelines for Country Reporting to FRA 2010 and Methodology of International Panel of Climate Change, multiplying the calculated biomass with carbon factor 0.50, was calculated.

Carbon in litter multiplying the forest area after specie groups with their carbon density of forest floor litter (after Table 5.9), was calculated.

	Carbon density of forest floor litter Mg C ha <sup>-1</sup>
Broadleaf	
Deciduous	13
Needle leaf	
Evergreen	22

Soil carbon to a depth of 0-30 Cm passing the steps as follow, was calculated.

-Identification of Albania after the climate region.

According to average annual growing season temperature with 10-20 °C and with annual precipitation near or exceeding potential evapotranspiration the Albanian territory in the Region Warm Temperate, Moist (after Table 5.1), was included.

-The figures of forest land area after USDA land classification from Pandi ZDRULI (March 1995)-Benchmark Soils of ALBANIA Volume I: Soils and agro-ecosystem assessment were taken. After it the forest land area in Inceptisols, Entisols, Mollisols and Sandy soils (Entisols-Ustipsamments, Xeropsamments) land orders, were included.

According to APPENDIX 5-Table 5.10 of the Guidelines for Country Reporting to FRA 2010 these land orders over in high clay activity soils, were included while Entisols-Ustipsamments, Xeropsamments in Sandy soils, were included.

-According to this classification of soil, their activity depending from clay content resulted:

	Soil organic C stock Ton C/ha <sup>-1</sup>
Forest area	
High clay activity soils	88
Sandy soils	34
Other wooded land area	
High clay activity soils	63

-Multiplying the soil areas after activities with their soil carbon stock in Ton C/ha<sup>-1</sup> the soil carbon in a depth 0-30 Cm, we have won. Results are in the table's no.8.2.4 and in the Figures no.13 and 14.

## 8.2.4 Original data

### Forest and Other wooded Soil area in million hectares after activity clay.

National Data																
Categories of soil after activity clay	Area in million hectares															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
Soil of High Activity Clay (HAC)	<b>0.782</b>	0.779	0.775	0.771	0.770	0.768	0.767	0.765	0.762	0.765	<b>0.762</b>	0.765	0.772	0.773	0.779	<b>0.782</b>
Sandy Soils	<b>0.007</b>	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	<b>0.007</b>	0.007	0.007	0.007	0.002	<b>0.002</b>
Other Wooded Land																
Soil of High Activity Clay (HAC)	<b>0.256</b>	0.256	0.256	0.255	0.269	0.269	0.273	0.276	0.278	0.279	<b>0.278</b>	0.279	0.279	0.282	0.255	<b>0.251</b>
Sandy Soils	<b>0.000</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	<b>0.000</b>	0.000	0.000	0.000	0.005	<b>0.005</b>
Total	<b>1.045</b>	1.042	1.038	1.033	1.045	1.045	1.048	1.048	1.046	1.050	<b>1.048</b>	1.051	1.058	1.062	1.040	<b>1.040</b>

National Data - Forest																
FRA 2010 Categories	Carbon (Million metric tonnes)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Forest</b>																
Carbon in above-ground biomass	<b>37.3</b>	<b>36.9</b>	<b>36.7</b>	<b>36.9</b>	<b>37.2</b>	<b>37.6</b>	<b>37.9</b>	<b>37.4</b>	<b>36.8</b>	<b>37.1</b>	<b>37.4</b>	<b>37.7</b>	<b>38.3</b>	<b>38.2</b>	<b>37.0</b>	<b>36.6</b>
Carbon in below-ground biomass	<b>11.9</b>	<b>11.8</b>	<b>11.7</b>	<b>11.7</b>	<b>11.8</b>	<b>12.0</b>	<b>12.1</b>	<b>11.9</b>	<b>11.7</b>	<b>11.8</b>	<b>11.9</b>	<b>12.0</b>	<b>12.2</b>	<b>12.2</b>	<b>11.8</b>	<b>11.7</b>
Sub-total: Carbon in living biomass	<b>49.2</b>	48.7	48.4	48.6	49.0	49.6	50.0	49.3	48.5	48.9	<b>49.3</b>	49.7	50.5	50.4	48.8	<b>48.3</b>
<b>Carbon in dead wood</b>	<b>14.5</b>	<b>14.4</b>	<b>14.3</b>	<b>14.3</b>	<b>14.2</b>	<b>14.2</b>	<b>14.2</b>	<b>14.1</b>	<b>14.1</b>	<b>14.1</b>	<b>14.1</b>	<b>14.2</b>	<b>14.3</b>	<b>14.3</b>	<b>14.3</b>	<b>14.3</b>
<b>Carbon in litter</b>	<b>11.9</b>	<b>11.8</b>	<b>11.8</b>	<b>11.7</b>	<b>11.7</b>	<b>11.7</b>	<b>11.6</b>	<b>11.6</b>	<b>11.5</b>	<b>11.6</b>	<b>11.5</b>	<b>11.6</b>	<b>11.6</b>	<b>11.7</b>	<b>11.7</b>	<b>11.7</b>
Sub-total: Carbon in dead wood and litter	<b>26.4</b>	26.2	26.1	26.0	25.9	25.9	25.8	25.7	25.6	25.7	<b>25.6</b>	25.8	25.9	26.0	26.0	<b>26.0</b>
Soil carbon to a depth of 0-30 cm	<b>69.0</b>	68.8	68.4	68.1	68.0	67.8	67.8	67.5	67.3	67.5	<b>67.3</b>	67.6	68.2	68.3	68.6	<b>68.9</b>
<b>TOTAL CARBON</b>	<b>144.6</b>	143.7	142.9	142.7	142.9	143.3	143.6	142.5	141.4	142.1	<b>142.2</b>	143.1	144.6	144.7	143.4	<b>143.2</b>

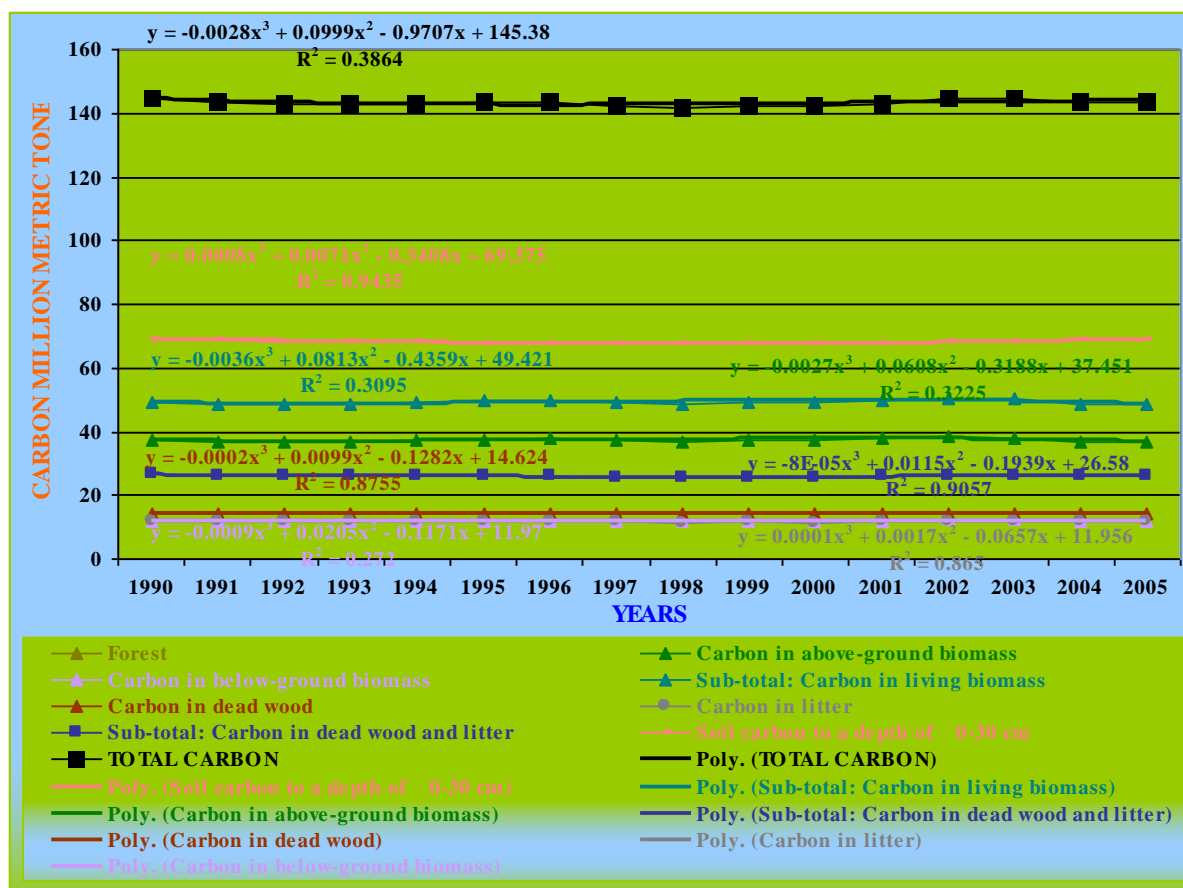


Fig.no.13-Carbon stock of the forest-Above-ground, Below-ground, Living biomass, Dead wood, Litter, Dead wood and Litter, Soil in depth 0-30 cm and Total

