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

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ASSESSMENT**

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## The Forest Resources Assessment Programme

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

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2005 (FRA 2005), which is the most comprehensive assessment to date. More than 800 people have been involved, including 172 national correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

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

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The Global Forest Resources Assessment 2005 Country Report Series is designed to document and make available the information forming the basis for the FRA 2005 reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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

### 1.1 FRA 2005 Categories and definitions

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

### 1.2 National data

#### 1.2.1 Data sources

| References to sources of information   | Quality (H/M/L) | Variable(s)                                 | Year(s)                            | Additional comments |
|--|-----------------|---|------------------------------------|---------------------|
| The Land Fund of the Republic of Latvia Prepared by Ministry of Agriculture Department of the organization of the use of land (As of November 1, 1990) | M               | Land use categories                         | 1990                               |                     |
| Land use balance Prepared by State Land Service  | M               | Land use categories                         | 2000, 2001, 2002, 2003             |                     |
| Information of Forest resources prepared by The State Forest Service (Source - National Forest register)   | M               | Area of forest, forest infrastructure, gaps | 1988, 1994, 2000, 2001, 2002, 2003 |                     |
| FAOSTAT  | H               | Total land area                             |                                    |                     |

### 1.2.2 Classification and definitions

| National class   | Definition   |
|------------------|--|
| Forest land      | Forestland is land covered by forest, land under forest infrastructure facilities, as well as adjacent overflowing clearings, marshes and glades.<br>A forest is an ecosystem in all stages of its development, dominated by trees the height of which at the particular location may reach at least seven metres and the present or potential projection of the crown of which is at least 20 per cent of the area occupied by the forest stand.<br>The following shall not be regarded as forest:<br>1) Areas separate from forests, covered with trees, the size of which does not exceed 0.1 hectare;<br>2) Rows of trees of artificial or natural origin, the width of which is less than 20 metres; and<br>3) Orchards, parks, cemeteries and forest tree seed orchards. |
| Gaps             | Small open areas in forest with characteristic plant cover.  |
| Farmland         | Farmland includes: arable land, orchards, meadows and pastures.  |
| Bushland         | Land, which is evenly overgrown with wooden plants, which does not have trunk normally (such as osiers, buckthorns, woodbines, guelder-roses, spindletrees, currants, hazels, junipers, rowan-trees, bird-cherries etc.).  |
| Bogs             | Humid peat land which can't be used in agriculture and which is not forest.  |
| Land under Water | Land under rivers, streams, lakes, ponds and other water bodies.   |
| Yards            | Land under buildings, constructions and courtyards, as well as land which is needed for maintenance of buildings and constructions.  |
| Roads            | Land under streets, roads and railways.  |
| Other land       | Sand areas, dingles, steep slopes, and land which is used for mineral mining and for other non-agricultural needs.   |

### 1.2.3 Original data

There are two main sources of information, which were used. The State Land Service Register, which maintain information on land use and the State Forest Service register which only contains information on forestland. Forest area used in table T1 is given according to the register of State Forest Service because it provides more detailed information on forestland.

| National category         | 1000 hectares<br>As of January 1, 2004 |
|---------------------------|--|
| Forest                    | 2923                                   |
| Farmland                  | 2471                                   |
| Bush land                 | 116                                    |
| Bogs                      | 255                                    |
| Land under water          | 254                                    |
| Yards                     | 91                                     |
| Roads                     | 133                                    |
| Other land                | 216                                    |
| <b>TOTAL country area</b> | <b>6459</b>                            |

| National class        | Area, 1000 ha |      |
|-----------------------|---------------|------|
|                       | 1988          | 1994 |
| Forest                | 2757          | 2820 |
| Forest infrastructure | NDA           | NDA  |
| Gaps                  | NDA           | NDA  |

| National class        | Area, 1000 ha |      |      |      |
|-----------------------|---------------|------|------|------|
|                       | 2000          | 2001 | 2002 | 2003 |
| Forest                | 2888          | 2902 | 2932 | 2923 |
| Forest infrastructure | 64            | 63   | 61   | 58   |
| Gaps                  | 28            | 29   | 30   | 31   |
| Bushland              | 120           | 117  | 117  | 116  |
| Orchards              | 29            | 29   | 29   | 29   |

### 1.3 Analysis and processing of national data

#### 1.3.1 Calibration

##### Calibration factor

|   |         |
|---|---------|
| Total country area according to FAOSTAT | 6460    |
| Calibration factor (=6460/6459)         | 1,00015 |

##### Calibrated national data

| National category      | 1000 hectares |
|------------------------|---------------|
| Forest                 | 2923,43       |
| Farmland               | 2471,37       |
| Bush land              | 116,02        |
| Bogs                   | 255,04        |
| Land under water       | 254,04        |
| Yards                  | 91,01         |
| Roads                  | 133,02        |
| Other land             | 216,04        |
| <b>TOTAL land area</b> | <b>6460</b>   |

The FAOSTAT figures for land area and country area were used to estimate the inland water area (255 000 ha). The adjustment for differences was then made to the category “other land”.

#### 1.3.2 Estimation and forecasting

##### Estimation

*No data available on year 1990 because in that time more detailed analysis of forest resources was prepared after every 5-year period (1983, 1988).*

##### Estimation for 1990 using linear interpolation

##### Calculation of differences

|  |      |                                    |
|--|------|------------------------------------|
| $\Delta x$ (1994-1988)                 | 6    | Time between observations          |
| $\Delta y_{\text{forest}}$ (2820-2757) | 63   | Difference between observed values |
| $\Delta y_{\text{forest}}/\Delta x$    | 10,5 | Difference per year                |

##### Estimation for 1990

|        | Area, 1000 ha |      |      |
|--------|---------------|------|------|
|        | 1988          | 1990 | 1994 |
| Forest | 2757          | 2778 | 2820 |



## Forecasting for 2005 using linear extrapolation

### Calculation of differences

|  |      |                                    |
|--|------|------------------------------------|
| $\Delta x$ (2003-2001)                             | 2    | Time between observations          |
| $\Delta y_{\text{forest}}$ (2923-2902)             | 21   | Difference between observed values |
| $\Delta y_{\text{forest infrastructure}}$ (58-63)  | -5   |                                    |
| $\Delta y_{\text{gaps}}$ (31-29)                   | 2    |                                    |
| $\Delta y_{\text{bushland}}$ (116-117)             | -1   |                                    |
| $\Delta y_{\text{forest}}/\Delta x$                | 10,5 | Difference per year                |
| $\Delta y_{\text{forest infrastructure}}/\Delta x$ | -2,5 |                                    |
| $\Delta y_{\text{gaps}}/\Delta x$                  | 1    |                                    |
| $\Delta y_{\text{bushland}}/\Delta x$              | -0,5 |                                    |