National Data – Other wooded land																
FRA 2010 Categories	Carbon (Million metric tonnes)															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Other wooded land</b>																
Carbon in above-ground biomass	3.8	3.7	3.8	3.9	4.0	4.1	4.1	4.2	4.3	4.4	4.4	4.3	4.2	4.4	3.0	3.0
Carbon in below-ground biomass	10.7	10.6	10.7	10.9	11.2	11.5	11.7	11.9	12.1	12.4	12.3	12.2	12.0	12.3	8.5	8.6
Sub-total: Carbon in living biomass	14.5	14.3	14.5	14.8	15.2	15.6	15.8	16.1	16.4	16.8	16.7	16.5	16.2	16.7	11.5	11.6
<b>Carbon in dead wood</b>	4.8	4.8	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.9	4.9	4.9	5.2	5.1
<b>Carbon in litter</b>	4.1	4.1	4.0	4.2	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.2	4.2	4.7	4.7
Sub-total: Carbon in dead wood and litter	8.9	8.9	8.7	9.0	8.9	8.9	8.9	8.9	8.9	8.9	8.9	9.1	9.1	9.1	9.9	9.8
Soil carbon to a depth of 0-30 cm	22.5	22.5	22.5	22.5	23.6	23.7	24.0	24.3	24.4	24.5	24.5	24.5	24.5	24.8	22.6	22.3
<b>TOTAL CARBON</b>	<b>45.9</b>	45.7	45.7	46.3	47.7	48.2	48.7	49.3	49.7	50.2	<b>50.1</b>	50.1	49.8	50.6	44.0	<b>43.7</b>

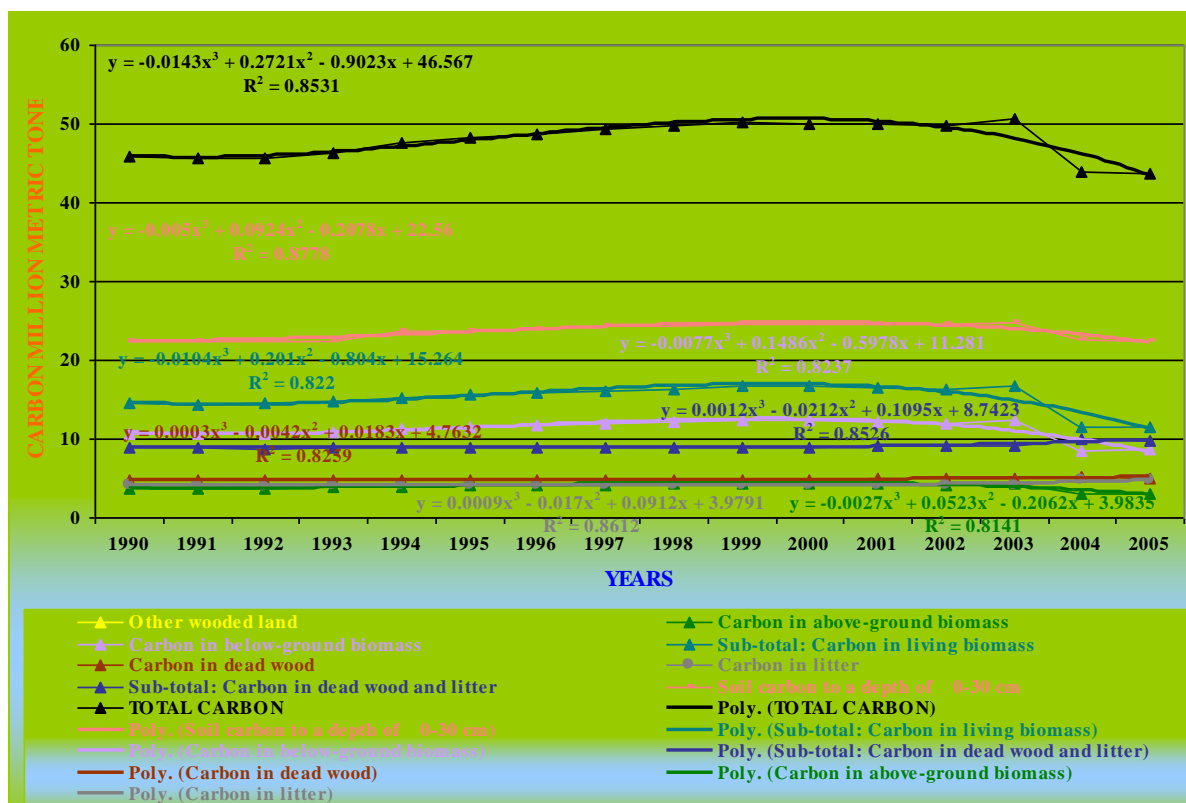


Fig.no.14-Carbon stock of the other wooded land-Above-ground, Below-ground, Living biomass, Dead wood, Litter, Dead wood and Litter, Soil in depth 0-30 cm and Total

### 8.3 Analysis and processing of national data

#### 8.3.1 Calibration

Need not.

### 8.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 calculated

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

#### Forest

Carbon in above-ground biomass	$y = -0.0027x^3 + 0.0608x^2 - 0.3188x + 37.451$	$R^2 = 0.3225$
Carbon in below-ground biomass	$y = -0.0009x^3 + 0.0205x^2 - 0.1171x + 11.97$	$R^2 = 0.272$
Carbon in living biomass	$y = -0.0036x^3 + 0.0813x^2 - 0.4359x + 49.421$	$R^2 = 0.3095$
Carbon in dead wood biomass	$y = -0.0002x^3 + 0.0099x^2 - 0.1282x + 14.624$	$R^2 = 0.8755$
Carbon in litter	$y = 0.0001x^3 + 0.0017x^2 - 0.0657x + 11.956$	$R^2 = 0.865$
Carbon in dead wood and litter	$y = -8E-05x^3 + 0.0115x^2 - 0.1939x + 26.58$	$R^2 = 0.9057$
Soil carbon to a depth of 0-30 cm	$y = 0.0008x^3 + 0.0071x^2 - 0.3408x + 69.375$	$R^2 = 0.9435$

#### Other wooded land

Carbon in above-ground biomass	$y = -0.0027x^3 + 0.0523x^2 - 0.2062x + 3.9835$	$R^2 = 0.8141$
Carbon in below-ground biomass	$y = -0.0077x^3 + 0.1486x^2 - 0.5978x + 11.281$	$R^2 = 0.8237$
Carbon in living biomass	$y = -0.0104x^3 + 0.201x^2 - 0.804x + 15.264$	$R^2 = 0.822$
Carbon in dead wood biomass	$y = 0.0003x^3 - 0.0042x^2 + 0.0183x + 4.7632$	$R^2 = 0.8259$
Carbon in litter	$y = 0.0009x^3 - 0.017x^2 + 0.0912x + 3.9791$	$R^2 = 0.8612$
Carbon in dead wood and litter	$y = -0.0104x^3 + 0.201x^2 - 0.804x + 15.264$	$R^2 = 0.822$
Soil carbon to a depth of 0-30 cm	$y = -0.005x^3 + 0.0924x^2 - 0.2078x + 22.56$	$R^2 = 0.8778$

**For X=5 the forecasting figure of the years 2010 in the table 8, was taken place**

### 8.3.3 Reclassification into FRA 2010 categories

Need not.



**8.4 Data for Table T8**

FRA 2010 Category	Carbon (Million metric tonnes)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Carbon in above-ground biomass	37.3	37.4	36.6	37.0	3.8	4.4	3.0	3.9
Carbon in below-ground biomass	11.9	11.9	11.7	11.8	10.7	12.3	8.6	11.0
<b><i>Sub-total: Living biomass</i></b>	<b>49.2</b>	<b>49.3</b>	<b>48.3</b>	<b>48.8</b>	<b>14.5</b>	<b>16.7</b>	<b>11.6</b>	<b>15.0</b>
Carbon in dead wood	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Carbon in litter	11.9	11.5	11.7	11.7	4.1	4.1	4.7	4.1
<b><i>Sub-total: Dead wood and litter</i></b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>
Soil carbon	<b>69.0</b>	<b>67.3</b>	<b>68.9</b>	<b>67.9</b>	<b>22.5</b>	<b>24.5</b>	<b>22.3</b>	<b>23.2</b>
<b>TOTAL</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>

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

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		Forest and Other wooded land Carbon in above-ground was prognosed to fluctuate up and down values after years.
Carbon in below-ground biomass		Forest and Other wooded land Carbon in below ground was prognosed to fluctuate up and down values after years.
Carbon in dead wood		Forest Carbon in dead wood was prognosed to fluctuate up and down. Other wooded land Carbon in dead wood was prognosed to increase.
Carbon in litter		Forest and Other wooded land Carbon in litter was prognosed to increase.
Soil carbon	Calculated basing to the figures on forest and other wooded land areas after activity clay of the table 8.5.	Forest and Other wooded land Soil Carbon to a depth of 0-30 cm were prognosed to increase.

### Other general comments to the table

Forest and Other wooded land Total Carbon were prognosed to fluctuate up and down values after years.

## 9 Table T9 – Forest fires

### 9.1 FRA 2010 Categories and definitions

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

### 9.2 National data

#### 9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
S.G.D.F.P.Statistics of Former General Directory of Forests and Pastures (G.D.F.P.)	M	Disturbance by fire	1996-2005	
S.G.D.F.P.Statistics of Directory of Forest Development Policies	M	Disturbance by fire	2006-2008	

#### 9.2.2 Classification and definitions

National class	Definition
Fire number	Total event number of fires, that passing and burning forest and pasture areas.
Passed forest, other wooded land and pasture area by fire.	Forest and pasture area passed but un-burned by fire, they have affected on their ecosystems also, trees and grasses regenerate their self.
Burned forest, other wooded land and pasture area by fire.	Forest and pasture area burned totally and, trees and grasses can not regenerate theirselves; need to intervene by people by sowing/planting.

### 9.2.3 Original data

#### National Data

Years	Total fire number	Affected or Past area in 000/HA			Burned area in 000/HA						
		Total	Forest	Pasture	Forest					Other wooded land	Pasture
					Total	High stem			Coppice		
						Total	Coniferous	Broadleaves		Brushes	
1996	342	4630.9	1662	2968.9	343.9	265	260.4	4.6	78.9	66.1	2679
1997	882	15186.6	6649.6	8537	1820	1256	892	364	564	489	6903
1998	614	6941.53	3703.53	3238	497.6	330.9	237.2	93.7	166.7	182.4	3238
1999	599	14123.5	4896.8	9226.7	313.6	186.1	175.2	10.9	127.5	375.4	2864.7
2000	915	13224.8	12301	923.8	2770.7	2360.2	2067	293.2	410.5	904.8	828.8
2001	327	1434.3	941.2	493.1	175.1	97.4	80.1	17.3	77.7	132.3	274.1
2002	140	690	650.4	39.6	49.6	22.9	21.6	1.3	26.7	5	21.3
2003	771	6367.44	4418.94	1948.2	667.15	505.25	305.32	199.93	161.9	555.24	756.9
2004	143	1473.12	491.02	982.1	37.35	32.25	12.75	19.5	5.1	3.94	872.5
2005	174	3241.11	1041.41	2199.7	72.01	27.21	26.11	1.1	44.8	228.05	1739.7
2006	176	1081.09	766.59	314.5	96.65	73.69	55.99	17.7	22.96	10.9	303
2007	1182	37952	30827	7125	5888.31	3659.81	2777.41	882.4	1537.12	691.38	6248

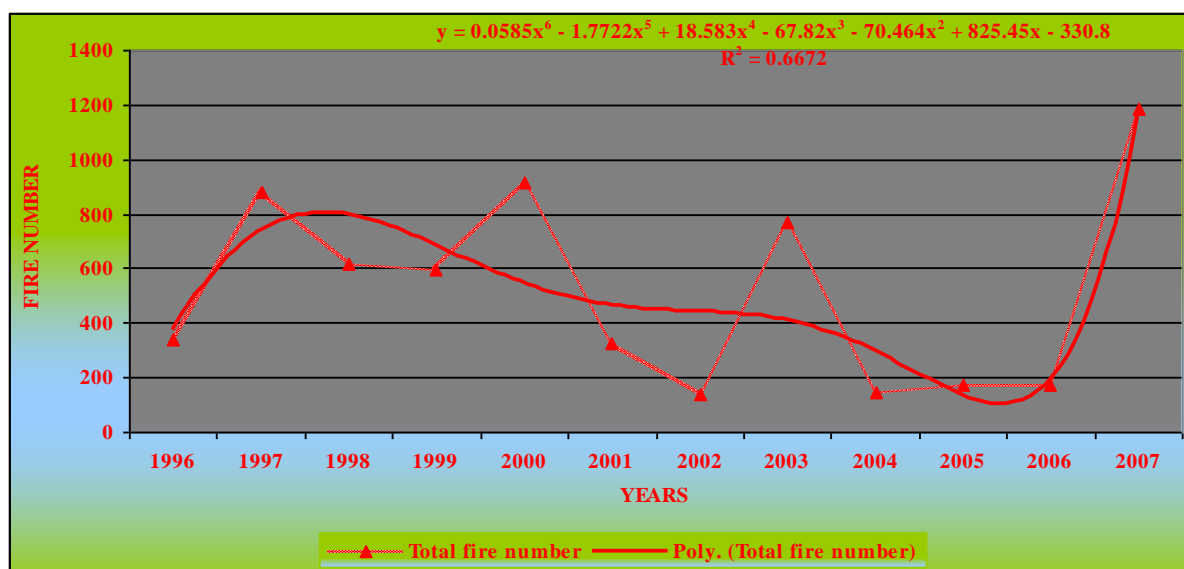


Fig.no.15-Total fire number in forests, other wooded lands and pastures for 1996-2007 years period

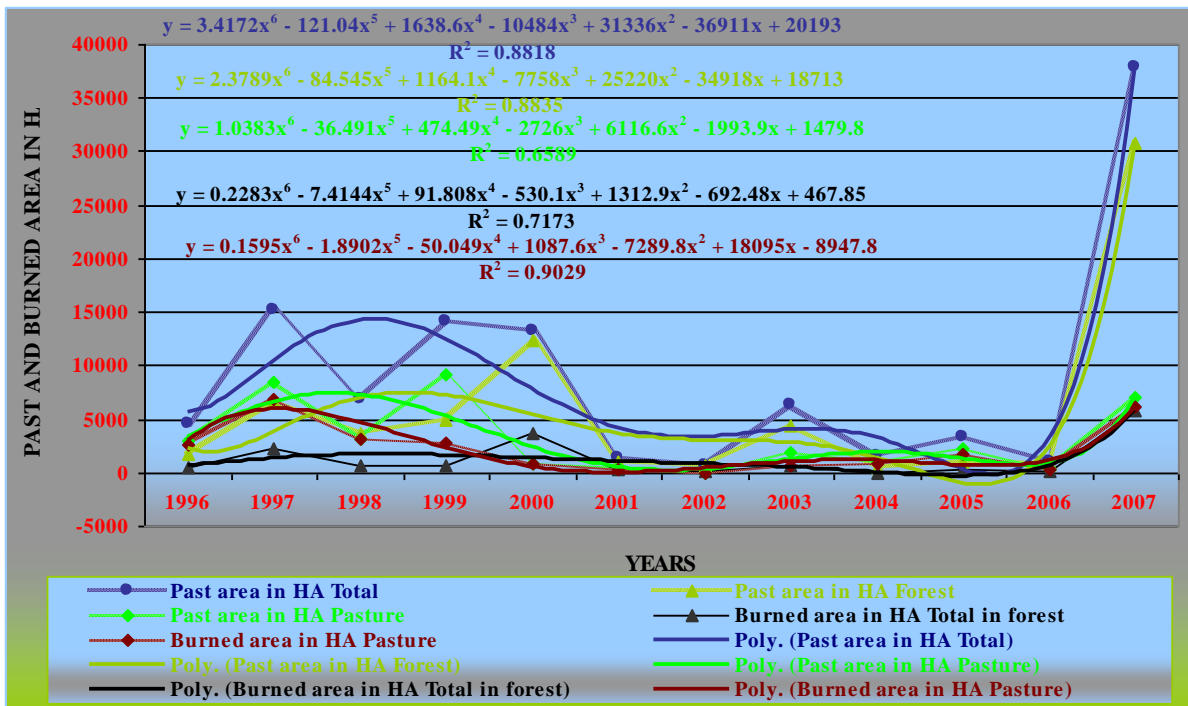


Fig.no.16-Affected or Past and Burned forest and pasture and total areas for 1996-2007 years period

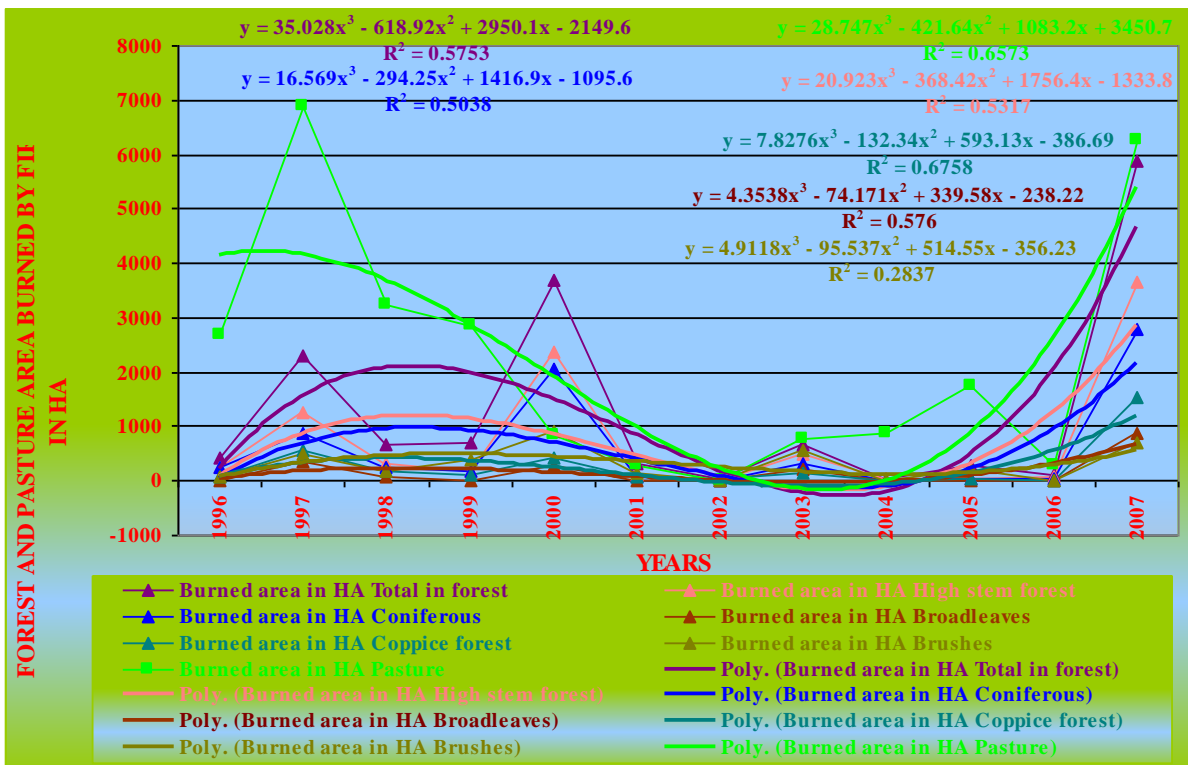


Fig.no.17- Burned forest areas after management forms and specie groups for 1996-2007 years period

### 9.3 Analysis and processing of national data

#### 9.3.1 Calibration

Need not.