### Forecasting for 2005

|                       | Area, 1000 ha |
|-----------------------|---------------|
|                       | 2005          |
| Forest                | 2944          |
| Forest infrastructure | 53            |
| Gaps                  | 33            |
| Bushland              | 115           |
| Orchards              | 29            |

## 1.4 Reclassification into FRA 2005 classes

|                       | Forest | Other wooded land | Other land | Total | OLWTC |
|-----------------------|--------|-------------------|------------|-------|-------|
| Forest                | 99,9%  |                   | 0,1%       | 100%  |       |
| Forest infrastructure | 100%   |                   |            | 100%  |       |
| Gaps                  | 100%   |                   |            | 100%  |       |
| Bush land             |        | 100%              |            | 100%  |       |
| Orchards              |        |                   | 100%       | 100%  | 100%  |

Definitions used in national level differs from FRA 2005 definitions – minimal area for land use category is 0.1 ha not 0,5 ha. This was taken into account when calculating forest area according to FRA2005 definitions – it was decided that forest areas less than 0.5 ha could be 0.1% of total forest area. Another assumptions – 1) separate areas of bush land less than 0.5 ha is not considerable amount; 2) in reality variables used in national forest definition (the height of trees at the particular location may reach at least seven metres and the present or potential projection of the crown is at least 20 per cent of the area occupied by the forest stand) do not make significant changes in forest area.

## 1.5 Data for National reporting table T1

| FRA 2005 Categories                       | Area (1000 hectares) |             |             |
|---|----------------------|-------------|-------------|
|   | 1990                 | 2000        | 2005        |
| Forest <sup>1)</sup>                      | 2775                 | 2885        | 2941        |
| Other wooded land <sup>2)</sup>           | 112                  | 120         | 115         |
| Other land                                | 3318                 | 3200        | 3149        |
| ...of which with tree cover <sup>3)</sup> | 21                   | 29          | 29          |
| Inland water bodies                       | 255                  | 255         | 255         |
| <b>TOTAL</b>                              | <b>6460</b>          | <b>6460</b> | <b>6460</b> |

- 1) Forest infrastructure and gaps are not included as no data were available for year 1990.
- 2) The 1990 figure for Other wooded land is taken from the original data presented in chapter 2.2.3.
- 3) Area of "Other land with tree cover" is included in the area reported under "Other land" and are therefore excluded when calculating the total area for the country.

**1.6 Comments to National reporting table T1**

Forest infrastructure and gaps are not included in the area of Forest as no data were available for year 1990. According to figures from year 2000 and onwards, these correspond to about 90000 hectares.

## 2 Table T2 – Ownership of Forest and Other wooded land

### 2.1 FRA 2005 Categories and definitions

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

### 2.2 National data

#### 2.2.1 Data sources

| References to sources of information     | Quality (H/M/L) | Variable(s)   | Year(s) | Additional comments |
|--|-----------------|---|---------|---------------------|
| Land fund of the Republic of Latvia 1990 | M               | Ownership structure of forest and other wooded land | 1990    |                     |
| Land use balance, 2000                   | M               | Ownership structure of forest and other wooded land | 2000    |                     |
| Table T1                                 |                 | Forest area   |         |                     |

#### 2.2.2 Classification and definitions

As of November 1, 1990

| National class                   | Definition |
|----------------------------------|------------|
| Land of forestry enterprises     |            |
| Land of agricultural enterprises |            |
| Land of farms                    |            |
| Land state reserve               |            |
| Land of urban territories        |            |
| Land of industry, transport etc. |            |

Classification that is used in land use balance

| National class                            | Definition |
|---|------------|
| Land owned by physical entity             |            |
| Land owned by legal entity                |            |
| Land owned by local governments           |            |
| Land owned by State or state institutions |            |
| Joint ownership land                      |            |
| Land used by physical entity              |            |
| Land used by legal entity                 |            |
| Land used by local governments            |            |
| Land used by State or state institutions  |            |
| Free land                                 |            |

### 2.2.3 Original data

Ownership structure was calculated taking into account percentage of forest area because land ownership structure in the register of State Land Service is more detailed than in the National Forest register. The National Forest register does not contain information on bush land ownership.

As of November 1, 1990

| National class                   | Area of bushland, 1000 ha | Percentage of forest area | Area of forest, 1000 ha* |
|----------------------------------|---------------------------|---------------------------|--------------------------|
| Land of forestry enterprises     | 0                         | 62,4                      | 1732                     |
| Land of agricultural enterprises | 86                        | 34,0                      | 944                      |
| Land of farms                    | 4                         | 1,0                       | 28                       |
| Land state reserve               | 2                         | 0,3                       | 8                        |
| Land of urban territories        | 3                         | 0,7                       | 19                       |
| Land of industry, transport etc. | 17                        | 1,6                       | 44                       |

As of January 1, 2001

| National class                            | Area of bushland, 1000 ha | Percentage of forest area | Area of forest, 1000 ha* |
|---|---------------------------|---------------------------|--------------------------|
| Land owned by physical entity             | 51,5                      | 33,62                     | 969,3                    |
| Land owned by legal entity                | 1,3                       | 1,05                      | 30,3                     |
| Land owned by local governments           | 0,5                       | 1,83                      | 52,8                     |
| Land owned by State or state institutions | 0,3                       | 0,10                      | 2,9                      |
| Joint ownership land                      | 0,006                     | 0,01                      | 0,3                      |
| Land used by physical entity              | 30,7                      | 9,36                      | 270,0                    |
| Land used by legal entity                 | 1,7                       | 1,12                      | 32,3                     |
| Land used by local governments            | 14,5                      | 2,20                      | 63,5                     |
| Land used by State or state institutions  | 4,3                       | 49,83                     | 1437,6                   |
| Free land**                               | 15,3                      | 0,87                      | 25,1                     |

\* - calculated taking into account percentage of forest area and forest area from table T1.

\*\* free land is land on which ownership rights are not restored, land that is not committed to ownership for payment or that is not assigned for usage to physical or legal person, municipalities and state institutions. Since the restoration of Latvia's independence, there have been processes of land privatisation and restoration of property rights, and these have led to changes in forest ownership structure. Now it is expected that ownership structure will not change significantly.

## 2.3 Analysis and processing of national data

### 2.3.1 Calibration

Not needed.