#### 9.3.2 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Total fire number	$y = 0.2422x^6 - 7.7433x^5 + 93.273x^4 - 515.03x^3 + 1175x^2 - 359.73x + 247.9$	$R^2 = 0.7045$
Total past area	$y = 3.4172x^6 - 121.04x^5 + 1638.6x^4 - 10484x^3 + 31336x^2 - 36911x + 20193$	$R^2 = 0.8818$
Forest		
Total past forest area	$y = 2.3789x^6 - 84.545x^5 + 1164.1x^4 - 7758x^3 + 25220x^2 - 34918x + 18713$	$R^2 = 0.8835$
Total burned forest area	$y = 0.2283x^6 - 7.4144x^5 + 91.808x^4 - 530.1x^3 + 1312.9x^2 - 692.48x + 467.85$	$R^2 = 0.7173$
Burned high stem forest area	$y = 20.923x^3 - 368.42x^2 + 1756.4x - 1333.8$	$R^2 = 0.5317$
Burned coniferous forest area	$y = 16.569x^3 - 294.25x^2 + 1416.9x - 1095.6$	$R^2 = 0.5038$
Burned broadleaved forest area	$y = 4.3538x^3 - 74.171x^2 + 339.58x - 238.22$	$R^2 = 0.576$
Burned coppice forest area	$y = 7.8276x^3 - 132.34x^2 + 593.13x - 386.69$	$R^2 = 0.6758$
Other wooded land		
Disturbances by fire	$y = 0.242x^6 - 7.743x^5 + 93.27x^4 - 515.0x^3 + 1175x^2 - 359.7x + 247.9$	$R^2 = 0.704$
Past pasture area	$y = 1.0383x^6 - 36.491x^5 + 474.49x^4 - 2726x^3 + 6116.6x^2 - 1993.9x + 1479.8$	$R^2 = 0.6589$
Burned brushes area	$y = 4.9118x^3 - 95.537x^2 + 514.55x - 356.23$	$R^2 = 0.2837$
Burned pasture area	$y = 28.747x^3 - 421.64x^2 + 1083.2x + 3450.7$	$R^2 = 0.6573$

**For X=5 the forecasting figures of the year 2010 in the table T 9, was taken placed**

#### 9.3.3 Reclassification into FRA 2010 categories

Need not.

## 9.4 Data for Table T9

**Table 9a**

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire	n.a.	n.a.	7.283	519	10.023	489
... of which on forest	n.a.	n.a.	3.167	n.a.	6.200	n.a.
... of which on other wooded land	n.a.	n.a.	1.332	n.a.	1.309	n.a.
... of which on other land	n.a.	n.a.	2.784	n.a.	2.514	n.a.

**Table 9b**

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

## 9.5 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire	In the figures on affected area are included the forest, other wooded lands and other lands (pastures) past area by fires, only.	Affected forest area by fire was increased. Total burned area, forest and pasture burned area were and are prognosed to increase; other wooded land area was reduced but prognose to increase. The 2007 year was with larger total and forest passed area and total, forest and pasture burned area by fires.
Number of fires	The figures on fire number are processed for total, only. For the others, they are not requested from all districts of Albania and after to calculate the totals separated for past and burn area of forest and other wooded lands.	Average annual total number of fires was reduced but prognoses to increase. The 2007 year was with the biggest fire number. During 2007 year past and burned forest area were more 2.5 and 2,1 times larger than those of 2000 year respectively ,while on the pasture were larger more than 7.7 and 7,5 times.
Wildfire / planned fire	This is usually not a practical way in Albania.	

Other general comments to the table
Total fire number prognoses to increase. Total, forest and pasture passed area by fire prognoses to increase. Total, forest and pasture burned area by fire prognoses to increase.

## 10 Table T10 – Other disturbances affecting forest health and vitality

### 10.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.
Category	Definition
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

### 10.2 National data

#### 10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
M.F.H.S.-Monitoring of forest health situation. Institute of Forest and Pasture Researches (I.F.P.R.)	M	Disturbance by insects, diseases and other biotic agents and abiotic factors	1997-2006	
M.F.H.S.-Monitoring of forest health situation. Agency of Environment and Forestry (A.E.F.)	M	Disturbance by insects, diseases and other biotic agents and abiotic factors	2007-2008	
ARFCSCFF. 1991-1998. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 1991-1999. Former Institute of Forest and Pasture Researches	M	Disturbance by other biotic agents	1990-1998	
ARFCSCFF. 1999-2003. Annual Report of Forest Cadastre on Situation of Country Forest Fund. 2000-2005. General Directory of Forest and Pastures.	M	Disturbance by other biotic agents	1999-2005	
ARFCSCFF. 2006-2007. Annual Reports of Forest Cadastre on Situation of	M	Disturbance by other biotic agents	2006-2007	



Country Forest Fund. 2006-2007. Directory of Forest Development Policies				
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### 10.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

### 10.2.3 Original data

National Data																
FRA 2010 Categories	Average annual area affected in 000/hectares															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest																
Disturbances by insects	NDA	NDA	NDA	NDA	NDA	NDA	NDA	0.619	0.643	0.704	<b>0.720</b>	0.727	0.727	0.736	0.742	<b>0.739</b>
Disturbances by diseases	NDA	NDA	NDA	NDA	NDA	NDA	NDA	0.929	0.952	0.952	<b>0.968</b>	0.968	1.014	1.022	0.989	<b>1.010</b>
Disturbance by other biotic agents	<b>216.3</b>	<b>250.8</b>	<b>201.7</b>	<b>212.5</b>	<b>207.9</b>	<b>203.4</b>	<b>191.3</b>	157.9	131.9	154.4	<b>176.9</b>	109.4	131.6	131.4	119.0	<b>101.7</b>
Disturbance caused by abiotic factors	NDA	NDA	NDA	NDA	NDA	NDA	NDA	0.193	0.217	0.232	<b>0.240</b>	0.240	0.232	0.240	0.238	<b>0.244</b>

NDA-No data available

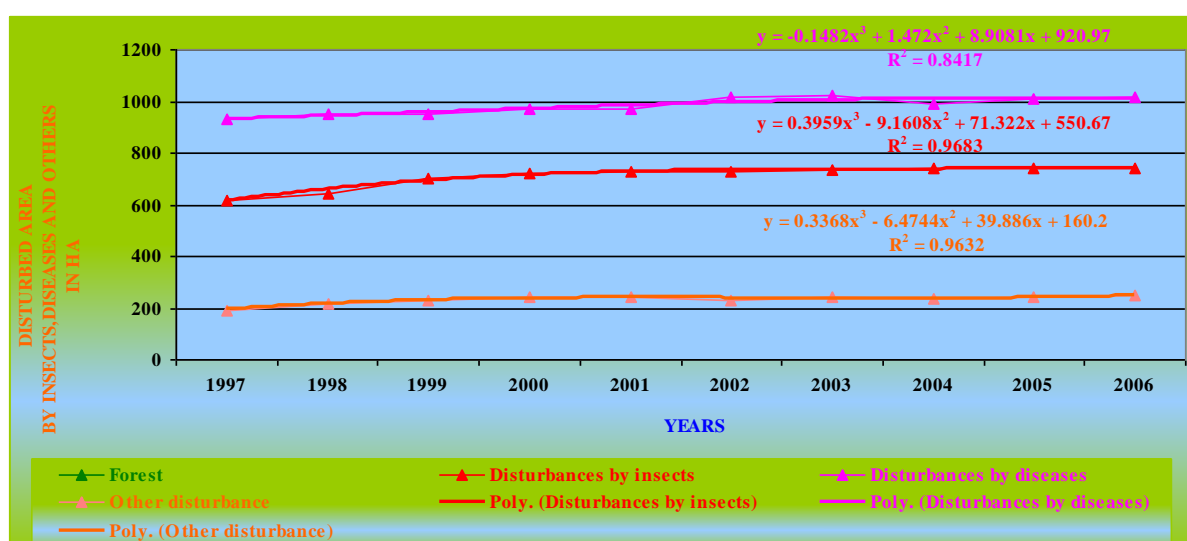


Fig.no.18- Disturbances by insects, diseases and by abiotic factors in the forests

National Data																
FRA 2010 Categories	Average annual area affected in 000/hectares															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other wooded lands																
Disturbances by insects	NDA	NDA	NDA	NDA	NDA	NDA	NDA	0.205	0.212	0.232	<b>0.233</b>	0.241	0.241	0.243	0.242	<b>0.240</b>
Disturbances by diseases	NDA	NDA	NDA	NDA	NDA	NDA	NDA	0.307	0.315	0.315	<b>0.321</b>	0.320	0.335	0.338	0.335	<b>0.320</b>
Disturbance by other biotic agents	<b>93.5</b>	86.2	94.7	133.2	132.6	132.0	129.2	136.4	126.1	123.9	<b>121.8</b>	76.5	99.1	115.1	125.3	<b>130.7</b>
Disturbance caused by abiotic factors	NDA	NDA	NDA	NDA	NDA	NDA	NDA	0.064	0.072	0.077	<b>0.077</b>	0.079	0.077	0.079	0.068	<b>0.072</b>