### 2.3.2 Estimation and forecasting

Not needed.

## 2.4 Reclassification into FRA 2005 classes

| FRA 2005 category | National category, 1990          | National category, 2000                   |
|-------------------|----------------------------------|---|
| Private ownership | Land of farms                    | Land owned by physical entity             |
|                   |                                  | Land owned by legal entity                |
|                   |                                  | Joint ownership land                      |
|                   |                                  | Land used by physical entity              |
|                   |                                  | Land used by legal entity                 |
| Public ownership  | Land of forestry enterprises     | Land owned by local governments           |
|                   | Land of agricultural enterprises | Land owned by State or state institutions |
|                   | Land of urban territories        | Land used by local governments            |
|                   | Land of industry, transport etc. | Land used by State or state institutions  |
| Other ownership   | Land state reserve               | Free land                                 |

## 2.5 Data for National reporting table T2

| FRA 2005 Categories | Area (1000 hectares) |             |                   |            |
|---------------------|----------------------|-------------|-------------------|------------|
|                     | Forest               |             | Other wooded land |            |
|                     | 1990                 | 2000        | 1990              | 2000       |
| Private ownership   | 28                   | 1301        | 4                 | 85         |
| Public ownership    | 2739                 | 1557        | 106               | 20         |
| Other ownership     | 8                    | 27          | 2                 | 15         |
| <b>TOTAL</b>        | <b>2775</b>          | <b>2885</b> | <b>112</b>        | <b>120</b> |

## 2.6 Comments to National reporting table T2

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

#### 3.1 FRA 2005 Categories and definitions

##### *Types of designation*

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

##### *Designation categories*

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

#### 3.2 National data

##### 3.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)                                   | Year(s)    | Additional comments |
|--|-----------------|---|------------|---------------------|
| Information of Forest resources prepared by The State Forest Service | M               | Forest area by types of protected territories | 2000, 2003 |                     |

##### 3.2.2 Classification and definitions

| National class                  | Definition   |
|---------------------------------|--|
| Strict nature reserves          | Strict nature reserves are territories untouched by human activities or nearly natural, in which territories unhindered development of natural processes shall be ensured in order to protect and study rare or typical ecosystems and parts thereof.  |
| National parks                  | National parks are broad areas which are characterised by outstanding nature formations of national significance, landscapes and cultural heritage landscapes untouched by human activities or nearly natural, a diversity of biotopes, abundance of cultural and historical monuments, and peculiarities of cultural environment. |
| Nature reserves                 | Nature reserves are nature territories little transformed or transformed in varying degrees by human activities, which territories include habitats of specially protected wild plant and animal species, and specially protected biotopes.  |
| North Vidzeme Biosphere Reserve | Biosphere reserves are broad territories in which landscapes and ecosystems of international significance are located. The goal of establishing biosphere reserves is to ensure the preservation of natural  |

|  |   |
|--|---|
|  | diversity and to promote sustainable social and economic development of the territory.  |
| Nature parks   | Nature parks are territories that represent the natural, cultural and historical values of a particular area, and that are suitable for recreation, education and the instruction of society.   |
| Protected landscape areas                                    | Protected landscape areas are territories remarkable for original and diverse landscapes and special beauty. The goals of such territories are to protect and preserve the cultural environment and landscapes characteristic of Latvia in all their diversity, as well as to ensure the preservation of environment appropriate for recreation of society and for tourism, and use of environment friendly management methods. |
| Protected dendrological plantations                          | Nature monuments are separate, isolated natural formations: protected trees, dendrological plantings, avenues, geological and geomorphological nature monuments and other natural rarities having scientific, cultural and historical, aesthetic or ecological value.   |
| Protected geological and geomorphological nature monuments   | Nature monuments are separate, isolated natural formations: protected trees, dendrological plantings, avenues, geological and geomorphological nature monuments and other natural rarities having scientific, cultural and historical, aesthetic or ecological value.   |
| Micro-reserves   | Micro Reserve – a territory that is determined in order to ensure protection of Specially Protected Species or Habitats outside Specially Protected Nature Territories, as well as within the Specially Protected Nature Territories, if protection is not ensured by any of the functional zones   |
| Buffer zones around micro-reserves                           | Areas where restrictions on economic activity are prescribed in order to reduce the impact of intensive economic activities on the micro-reserves of specially protected bird species   |
| Protected belt of dunes along the Baltic Sea and Bay of Riga |   |
| Belt of limited economic activity along the Baltic sea       |   |
| Protected zones along waters                                 |   |
| Protected zones along wetlands                               |   |
| Protected zone surrounding urban territories                 |   |
| Forests within the administrative territories of cities      |   |
| Specially protected forest areas                             |   |
| Plantation forest  | Forest stands established by afforestation, intended for specific purposes and registered in the State Forest Register.   |

### 3.2.3 Original data

| National class   | Forest area, ha (As of January 1, 2001) | Forest area, ha (As of January 1, 2004) |
|--|---|---|
| Strict nature reserves                                     | 19155                                   | 8497,8                                  |
| National parks   | 50284                                   | 76663,4                                 |
| Nature reserves  | 61773                                   | 71462,9                                 |
| North Vidzeme Biosphere Reserve (Nature reserve zone)      |   | 2740,8                                  |
| Nature parks   | 28436                                   | 38382                                   |
| Protected landscape areas                                  | 54530                                   | 57401,2                                 |
| Protected dendrological plantations                        |   | 529,9                                   |
| Protected geological and geomorphological nature monuments |   | 1138,8                                  |
| Micro-reserves   |   | 14910                                   |

|  |              |          |
|--|--------------|----------|
| Buffer zones around micro-reserves                           |              | 17712,6  |
| Protected belt of dunes along the Baltic Sea and Bay of Riga |              | 7075,8   |
| Belt of limited economic activity along the Baltic sea       |              | 68622    |
| Protected zones along waters                                 |              | 12235,1* |
| Protected zones along wetlands                               |              | 4670,2*  |
| Protected zone surrounding urban territories                 | 46766        | 43952,3  |
| Forests within the administrative territories of cities      |              | 522,2    |
| Specially protected forest areas                             | 179203+43113 | 60424,6  |

\* - expert estimation.

| National class    | Area, 1000 ha |      |      |      |
|-------------------|---------------|------|------|------|
|                   | 2000          | 2001 | 2002 | 2003 |
| Plantation forest | 0,05          | 0,43 | 0,54 | 0,79 |

### 3.3 Analysis and processing of national data

#### 3.3.1 Calibration

Not needed.