NDA-No data available

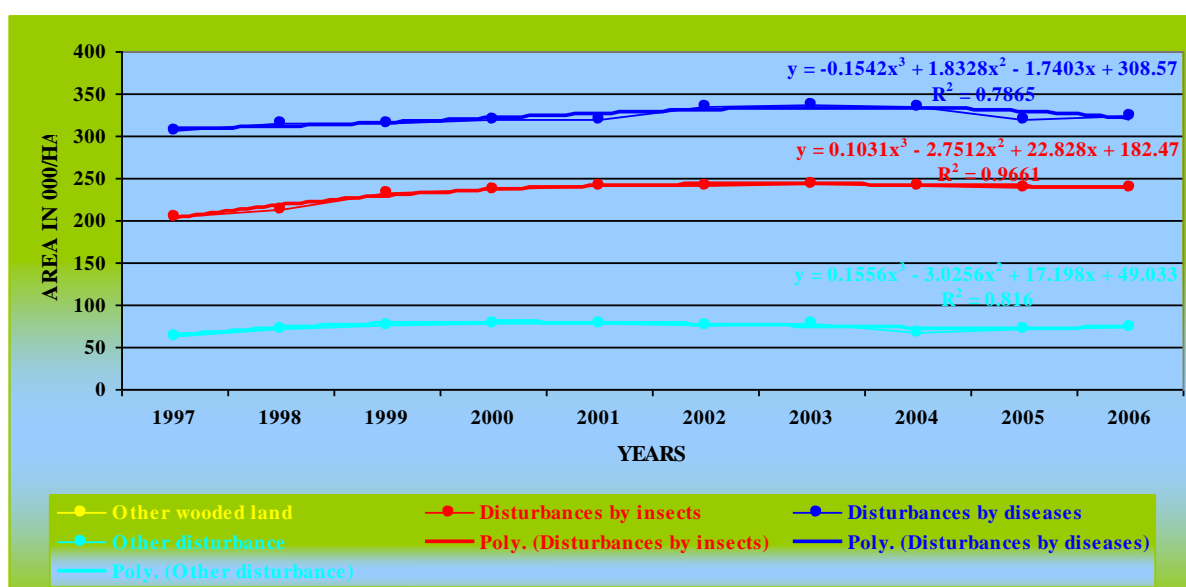


Fig.no.19-Disturbances by insects, diseases and caused by abiotic factors in the other wooded lands

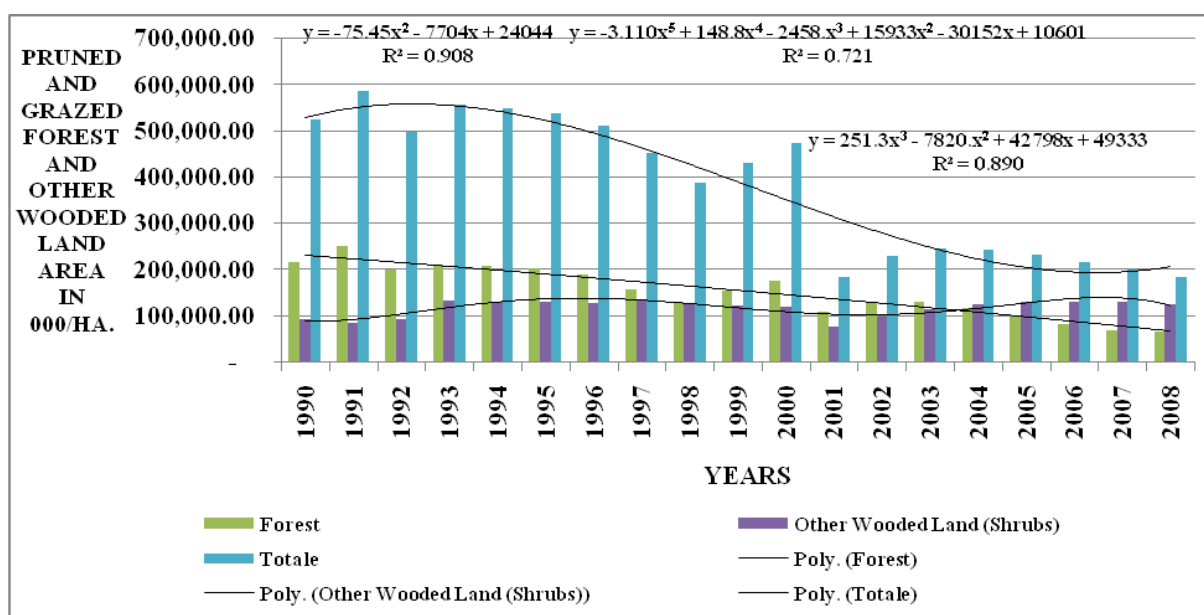


Fig.no.20-Disturbances by other biotic agents in the forest and in the other wooded land areas

### 10.3 Analysis and processing of national data

#### 10.3.1 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 corresponds for the year 2010 the respectively prognosed figure, was found.**

**The found regressions are following:**

Forest

Disturbances by insects  $y = 0.3959x^3 - 9.1608x^2 + 71.322x + 550.67$   $R^2 = 0.968$

Disturbances by disease  $y = -0.1482x^3 + 1.472x^2 + 8.9081x + 920.97$   $R^2 = 0.842$

Disturbance by other biotic agents  $y = -75.45x^2 - 7704x + 24044$   $R^2 = 0.908$

Disturbance caused by abiotic factors  $y = 0.3368x^3 - 6.4744x^2 + 39.886x + 160.2$   $R^2 = 0.963$

Other wooded land

Disturbances by insects  $y = 0.1031x^3 - 2.7512x^2 + 22.828x + 182.47$   $R^2 = 0.966$

Disturbances by disease  $y = -0.1542x^3 + 1.8328x^2 - 1.7403x + 308.57$   $R^2 = 0.787$

Disturbance by other biotic agents  $y = -3.110x^5 + 148.8x^4 - 2458.x^3 + 15933x^2 - 30152x + 10601$   $R^2 = 0.721$

Disturbance caused by abiotic factors  $y = 0.1556x^3 - 3.0256x^2 + 17.198x + 49.033$   $R^2 = 0.816$

**For X=5 the forecasting figures of the year 2010 in the table T 10, were taken place**

## 10.4 Data for Table T10

**Table 10a – Disturbances**

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	n.a.	0.7042	0.739
Disturbance by diseases	n.a.	0.9708	1.007
Disturbance by other biotic agents	222.9	140.8	101.2
Disturbance caused by abiotic factors	n.a.	0.2322	0.241

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

The total area affected by disturbances is not necessarily the sum of the individual disturbances as these may be overlapping.

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

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
Theumetopoea pityocampa Den&Schiff Dioryctria sylvestrella Ratz. Haematoloma darsatum Ahrens	<i>Black pine (Pinus nigra Arn.)</i>	2007 2007 2007	5 % 8 % 7 %	Every year
Pissades piceae	<i>Silver fir (Abies alba Mill)</i>	2007	8 %	Every year
Cinara cupressi Buckson Phlesinus aubie+P.thuyae Pires	<i>(Cupressus sempervirens)</i>	2007	6 % 14 %	Every year
Micola fagy Hartig. Phyllaphis fagy L.	<i>Beech (Fagus silvatica L.)</i>	2007	6 % 7 %	Every year
Altica quercetorum Scolitus intricatus Ratz. Erannis defoliaria Cleck.	<i>Oaks (Quercus sp.L)</i>	2007	7 % 7 % 11 %	Every year
Carpocapsa splendona Hb. Titischeria complonella Hb	<i>Chestnut (Castanea sativa L.)</i>	2007	6 % 6 %	Every year
Melasoma populi L Saperda charcaris L. Trioza alacris L.	<i>Other broadleaves (Poplars-Populus sp., etc.)</i>	2007	9 % 14 % 11 %	Every year
Desease major outbreaks				
Lophodermium pinastri	<i>Black pine (Pinus nigra Arn.)</i>	2007	8 %	Every year
Lophodermium nevissequum D.C. Trichosphaeria parasitica Hartig Dry of silever fir tree	<i>Silver fir (Abies alba Mill)</i>	2007	8 % 11 % 11 %	Every year
Seiridium cardinale	<i>(Cupressus sempervirens)</i>	2007	24 %	Every year
Phytophthora fagi	<i>Beech (Fagus silvatica L.)</i>	2007	5 %	Every year
Microsphaera alphitoides Criphtonectria parasitica Top high dry of oaks tree	<i>Oaks (Quercus sp.L)</i>	2007	14 % 7 % 8 %	Every year
Criphtonectria parasitica Phytophthora cambivora	<i>Chestnut (Castanea sativa L.)</i>	2007	10 % 5 %	Every year

Merassonia juglandis	<i>Other broadleaves (Walnut-Juglans sp., Elm-Ulmus sp. Mapple-Acer sp., Laurel-Laurus nobilis, Poplars-Populus sp.,etc.)</i>	2007	11 %	Every year
Ceratostomella ulmi			16 %	
Rhytisma acerinum Pers			12 %	
Phyllastica lauri			16 %	
Melampsora alli populina			20 %	

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

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

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
<b>Total forest area affected by woody invasive species</b>	

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

### 10.5 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects	Figures have been collected when started the forestry monitoring project supported by World Bank in the August of 1996 year.	The 2007 year has been major outbreak year.
Disturbance by diseases	Figures have been collected when started the forestry monitoring project supported by World Bank in the August of 1996 year.	The 2007 year has been major outbreak year.
Disturbance by other biotic agents	Figures have been collected in the same time with all figures on forest situations updated by forest cadastre, every year. In this figures are included pruned forest and other wooded land areas by peoples to make fodder and grazed by live stock husbandry.	Pruned and grazed forest area is reducing while other wooded land area is increasing.
Disturbance caused by abiotic factors	Figures have been collected when started the forestry monitoring project supported by World Bank in the August of 1996 year.	In the forest areas has been increased and in other land areas has been reducing.
Major outbreaks	Information available under original data in the report.	
Invasive species		

#### Other general comments to the table

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## 11 Table T11– Wood removals and value of removals

### 11.1 FRA 2010 Categories and definitions

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

### 11.2 National data

#### 11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Un published figures taken from archive of Former General Directory of Forest and Pastures	M	Industrial wood removal Wood fuel removal	1990-2004	
Un published figures taken from archive of Directory of Forestry Development Policies	M	Industrial wood removal Wood fuel removal	2005	

#### 11.2.2 Classification and definitions

FRA definitions to form the classes from national data were used.