#### 3.3.2 Estimation and forecasting

##### Forecasting for 2005 using linear extrapolation

##### Calculation of differences

|   |      |                                    |
|---|------|------------------------------------|
| $\Delta x$ (2003-2000)                            | 3    | Time between observations          |
| $\Delta y_{\text{plantation forest}}$ (0,79-0,05) | 0,74 | Difference between observed values |
| $\Delta y_{\text{plantation forest}}/\Delta x$    | 0,25 | Difference per year                |

##### Forecasting

|                   | Area, 1000 ha |
|-------------------|---------------|
|                   | <b>2005</b>   |
| Plantation forest | 1,24          |

Forecast for year 2005 for protected areas is equal to forest area distribution between national categories as of January 1, 2004. Expert opinion is that the area of protected territories will not change significantly.

|                              | Forest area*, 1000 ha |      |
|------------------------------|-----------------------|------|
|                              | 2000                  | 2005 |
| Production                   | 0,05                  | 1,24 |
| Protection of soil and water | 80                    | 174  |
| Conservation of biodiversity | 309                   | 400  |
| Social services              | 53                    | 43   |
| Multiple purpose**           | 2443                  | 2323 |
| No or unknown function       | 0                     | 0    |
| Total                        | 2885                  | 2941 |

\* - Area of gaps and infrastructure not included.

\*\* - Remaining area.



### 3.4 Reclassification into FRA 2005 classes

| Category / Designated function | National class  |
|--------------------------------|---|
| Production                     | Plantation forests  |
| Protection of soil and water   | Protected belt of dunes along the Baltic Sea and Bay of Riga, belt of limited economic activity along the Baltic sea, protected zones along waters, protected zones along wetlands, specially protected forest areas (partly)   |
| Conservation of biodiversity   | Strict nature reserves, national parks, nature reserves, North Vidzeme Biosphere Reserve (Nature reserve zone), nature parks, protected landscape areas, protected dendrological plantations, protected geological and geomorphological nature monuments, micro-reserves, buffer zones around micro-reserves, specially protected forest areas (partly) |
| Social services                | Protected zone surrounding urban territories, forests within the administrative territories of cities, specially protected forest areas (partly)  |
| Multiple purpose               | Other forest  |
| No or unknown function         |   |

### 3.5 Data for National reporting table T3

| FRA 2005 Categories / Designated function | Area (1000 hectares) |             |             |                          |                  |                  |
|---|----------------------|-------------|-------------|--------------------------|------------------|------------------|
|   | Primary function     |             |             | Total area with function |                  |                  |
|   | 1990                 | 2000        | 2005        | 1990                     | 2000             | 2005             |
| <b>Forest</b>                             |                      |             |             |                          |                  |                  |
| Production                                | N.D.A                | 0,05        | 1,24        |                          |                  |                  |
| Protection of soil and water              | N.D.A                | 80          | 174         |                          |                  |                  |
| Conservation of biodiversity              | N.D.A                | 309         | 400         |                          |                  |                  |
| Social services                           | N.D.A                | 53          | 43          |                          |                  |                  |
| Multiple purpose                          | N.D.A                | 2443        | 2323        | not appl.                | not appl.        | not appl.        |
| No or unknown function                    | N.D.A                | 0           | 0           | not appl.                | not appl.        | not appl.        |
| <b>Total - Forest</b>                     | <b>2775</b>          | <b>2885</b> | <b>2941</b> | <b>not appl.</b>         | <b>not appl.</b> | <b>not appl.</b> |
| <b>Other wooded land</b>                  |                      |             |             |                          |                  |                  |
| Production                                | N.D.A                | N.D.A       | N.D.A       | N.D.A                    | N.D.A            | N.D.A            |
| Protection of soil and water              | N.D.A                | N.D.A       | N.D.A       | N.D.A                    | N.D.A            | N.D.A            |
| Conservation of biodiversity              | N.D.A                | N.D.A       | N.D.A       | N.D.A                    | N.D.A            | N.D.A            |
| Social services                           | N.D.A                | N.D.A       | N.D.A       | N.D.A                    | N.D.A            | N.D.A            |
| Multiple purpose                          | N.D.A                | N.D.A       | N.D.A       | not appl.                | not appl.        | not appl.        |
| No or unknown function                    | N.D.A                | N.D.A       | N.D.A       | not appl.                | not appl.        | not appl.        |
| <b>Total – Other wooded land</b>          | <b>112</b>           | <b>120</b>  | <b>115</b>  | <b>not appl.</b>         | <b>not appl.</b> | <b>not appl.</b> |

### 3.6 Comments to National reporting table T3

*Forest policy and Forest law defines general objective – provide sustainable management of all Latvia's forests and their ability to perform all essential ecological, economic and social functions on a local, national and global scale now and in the future. Therefore total area with function was not calculated.*

## 4 Table T4 – Characteristics of Forest and Other wooded land

### 4.1 FRA 2005 Categories and definitions

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

### 4.2 National data

#### 4.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)     | Year(s) | Additional comments |
|--|-----------------|-----------------|---------|---------------------|
| Information of Forest resources prepared by The State Forest Service | M               | All used for T4 | 2000    |                     |

#### 4.2.2 Classification and definitions

*FRA 2005 definitions were used to form the classes.*

#### 4.2.3 Original data

| National class                             | Area (1000 hectares) |      |
|--|----------------------|------|
|  | 2000                 | 2005 |
| Forest areas with no management activities | 15,2                 | 13,8 |
| Plantation forests                         | 0,05                 | 1,24 |

*Data from T3 and 3.2.were used. Forest areas with no management activities include: strict nature reserves (partly - strict regime zone and regulated regime zone) and national parks (partly - strict regime zone).*

*Type of regeneration: 1) situation as of March 2001 - forest stands established by natural regeneration - 2198336,3 ha, by artificial regeneration - 605362,0 ha; 2) situation as of January 2005 - forest stands established by natural regeneration - 2218979,2 ha, by artificial regeneration - 599899,7 ha. (natural regeneration - 78%)*