#### 11.2.3 Original data

National Data																
FRA 2010 Categories	Volume in 1000 cubic meters of round wood over bark															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Forest</b>																
<b>Industrial round wood</b>	446	204	82	79	106	79	74	29	37	53	45	40	40	21	41	20
<b>Wood fuel</b>	499	356	290	366	211	124	132	76	94	118	115	114	130	104	101	124
<b>TOTAL for Country</b>	945	560	372	445	317	203	206	105	131	171	160	154	170	125	142	144

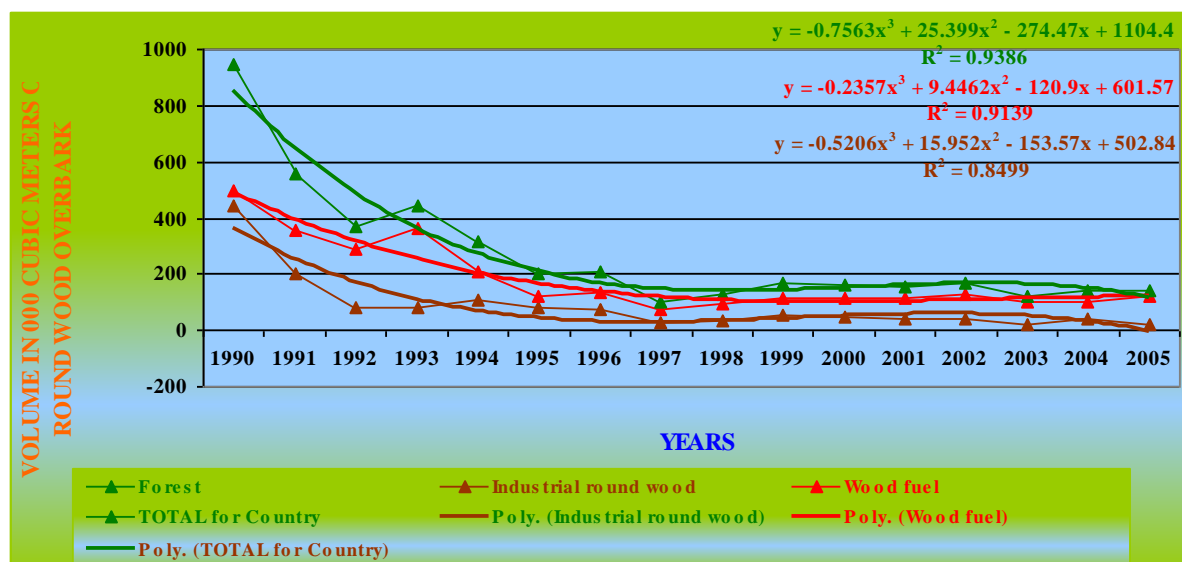


Fig.no.21.-Volume of wood removal from the forest-Industrial round wood, Wood fuel and Total

National Data

FRA 2010 Categories	Volume in 1000 cubic meters of round wood over bark															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Other wooded land																
<b>Industrial round wood</b>	<b>0</b>	0	0	0	0	0	0	0	0	0	<b>0</b>	0	0	0	0	<b>0</b>
<b>Wood fuel</b>	<b>235</b>	167	137	172	98	58	62	35	43	55	<b>54</b>	53	61	50	71	<b>42</b>
<b>TOTAL for Country</b>	<b>235</b>	167	137	172	98	58	62	35	43	55	<b>54</b>	53	61	50	71	<b>42</b>



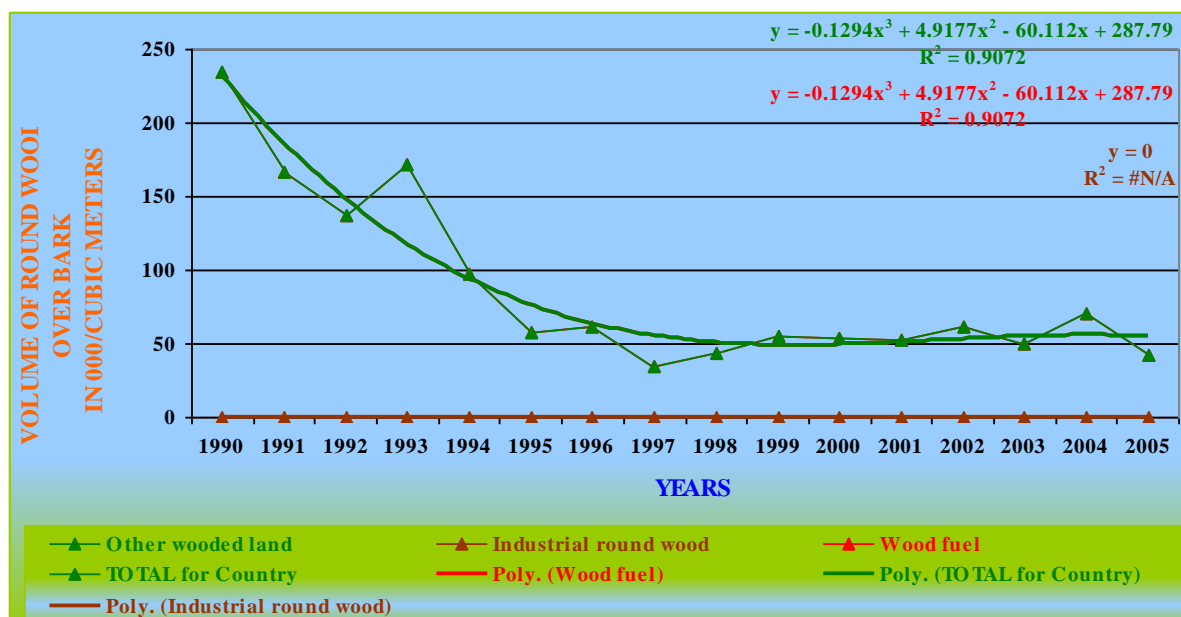


Fig.no.22.-Volume of wood removal from the other wooded land-Industrial round wood, Wood fuel and Total

### 11.3 Analysis and processing of national data

#### 11.3.1 Estimation and forecasting

Estimation and forecasting

1990-2005 reported

2010, 2020 and 2025 evaluated by mean of regression.

**Forecasting for the years 2010, 2020, 2025 by mean of the found regression amongst the figures for each one-year with number of year, was made.**

**After replacing for X=5, 15 and 20 corresponds for the years 2010, 2020 and 2025 the respectively prognosed figures, were found.**

**The found regressions are following:**

Forest		
Industrial round wood	$y = -0.5206x^3 + 15.952x^2 - 153.57x + 502.84$	$R^2 = 0.8499$
Wood fuel	$y = -0.2357x^3 + 9.4462x^2 - 120.9x + 601.57$	$R^2 = 0.9139$
Other wooded land		
Wood fuel	$y = -0.1294x^3 + 4.9177x^2 - 60.112x + 287.79$	$R^2 = 0.9072$

**For X=5,15,20 the forecasting figures of the years 2010,2020 and 2025 in the table T 11,were taken place**

### 11.3.2 Reclassification into FRA 2010 categories

#### 11.4 Data for Table T11

FRA 2010 Category	Industrial round wood removals			Wood fuel removals		
	1990	2000	2005	1990	2000	2005
Total volume (1000 m <sup>3</sup> o.b.)	244.0	43.0	27.3	561.3	167.4	164.0
... of which from forest	244.0	43.0	27.3	381.7	114.2	109,7
Unit value (local currency / m <sup>3</sup> o.b.)	1200	1800	2000	60	100	160
Total value (1000 local currency)	292 800.0	77 400.0	54 600.0	33 678.0	16 740.0	26,240.0

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

	1990	2000	2005
Name of local currency	Lekë	Lekë	Lekë

#### 11.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial round wood removals	There were included the figures on legal harvest, only.	It was reduced.
Total volume of wood fuel removals	There were included the figures on legal harvest, only.	It was reduced.
Unit value	Identified and changed by Govern Decisions.	It was increased.
Total value	It is reduced due of reduced harvest	It was reduced

Other general comments to the table

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

### 12.1 FRA 2010 Categories and definitions

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

### NWFP categories

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

## 12.2 National data

### 12.2.1 Original data

FRA 2010 Categories	Non-wood product removal (1000 Tonnes)												
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Plant products/Raw material	6.576	2.104	4.061	1.025	0.185	1.345	1.049	<b>1.589</b>	2.230	2.324	6.403	2.323	<b>6.001</b>
Food	0.233	0.075	0.144	0.036	0.007	0.050	0.040	<b>0.061</b>	0.085	0.089	0.245	0.046	<b>0.213</b>
Fodder	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Raw material for medicine and aromatic products	4.370	1.398	2.699	0.681	0.122	0.891	0.694	<b>1.051</b>	1.476	1.538	4.237	1.574	<b>3.989</b>
Raw material for colorants and dyes	0.658	0.210	0.406	0.103	0.019	0.135	0.105	<b>0.159</b>	0.223	0.232	0.640	0.234	<b>0.600</b>
Raw material for utensils, handicrafts and construction	1.315	0.421	0.812	0.205	0.037	0.269	0.210	<b>0.318</b>	0.446	0.465	1.281	0.469	<b>1.200</b>
Ornamental plants	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Exudates	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Other plant products	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Animal products/Raw material	0.005	0.009	0.090	0.044	0.009	0.011	0.017	<b>0.021</b>	0.021	0.015	0.023	0.020	<b>0.015</b>
Living animals	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Hides, skins and trophies	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Wild honey and bee-wax	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Bush neat	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Raw material for medicine	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Raw material for colorants	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
Other edible animal products	0.005	0.009	0.090	0.044	0.009	0.011	0.017	<b>0.021</b>	0.021	0.015	0.023	0.020	<b>0.015</b>
Other non-edible animal products	NDA	NDA	NDA	NDA	NDA	NDA	NDA	<b>NDA</b>	NDA	NDA	NDA	NDA	NDA
<b>TOTAL for Country</b>	6.582	2.113	4.151	1.069	0.194	1.356	1.083	<b>1.610</b>	2.272	2.354	6.449	2.366	<b>6.016</b>