### 4.3 Analysis and processing of national data

#### 4.3.1 Calibration

#### 4.3.2 Estimation and forecasting

#### 4.4 Reclassification into FRA 2005 classes

#### 4.5 Data for National reporting table T4

| FRA 2005 Categories   | Area (1000 hectares) |             |             |                   |       |       |
|-----------------------|----------------------|-------------|-------------|-------------------|-------|-------|
|                       | Forest               |             |             | Other wooded land |       |       |
|                       | 1990                 | 2000        | 2005        | 1990              | 2000  | 2005  |
| Primary               | N.D.A                | 15,2        | 13,8        | N.D.A             | N.D.A | N.D.A |
| Modified natural      | N.D.A                | 2238        | 2282        | N.D.A             | N.D.A | N.D.A |
| Semi-natural          | N.D.A                | 632         | 644         | N.D.A             | N.D.A | N.D.A |
| Productive plantation | N.D.A                | 0,05        | 1,24        | N.D.A             | N.D.A | N.D.A |
| Protective plantation | N.D.A                | 0           | 0           | N.D.A             | N.D.A | N.D.A |
| <b>TOTAL</b>          | N.D.A                | <b>2885</b> | <b>2941</b> | N.D.A             | N.D.A | N.D.A |

#### 4.6 Comments to National reporting table T4

## 5 Table T5 – Growing stock

### 5.1 FRA 2005 Categories and definitions

| Category                 | Definition   |
|--------------------------|--|
| Growing stock            | Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm. |
| Commercial growing stock | The part of the growing stock of species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.  |

### 5.2 National data

#### 5.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)             | Year(s)                | Additional comments |
|--|-----------------|-------------------------|------------------------|---------------------|
| Information of Forest resources prepared by The State Forest Service | M               | Growing stock on forest | 1988, 1994, 2000, 2003 |                     |

#### 5.2.2 Classification and definitions

| National class           | Definition   |
|--------------------------|--|
| Growing stock            | Volume over bark of all living trees more than 0 cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm. Does not include branches.         |
| Commercial growing stock | The part of the growing stock of species that are considered as commercial or potentially commercial under current market conditions. Includes forest stands where average diameter of trees at breast height is 6 cm or more. |

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

#### 5.2.3 Original data

| National class          | Million m <sup>3</sup> |      |      |      |
|-------------------------|------------------------|------|------|------|
|                         | 1988                   | 1994 | 2000 | 2003 |
| Growing stock on forest | 432                    | 489  | 546  | 578  |

### 5.3 Analysis and processing of national data

#### 5.3.1 Calibration

#### 5.3.2 Estimation and forecasting

*Commercial growing stock was calculated from data on forest available for wood supply (forest where are no legal, economic or other specific restriction on harvesting) (growing stock available for wood supply without growing stock of 1 to 10 or 1 to 20 year old forest stands depending on tree species). Assumption was taken that minimum average diameter of forest stand applied for considering trees, as being commercial is 6 centimetres.*

## Estimation for 1990 using linear interpolation

### Calculation of differences

|   |     |                                    |
|---|-----|------------------------------------|
| $\Delta x$ (1994-1988)                        | 6   | Time between observations          |
| $\Delta y_{\text{growing stock}}$ (2820-2757) | 57  | Difference between observed values |
| $\Delta y_{\text{growing stock}} / \Delta x$  | 9,5 | Difference per year                |

### Estimations

| National class          | Million m <sup>3</sup> |
|-------------------------|------------------------|
|                         | 1990                   |
| Growing stock on forest | 451                    |

## Forecasting for 2005 using linear extrapolation

### Calculation of differences

|  |      |                                    |
|--|------|------------------------------------|
| $\Delta x$ (2003-2000)                       | 3    | Time between observations          |
| $\Delta y_{\text{growing stock}}$ (578-546)  | 32   | Difference between observed values |
| $\Delta y_{\text{growing stock}} / \Delta x$ | 10,7 | Difference per year                |

### Forecasting

| National class          | Million m <sup>3</sup> |
|-------------------------|------------------------|
|                         | 2005                   |
| Growing stock on forest | 599                    |

## 5.4 Reclassification into FRA 2005 classes

### 5.5 Data for National reporting table T5

| FRA 2005 Categories      | Volume (million cubic meters over bark) |      |      |                   |       |       |
|--------------------------|---|------|------|-------------------|-------|-------|
|                          | Forest                                  |      |      | Other wooded land |       |       |
|                          | 1990                                    | 2000 | 2005 | 1990              | 2000  | 2005  |
| Growing stock            | 451                                     | 546  | 599  | N.D.A             | N.D.A | N.D.A |
| Commercial growing stock | N.D.A                                   | 493  | 511  | N.D.A             | N.D.A | N.D.A |

| Specification of country threshold values                                       | Unit    | Value | Complementary information |
|---|---------|-------|---------------------------|
| 1. Minimum diameter at breast height of trees included in Growing stock (X)     | cm      | 0     |                           |
| 2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock | cm      | 0     |                           |
| 3. Minimum diameter of branches included in Growing stock (W)                   | cm      | -     | Branches are not included |
| 4. Minimum diameter at breast height of trees in Commercial growing stock (Z)   | cm      | ~6    | Average of the stand      |
| 5. Volume refers to “Above ground” (AG) or “Above stump” (AS)                   | AG / AS | AG    |                           |

---

|  |            |    |  |
|--|------------|----|--|
| 6. Have any of the above thresholds (points 1 to 4) changed since 1990 | Yes/No     | No |  |
| 7. If yes, then attach a separate note giving details of the change    | Attachment |    |  |

## 5.6 Comments to National reporting table T5

## 6 Table T6 – Biomass stock

### 6.1 FRA 2005 Categories and definitions

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

### 6.2 National data

#### 6.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s)              | Year(s) | Additional comments |
|--------------------------------------|-----------------|--------------------------|---------|---------------------|
| Table T10                            | M               | Growing stock by species | 2000    |                     |

#### 6.2.2 Classification and definitions

*FRA definitions on biomass categories are used.*

#### 6.2.3 Original data

Data for the year 2000.

| Species name                               | Growing stock (million m <sup>3</sup> ) | Basic density (tonnes/m <sup>3</sup> ) | Stem biomass (million tonnes) | Biomass exp.fact | A.G. Biomass (million tonnes) | Root-shoot ratio | B.G. biomass (million tonnes) |
|--|---|--|-------------------------------|------------------|-------------------------------|------------------|-------------------------------|
| Scots pine ( <i>Pinus sylvestris</i> )     | 233,3                                   | 0,42                                   | 97,986                        | 1,3              | 127,3818                      | 0,32             | 40,762176                     |
| Silver birch ( <i>Betula pendula</i> )     | 148,3                                   | 0,51                                   | 75,633                        | 1,4              | 105,8862                      | 0,26             | 27,530412                     |
| Norway spruce ( <i>Picea abies</i> )       | 90,5                                    | 0,4                                    | 36,2                          | 1,3              | 47,06                         | 0,32             | 15,0592                       |
| Grey alder ( <i>Alnus incana</i> )         | 28,5                                    | 0,45                                   | 12,825                        | 1,4              | 17,955                        | 0,26             | 4,6683                        |
| Aspen ( <i>Populus tremula</i> )           | 19,7                                    | 0,35                                   | 6,895                         | 1,4              | 9,653                         | 0,26             | 2,50978                       |
| Common alder ( <i>Alnus glutinosa</i> )    | 13,7                                    | 0,45                                   | 6,165                         | 1,4              | 8,631                         | 0,26             | 2,24406                       |
| White birch ( <i>Betula pubescens</i> )    | 5,5                                     | 0,51                                   | 2,805                         | 1,4              | 3,927                         | 0,26             | 1,02102                       |
| European ash ( <i>Fraxinus excelsior</i> ) | 3,5                                     | 0,57                                   | 1,995                         | 1,4              | 2,793                         | 0,26             | 0,72618                       |
| Common oak ( <i>Quercus robur</i> )        | 2                                       | 0,58                                   | 1,16                          | 1,4              | 1,624                         | 0,35             | 0,5684                        |
| Other conifers                             | 0,2                                     | 0,46                                   | 0,092                         | 1,3              | 0,1196                        | 0,32             | 0,038272                      |
| Other broadleaved                          | 0,7                                     | 0,5                                    | 0,35                          | 1,4              | 0,49                          | 0,26             | 0,1274                        |
| <b>TOTAL</b>                               | <b>545,9</b>                            |  | 242,1                         |                  | 325,5                         |                  | 95,3                          |

*Deadwood over bark in year 2000 is assumed to be 6 m<sup>3</sup> per hectare (3 tonnes per hectare).*

*Biomass estimates were calculated applying the default wood-densities, biomass expansion factors and root-shoot ratios of IPCC Good practice guidance in the Appendix 5 of the Guidelines.*

## 6.3 Analysis and processing of national data

### 6.3.1 Calibration

### 6.3.2 Estimation and forecasting

$$WCF_{agb} = AGB/GS = 325,5/545,9 = 0,596$$

$$WCF_{bgb} = BGB/GS = 95,3/545,9 = 0,175$$

Where: WCF<sub>agb</sub> - weighted conversion factor for above ground biomass

WCF<sub>bgb</sub> - weighted conversion factor for below ground biomass

GS - growing stock of all species (from table in 6.2.3. - 545,9 million tonnes)

AGB - above ground biomass stock of all species (from table in 6.2.3. - 325,5 million tonnes)

BGB - below ground biomass stock of all species (from table in 6.2.3. - 95,3 million tonnes)

$$AGB_{1990} = GS_{1990} * WCF_{agb} = 451 * 0,596 = 268,8 \text{ million tonnes}$$

$$BGB_{1990} = GS_{1990} * WCF_{bgb} = 451 * 0,175 = 78,9 \text{ million tonnes}$$

$$AGB_{2005} = GS_{2005} * WCF_{agb} = 599 * 0,596 = 357,0 \text{ million tonnes}$$

$$BGB_{2005} = GS_{2005} * WCF_{bgb} = 599 * 0,175 = 104,8 \text{ million tonnes}$$

Growing stock of all species for year 1990 and 2005 were taken from table T5.

## 6.4 Reclassification into FRA 2005 classes

### 6.5 Data for National reporting table T6

| FRA 2005 Categories  | Biomass (million metric tonnes oven-dry weight) |              |              |                   |       |       |
|----------------------|---|--------------|--------------|-------------------|-------|-------|
|                      | Forest  |              |              | Other wooded land |       |       |
|                      | 1990  | 2000         | 2005         | 1990              | 2000  | 2005  |
| Above-ground biomass | 268,8   | 325,5        | 357,0        | N.D.A             | N.D.A | N.D.A |
| Below-ground biomass | 78,9  | 95,3         | 104,8        | N.D.A             | N.D.A | N.D.A |
| Dead wood biomass    | 8,3   | 8,9          | 9,1          | N.D.A             | N.D.A | N.D.A |
| <b>TOTAL</b>         | <b>356</b>                                      | <b>429,7</b> | <b>470,9</b> | N.D.A             | N.D.A | N.D.A |

### 6.6 Comments to National reporting table T6



## 7 Table T7 – Carbon stock

### 7.1 FRA 2005 Categories and definitions

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

### 7.2 National data

#### 7.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s)   | Year(s) | Additional comments |
|--------------------------------------|-----------------|---------------|---------|---------------------|
| Table T6                             | M               | Biomass stock | 2000    |                     |

#### 7.2.2 Classification and definitions

#### 7.2.3 Original data

##### Carbon in litter

| Climate -<br>cold<br>temperate<br>moist | 1990                  |                                    | 2000                  |                                    | 2005                  |                                 |
|---|-----------------------|------------------------------------|-----------------------|------------------------------------|-----------------------|---------------------------------|
|   | Forest area<br>1000ha | Litter carbon<br>million<br>tonnes | Forest area<br>1000ha | Litter carbon<br>million<br>tonnes | Forest area<br>1000ha | Litter carbon<br>million tonnes |
| Broadleaf                               | 1119,5                | 17,9                               | 1230,3                | 19,7                               | 1292,4                | 20,7                            |
| Needle<br>leaf                          | 1658,5                | 43,1                               | 1657,7                | 43,1                               | 1651,6                | 42,9                            |
| Total                                   | 2778                  | 61                                 | 2888                  | 62,8                               | 2944                  | 63,6                            |

The default values (broadleaf & coniferous) for cold temperate moist forest have been applied.

##### Soil carbon

|                                  | Forest area<br>1990 (1000<br>ha) | Soil carbon to a<br>depth of 30 cm,<br>(million tonnes) | Forest area<br>2000 (1000 ha) | Soil carbon to a<br>depth of 30 cm,<br>(million tonnes) | Forest area<br>2005 (1000<br>ha) | Soil carbon to a<br>depth of 30 cm,<br>(million tonnes) |
|----------------------------------|----------------------------------|---|-------------------------------|---|----------------------------------|---|
| Soils with high<br>activity clay | 1577,8                           | 149,9   | 1638,3                        | 155,8   | 1670,1                           | 158,8   |
| Spodic soils                     | 496,4                            | 570,9   | 516,1                         | 593,5   | 526,1                            | 60,5  |
| Wetland soils                    | 703,8                            | 61,2  | 730,7                         | 63,7  | 744,9                            | 64,9  |
| Total                            | <b>2778</b>                      | <b>268,2</b>  | <b>2885</b>                   | <b>278,8</b>  | <b>2941</b>                      | <b>284,2</b>  |

Soil distribution between soil types were obtained on the basis on national forest site type classification - soils with high activity clay -HAC - 56,8%, spodic soil - 17,9%, wetland soil -

25,3% (expert assumption). There are 23 different forest site types and each of them has characteristic soil conditions. All forest site types can be distributed by five groups - forests on dry mineral soil, forests on wet mineral soil, forests on wet peat soil, forests on drained wet mineral soil and forests on drained peat soil. Soil carbon was calculated using percentage of soil types (given above) and using IPCC-GPG default reference soil organic stocks were used (for cold temperate moist region).