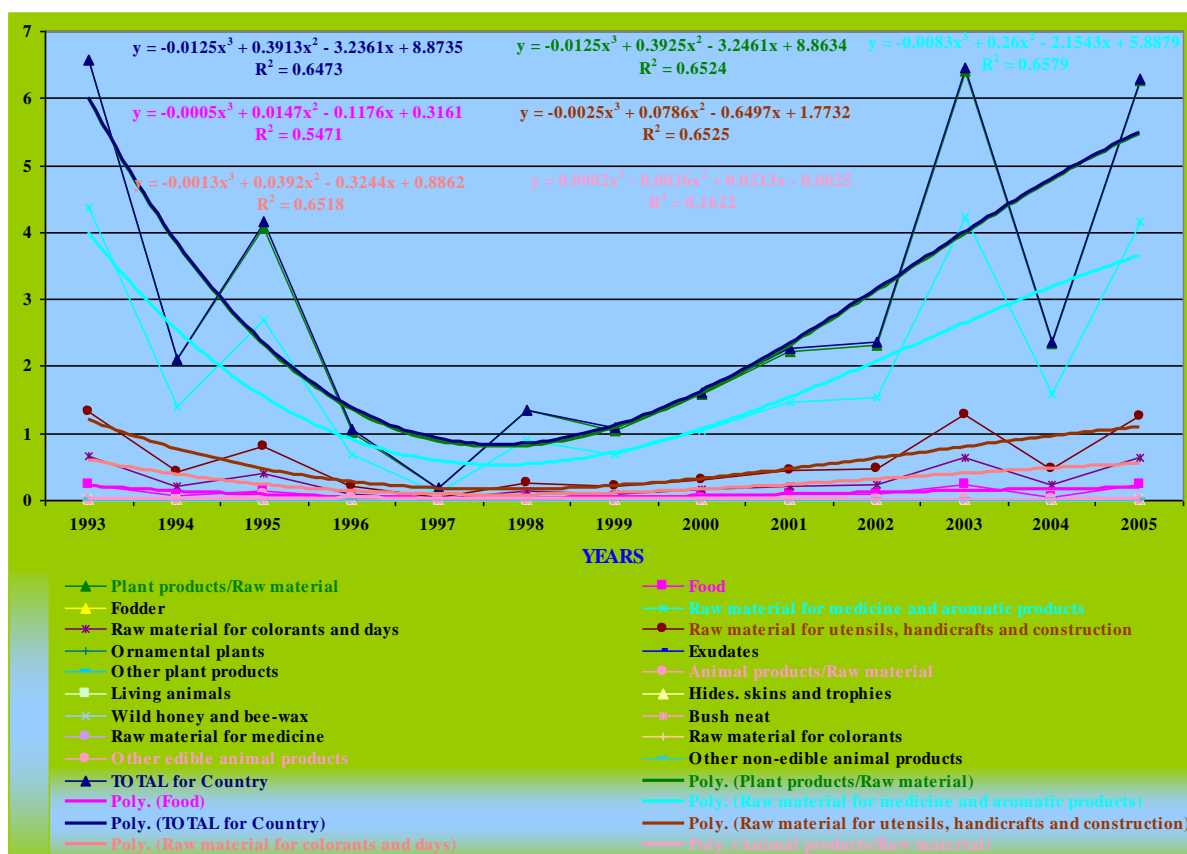


Fig.no.23.-Non-wood forest product removal

## 12.3 Analysis and processing of national data

### 12.3.1 Calibration

Need not.

### 12.3.2 Estimation and forecasting

Original data calculated from annual incomes beginning from 1993 year (instead of 1990 year as an average of 1988-1992) to 2005 year.

Estimation and forecasting

1993-2005 reported

2010 evaluated by mean of regression.

**Forecasting for the year 2010 by mean of the found regression amongst the figures for each one-year with number of year was made.**

**After replacing for X=5 for the year 2010, prognosed figures, were found. The found regressions are following:**

**Non-wood forest products removal in 000/Ton.**

1. Food	$y = -0.0005x^3 + 0.0147x^2 - 0.1176x + 0.3161$	$R^2 = 0.5471$
2. Fodder		
3. Raw material for Medicine and Aromatic products	$y = -0.0083x^3 + 0.26x^2 - 2.1543x + 5.8879$	$R^2 = 0.6579$
4. Raw material for Colorant and dyes	$y = -0.0013x^3 + 0.0392x^2 - 0.3244x + 0.8862$	$R^2 = 0.6518$
5. Raw material for Utensils, handicrafts & Constructions	$y = -0.0025x^3 + 0.0786x^2 - 0.6497x + 1.7732$	$R^2 = 0.6525$
6. Ornamental plants		
7. Exudates		
8. Other plant products		
9. Other animal products	$y = 0.0002x^3 - 0.0036x^2 + 0.0213x - 0.0025$	$R^2 = 0.1622$

**For X=5 the forecasting figure of the year 2010 in the table T 12, were taken place.**

### 12.3.3 Reclassification into FRA 2010 categories

Need not.

## 12.4 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005		NWFP category
				Quantity	Value (1000 local currency)	
1 <sup>st</sup>	Food	Mushrooms Chestnut fruits Walnut fruits Hazelnut fruits	1000 ton	0.213	580	1
2 <sup>nd</sup>	Raw material for Medicine and Aromatic products	Sage's leaves Savory's flowers Lime's flowers Hawthorne flowers Laurel's leaves	1000 ton	3.989	5100	3
3 <sup>rd</sup>	Raw material for Colorant and dyes	Walnut leaves Ash leaves Alder leaves	1000 ton	0.600	820	4
4 <sup>th</sup>	Raw material for Utensils, handicrafts & Constructions	Heather's roots Strawberry's roots	1000 ton	1.200	5300	5
5 <sup>th</sup>	Other animal products	Fox's leather Hare's leather Boar's meat Poultry's meat	1000 ton	0.015	23100	15
6 <sup>th</sup>						
7 <sup>th</sup>						
8 <sup>th</sup>						
9 <sup>th</sup>						
10 <sup>th</sup>						
All other plant products						
All other animal products						
<b>TOTAL</b>					<b>34900</b>	

	2005
Name of local currency	LEKE

## 12.5 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products Chestnut fruits Sage's leaves Savory's flowers Lime's flowers Hawthorn flowers Laurel's leaves Heather's roots Strawberry's roots Walnut leaves Alder leaves	The figures are basing to the tariff payment by lumpers to forest service. The tariffs are defined by Govern Decision. To foods there are not included the strawberry fruits collected by rural peoples to produce alcohol drinks, in the uncontrolled way, in the shrub areas.
Other plant products Mushrooms Walnut fruits Hazelnut fruits Ash leaves	The figures are basing to the tariff payment by lumpers to forest service. The tariffs are defined by Govern Decision.
Other animal products Fox's leather Hare's leather Boar's meat Poultry's meat	The figures are basing to the tariff payment by lumpers to forest service. The tariffs are defined by Govern Decision.
Value by product -Food-2723 Leke/Ton -Raw material for Medicine and Aromatic products 1278.5 Leke/Ton - Raw material for Colorant and dyes 1367 Leke/Ton - Other animal products 1540000 Leke/Ton	Average value for each group.
Total value 34900000 Leke	

Other general comments to the table
The trend would be increasing.



## 13 Table T13 – Employment

### 13.1 FRA 2010 Categories and definitions

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

### 13.2 National data

#### 13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Un published figures by archive of former General Directory of Forest and Pastures	H	Employment	1990,2000,2005	

#### 13.2.2 Classification and definitions

FRA 2010 categories and definitions were applied.

### 13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	2.063	0.347	0.161
...of which paid employment	2.063	0.347	0.161
...of which self-employment	n.a.	n.a.	n.a.
Employment in management of protected areas	n.a.	n.a.	n.a.

**13.4 Comments to Table T13**

<b>Variable / category</b>	<b>Comments related to data, definitions, etc.</b>	<b>Comments on the reported trend</b>
Employment in primary production of goods	The figures were taken by the archive of former General Directory of Forest and Pasture and former Institute of Forest and Pasture Researches	The trend is coming to reduce but, increasing of the forest activity in the forest harvest area would increase and employment in primary production of goods.
Paid employment / self-employment		
Employment in management of protected areas	The activity in this area were carried out in the same time, by Forest Service up to 2006 year; after this year they are separated in special sectors always inside of Directory of Forest Service of each one Districts up to now (2009 year)	The trend would be increasing.

**Other general comments to the table**

By changing of the forest ownership structure, giving the state forest to communes must change and the structure of the Forest Service to found the local or communal Forest Service and State Forest Service for management of the protected areas, specially.