IPCC-GPG default value for carbon content is used to convert the living biomass and dead wood biomass to carbon stock.

IPCC-GPG default value for litter carbon stocks is used to calculate carbon in litter (for cold temperate moist climate).

## 7.3 Analysis and processing of national data

### 7.3.1 Calibration

### 7.3.2 Estimation and forecasting

## 7.4 Reclassification into FRA 2005 classes

## 7.5 Data for National reporting table T7

| FRA 2005 Categories                              | Carbon (Million metric tonnes) |              |              |                   |       |       |
|--|--------------------------------|--------------|--------------|-------------------|-------|-------|
|  | Forest                         |              |              | Other wooded land |       |       |
|  | 1990                           | 2000         | 2005         | 1990              | 2000  | 2005  |
| Carbon in above-ground biomass                   | 134,4                          | 162,4        | 178,5        | N.D.A             | N.D.A | N.D.A |
| Carbon in below-ground biomass                   | 39,5                           | 47,7         | 52,4         | N.D.A             | N.D.A | N.D.A |
| <b>Sub-total: Carbon in living biomass</b>       | <b>173,9</b>                   | <b>210,1</b> | <b>230,9</b> | N.D.A             | N.D.A | N.D.A |
| Carbon in dead wood                              | 4.2                            | 4.5          | 4.6          | N.D.A             | N.D.A | N.D.A |
| Carbon in litter                                 | 61.0                           | 62.8         | 63.6         | N.D.A             | N.D.A | N.D.A |
| <b>Sub-total: Carbon in dead wood and litter</b> | <b>65,2</b>                    | <b>67,3</b>  | <b>68,2</b>  | N.D.A             | N.D.A | N.D.A |
| Soil carbon to a depth of __30__ cm              | 268.2                          | 278.8        | 284.2        | N.D.A             | N.D.A | N.D.A |
| <b>TOTAL CARBON</b>                              | <b>507,3</b>                   | <b>556,2</b> | <b>583,3</b> | N.D.A             | N.D.A | N.D.A |

Thresholds were calculated using data from tables of appendix 5 of ‘Guidelines for country reporting to FRA2005’.

## 7.6 Comments to National reporting table T7

## 8 Table T8 – Disturbances affecting health and vitality

### 8.1 FRA 2005 Categories and definitions

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

### 8.2 National data

#### 8.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)                                    | Year(s)   | Additional comments |
|--|-----------------|--|-----------|---------------------|
| Information of Forest resources prepared by The State Forest Service | H               | Destroyed forest stands by disturbance factors | 1998-2002 |                     |

#### 8.2.2 Classification and definitions

See 'Original data'

#### 8.2.3 Original data

| Destroyed forest stands, ha | 1998          | 1999          | 2000          | 2001          | 2002          | 5 year average |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Damaged by wildlife         | 226,3         | 236           | 215,7         | 342,6         | 244,8         | <b>253,08</b>  |
| Damaged by pests            | 181,7         | 144,1         | 432,3         | 348           | 374,8         | <b>296,18</b>  |
| Damaged by diseases         | 61,4          | 125           | 112,6         | 69,3          | 47,3          | <b>83,12</b>   |
| Damaged by snow, wind       | 879,7         | 497           | 694,7         | 1411,4        | 1562,4        | <b>1009,04</b> |
| Damaged by fire             | 70,5          | 120,2         | 114,3         | 51,7          | 186,2         | <b>108,58</b>  |
| Damaged by water**          | 268,6         | 207,5         | 304,4         | 176           | 224,5         | <b>236,2</b>   |
| Damaged by other factors*   | 0             | 0             | 120,3         | 126,2         | 45,6          | <b>58,42</b>   |
| <b>Total</b>                | <b>1688,2</b> | <b>1329,8</b> | <b>1994,3</b> | <b>2525,2</b> | <b>2685,6</b> | <b>2044,62</b> |

\* - other damages include, for example, frost, drought, mechanical damages.

\*\*The disturbance by water includes mostly areas which are covered with water because of action of beavers.

### 8.3 Analysis and processing of national data

#### 8.3.1 Estimation and forecasting

Not needed.

#### 8.4 Reclassification into FRA 2005 classes

| FRA-2005 Categories     | National categories  |
|-------------------------|--|
| Disturbance by fire     | Damaged by fire  |
| Disturbance by insects  | Damaged by pests   |
| Disturbance by diseases | Damaged by diseases  |
| Other disturbance       | Damaged by wildlife<br>Damaged by snow, wind<br>Damaged by water<br>Damaged by other factors |

### 8.5 Data for National reporting table T8

| FRA-2005 Categories     | Average annual area affected (1000 hectares) |      |                   |       |
|-------------------------|--|------|-------------------|-------|
|                         | Forests                                      |      | Other wooded land |       |
|                         | 1990   | 2000 | 1990              | 2000  |
| Disturbance by fire     | I.D  | 0.11 | N.D.A             | N.D.A |
| Disturbance by insects  | I.D  | 0.30 | N.D.A             | N.D.A |
| Disturbance by diseases | I.D  | 0.08 | N.D.A             | N.D.A |
| Other disturbance       | I.D  | 1.56 | N.D.A             | N.D.A |

I.D – insufficient data (not comparable).