## 14 Table T14 – Policy and legal framework

### 14.1 FRA 2010 Categories and definitions

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

### 14.2 Data for Table T14

Indicate the existence of the following (2008)			
<b>Forest policy statement with national scope</b>	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Year of endorsement	2005	
	Reference to document	The National Strategy for the Development of the Forestry and Pastures in Albania.	
<b>National forest programme (nfp)</b>	<input type="checkbox"/>	Yes	
	<input checked="" type="checkbox"/>	No	
If Yes above, provide:	Name of nfp in country		
	Starting year		
	Current status	<input type="checkbox"/>	In formulation
		<input type="checkbox"/>	In implementation
		<input type="checkbox"/>	Under revision
<input type="checkbox"/>		Process temporarily suspended	
Reference to document or web site			
<b>Law (Act or Code) on forest with national scope</b>	<input checked="" type="checkbox"/>	Yes, specific forest law exists	
	<input type="checkbox"/>	Yes, but rules on forests are incorporated in other (broader) legislation	
	<input type="checkbox"/>	No, forest issues are not regulated by national legislation	
If Yes above, provide:	Year of enactment	2005	
	Year of latest amendment	2008	
	Reference to document	Law no.9385, date 04.05.2005 on forest and forest service and Its appendix, the law no.9989, date 15.09.2008.	

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

### 14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	To have sustainable development of the forest.
National forest programme (nfp)	
Law (Act or Code) on forest with national scope	To protect and to develop all activity in the forests, to have their sustainable development after the ownership of the forests.
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

Other general comments to the table
The forest policy evrytime is improving according to new conditions may be and after to Climate Changes expected.

## 15 Table T15 – Institutional framework

### 15.1 FRA 2010 Categories and definitions

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

### 15.2 Data for Table T15

**Table 15a – Institutions**

FRA 2010 Category	2008	
Minister responsible for forest policy formulation : please provide full title	Minister of Environment, Forestry and Water Management	
Level of subordination of Head of Forestry within the Ministry		1 <sup>st</sup> level subordination to Minister
	X	2 <sup>nd</sup> level subordination to Minister
		3 <sup>rd</sup> level subordination to Minister
		4 <sup>th</sup> or lower level subordination to Minister
Other public forest agencies at national level	Agency of Environment and Forestry	
Institution(s) responsible for forest law enforcement	Directory of Forestry Development Policies and Directory of Nature Protection Policies-Inspectorate of Forestry Policies Service.	

**Table 15b – Human resources**

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	1221	19	1103	20	1148	20
...of which with university degree or equivalent	441	25	398	30	414	30

Notes:

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

## 15.3 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation	Minister of Environment, Forestry and Water Management is an Agronomist with title Prof.Dr. In Agronomic Sciences also, is a political personality.	
Level of subordination of Head of Forestry within the Ministry	Director of Forestry Development Policies directly depend by Vice-Minister covering Forestry Sector and after by Minister of Environment, Forestry and Water Management. Vice-minister is a Biologist with title Prof.Dr. in Biologic Sciences also, is a political personality	
Other public forest agencies at national level	Agency of Environment and Forestry depend by Ministry of Environment, Forestry and Water Management. This agency monitor all problems on environment and forestry areas and support the Ministry of Environment, Forestry and Water Management for different problems preparing guides and checking on their applying. Director is Chemistry Specialist with title Msc. Also is a political personality.	
Institution(s) responsible for forest law enforcement	Directory of Forestry Development Policies and Directory of Nature Protection Policies-Inspectorate of Forestry Policies Service. Both prepare the laws to approve by Parliament and check their applying. Director is a Forestry Specialist with title Dr. also is a political personality.	
Human resources within public forest institutions	Forestry Service up to present is national service and depends by state, only. The due of forest transferring from state to communes The Local Forestry Service, envision establishing. Up to day to many directors are agronomists with Grade Agronomist.	Let hope the trend to be increasing.

**Other general comments to the table**

The structure of Forest Service is changing or improving after political situations, often.

## 16 Table T16 – Education and research

### 16.1 FRA 2010 Categories and definitions

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

### 16.2 National data

#### 16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Former-Institute of Forest and Pasture Researches University of Agriculture-Tirana. Faculty of Forest Sciences	H	Number of graduated students working in publicly funded forest research centres.	2000-2005	
		Number of graduated students working in publicly funded forest research centres.	2000-2008	
Former-Institute of Forest and Pasture Researches University of Agriculture-Tirana. Faculty of Forest Sciences	H	Number of PhD professionals working in publicly funded forest research centres	2000-2005	
		Number of PhD Students Number of PhD professionals working in publicly funded forest research centres	2000-2008	
Former-Institute of Forest and Pasture Researches University of Agriculture-Tirana. Faculty of Forest Sciences	H	Number of MsC professionals working in publicly funded forest research centres	2000-2005	
		Number of MsC Students Number of MsC professionals working in publicly funded forest research centres	2000-2008	

#### 16.2.2 Original data

The figures are taken from registers of former-Institute of Forest and Pasture Researches and Faculty of Forest Sciences-University of Agriculture-Tirana.

### 16.3 Data for Table T16

FRA 2010 Category	Graduation <sup>1)</sup> of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	0	0	5	20	n.a.	n.a.
Bachelor's degree (BSc) or equivalent	25	14	26	12	142	28
Forest technician certificate / diploma	0	0	0	0	0	0
FRA 2010 Category	Professionals working in publicly funded forest research centres <sup>2)</sup>					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Doctor's degree (PhD)	4	0	13	15	14	14
Master's degree (MSc) or equivalent	7	14	20	15	2	50
Bachelor's degree (BSc) or equivalent	8	25	6	33	n.a.	n.a.

Notes:

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

### 16.4 Comments to Table T16

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education	In our country, there is no any secondary education system to prepare the Forest Technician Certificate/ diploma. There is a Forestry Technical High School to prepare the Forestry Middle Technicians and Specialized Workers.	There is a rapid growth of graduated students to high education as result of student number increasing, starting from 2006 year. This is a consequence of government policy to increase the student number that attends the high education independent by job market.
Professionals working in public forest research centres	Starting from the first January 2007, there is no any other research centre except University of Agriculture-Faculty of Forestry Sciences; there is one for monitoring-Agency of Environment and Forestry, only. The figures for the 2008 year on researchers show all staff of doctors with job in Faculty of Forestry Sciences but, up to present no anyone have not started to apply the research projects, yet.	Starting from the first January 2007 the forestry research will accomplish by University of Agriculture-Faculty of Forest Sciences, only.

#### Other general comments to the table

Faculty of Forestry Sciences is changing after the Bologna system (Bachelors degree 3 years Master Sciences 2 years).



## 17 Table T17 – Public revenue collection and expenditure

### 17.1 FRA 2010 Categories and definitions

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

### 17.2 National data

#### 17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Unpublished figures by Directory of Forestry Development Policies	H	Forest revenue	2000,2005	
Unpublished figures by Finance Directory-Ministry of Environment, Forestry and Water Management	H	Operational expenditure	2000,2005	
Unpublished figures by Finance Directory-Ministry of Environment, Forestry and Water Management	H	Transfer payments	2000,2005	
Unpublished figures by Finance Directory-Ministry of Environment, Forestry and Water Management	H	Domestic funding	2000,2005	
Unpublished figures by Forestry Project Management Unit-Directory of Forestry Development Policies and World Bank	H	External funding	2000,2005	

## 17.2.2 Original data

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 USA \$ currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	480,000.00	619,372.00	1,276.18	760.23	662,037.20	686,678.60
Transfer payments	38,400.00	233,757.00	1,254.68	418.22	217,370.40	270,783.60
<b>Total public expenditure</b>	<b>518,400.00</b>	<b>853,129.00</b>	<b>2,530.86</b>	<b>1,178.45</b>	<b>879,407.60</b>	<b>957,462.20</b>

## 17.3 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	125 100.00	105 300.00

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

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 local currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	480 000.00	619 372.00	182 037.20	67 306.60	662 037.20	686 678.60
Transfer payments	38 400.00	233 757.00	178 970.40	37 026.60	217 370.40	270 783.60
<b>Total public expenditure</b>	<b>518 400.00</b>	<b>853 129.00</b>	<b>361 007.60</b>	<b>104 333.20</b>	<b>879 407.60</b>	<b>957 462.20</b>
If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.	<input checked="" type="checkbox"/>	Reforestation				
	<input type="checkbox"/>	Afforestation				
	<input checked="" type="checkbox"/>	Forest inventory and/or planning				
	<input checked="" type="checkbox"/>	Conservation of forest biodiversity				
	<input checked="" type="checkbox"/>	Protection of soil and water				
	<input checked="" type="checkbox"/>	Forest stand improvement				
	<input checked="" type="checkbox"/>	Establishment or maintenance of protected areas				
	<input type="checkbox"/>	Other, specify below				

**17.4 Comments to Table T17**

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue	Need to have a Database System. Change the state administrate and very difficulty to find the figures.	It is less low, due of forest harvest reduction but let hope to increase it among different way outs.
Operational expenditure	Need to have a Database System. Change the state administrate and very difficulty to find the figures. External funding for the 2000 and 2005 year s calculated as the average of the 1998-2002 and 2003-2007 years, respectively. External funding are changed in local currency multiplication with change rate USA\$ 1=142,56 Leke for the 2000 year and 88,50 Leke for the 2005 year	They are less big. Domestic found have came increasing too many while external founding have came reducing
Transfer payments	Need to have a Database System. Change the state administrate and very difficulty to find the figures. External funding for the 2000 and 2005 year calculated as the average of the 1998-2002 and 2003-2007 years, respectively. External funding are changed in local currency multiplication with change rate USA\$ 1=142,64 Leke for the 2000 year and 88,50 Leke for the 2005 year	They are increased more than four times and let hope to increase more to increase forest activities as soon as possible. Domestic found have came increasing too many while external founding have came reducing

**Other general comments to the table**

Difference between revenues and total public expenditure is very big about nine times and, forest sector need to try very much to harvest all possible resources, to balance it. Also, need to use the calculation methodology for all profits came by forests.