### 8.6 Comments to National reporting table T8

## 9 Table T9 – Diversity of tree species

### 9.1 FRA 2005 Categories and definitions

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

### 9.2 National data

#### 9.2.1 Data sources

| References to sources of information                             | Quality (H/M/L) | Variable(s)   | Year(s) | Additional comments |
|--|-----------------|---|---------|---------------------|
| V.Lange, A.Maurins, A.Zvirgzds 1978, Dendrology, Riga "Zvaigzne" |                 | Native tree species   |         |                     |
| IUCN red list  |                 | Critically endangered, endangered and vulnerable tree species | 2000    |                     |

#### 9.2.2 Classification and definitions

#### 9.2.3 Original data

| Native (indigenous) tree species occurring on forest and other wooded land | Species         |
|--|-----------------|
| <i>Acer platanoides</i> L.   | Norway Maple    |
| <i>Alnus glutinosa</i> (L.) Gaertn.  | Black Alder     |
| <i>Alnus incana</i> (L.) Mñch.   | Grey Alder      |
| <i>Alnus x pubescens</i> Tausch  | Alder (hybrid)  |
| <i>Betula pendula</i> Roth.  | Silver Birch    |
| <i>Betula pubescens</i> Ehrh.  | White Birch     |
| <i>Carpinus betulus</i> L.   | Hornbeam        |
| <i>Fraxinus excelsior</i> L.   | Common Ash      |
| <i>Juniperus communis</i> L.   | Common juniper  |
| <i>Malus sylvestris</i> (L.) Mill.   | Crab            |
| <i>Padus avium</i> Mill.   | Wild Cherry     |
| <i>Picea abies</i> (L.) Karst.   | Norway Spruce   |
| <i>Pinus sylvestris</i> L.   | Scots Pine      |
| <i>Populus tremula</i> L.  | Aspen           |
| <i>Pyrus pyrastrer</i> Burgsd.   | Pear-tree       |
| <i>Quercus robur</i> L.  | Common Oak      |
| <i>Rhamnus catharticus</i> L.  | Buckthorn       |
| <i>Salix alba</i> L.   | White Willow    |
| <i>Salix fragilis</i> L.   | Crack Willow    |
| <i>Salix x rubens</i> Schrank  | Willow (Hybrid) |
| <i>Sorbus aucuparia</i> L.   | Mountain Ash    |
| <i>Sorbus intermedia</i> (Ehrh.) Pers.                                     | Sorb            |
| <i>Taxus baccata</i> L.  | Common yew      |

|                     |                    |
|---------------------|--------------------|
| Tilia cordata Mill. | Small-leaved Lime  |
| Ulmus glabra Huds.  | Wych Elm           |
| Ulmus laevis Pall.  | European White Elm |

### 9.3 Data for National reporting table T9

| FRA 2005 Categories                | Number of species<br>(year 2000) |
|------------------------------------|----------------------------------|
| Native tree species                | 26                               |
| Critically endangered tree species | 0                                |
| Endangered tree species            | 0                                |
| Vulnerable tree species            | 0                                |

### 9.4 Comments to National reporting table T9

## 10 Table T10 – Growing stock composition

### 10.1 FRA 2005 Categories and definitions

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

### 10.2 National data

#### 10.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)              | Year(s) | Additional comments |
|--|-----------------|--------------------------|---------|---------------------|
| Information of Forest resources prepared by The State Forest Service | M               | Growing stock by species | 2000    |                     |

#### 10.2.2 Original data

See section 10.4

### 10.3 Analysis and processing of national data

#### 10.3.1 Calibration

#### 10.3.2 Estimation and forecasting

### 10.4 Data for National reporting table T10

| FRA 2005 Categories / Species name<br>(Scientific name and common name) | Growing Stock in Forests<br>(million cubic meters) |              |
|---|--|--------------|
|   | 1990   | 2000         |
| Scots pine ( <i>Pinus sylvestris</i> )                                  | I.D.   | 233.3        |
| Silver birch ( <i>Betula pendula</i> )                                  | I.D.   | 148.3        |
| Norway spruce ( <i>Picea abies</i> )                                    | I.D.   | 90.5         |
| Grey alder ( <i>Alnus incana</i> )                                      | I.D.   | 28.5         |
| Aspen ( <i>Populus tremula</i> )  | I.D.   | 19.7         |
| Common alder ( <i>Alnus glutinosa</i> )                                 | I.D.   | 13.7         |
| White birch ( <i>Betula pubescens</i> )                                 | I.D.   | 5.5          |
| European ash ( <i>Fraxinus excelsior</i> )                              | I.D.   | 3.5          |
| Common oak ( <i>Quercus robur</i> )                                     | I.D.   | 2.0          |
| Other conifers  | I.D.   | 0.2          |
| Other broadleaved   | I.D.   | 0.7          |
| <b>TOTAL</b>  | <b>451</b>   | <b>545,9</b> |

### 10.5 Comments to National reporting table T10

## 11 Table T11 – Wood removal

### 11.1 FRA 2005 Categories and definitions

| Category                | Definition   |
|-------------------------|--|
| Industrial wood removal | The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel). |
| Woodfuel removal        | The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.                |

### 11.2 National data

#### 11.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)  | Year(s)              | Additional comments |
|--|-----------------|--------------|----------------------|---------------------|
| Information of Forest resources prepared by The State Forest Service | M               | Wood removal | 1988-1992, 1998-2004 |                     |

#### 11.2.2 Classification and definitions

FRA definitions were used.

#### 11.2.3 Original data

| Year    | Removals million m <sup>3</sup> | Year    | Removals million m <sup>3</sup> |
|---------|---------------------------------|---------|---------------------------------|
| 1988    | 5,3                             | 1998    | 10,03                           |
| 1989    | 5,3                             | 1999    | 13,44                           |
| 1990    | 5                               | 2000    | 11                              |
| 1991    | 4,5                             | 2001    | 11,2                            |
| 1992    | 4                               | 2002    | 12,2                            |
| Average | <b>4,82</b>                     | Average | <b>11,574</b>                   |

### 11.3 Analysis and processing of national data

Woodfuel volume was calculated as 8% of total amount of wood removals.

#### 11.3.1 Estimation and forecasting

The total removal for 2005 was estimated at 11,5 mill m<sup>3</sup>

### 11.4 Reclassification into FRA 2005 classes

#### 11.5 Data for National reporting table T11

| FRA 2005 Categories      | Volume in 1000 cubic meters of roundwood over bark |              |               |                   |       |       |
|--------------------------|--|--------------|---------------|-------------------|-------|-------|
|                          | Forest   |              |               | Other wooded land |       |       |
|                          | 1990   | 2000         | 2005          | 1990              | 2000  | 2005  |
| Industrial roundwood     | 4434   | 10648        | 10580         | N.D.A             | N.D.A | N.D.A |
| Woodfuel                 | 386  | 926          | 920           | N.D.A             | N.D.A | N.D.A |
| <b>TOTAL for Country</b> | <b>4820</b>  | <b>11574</b> | <b>11500*</b> | N.D.A             | N.D.A | N.D.A |

\* - expert estimate.

### 11.6 Comments to National reporting table T11



## 12 Table T12 – Value of wood removal

### 12.1 FRA 2005 Categories and definitions

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

### 12.2 National data

#### 12.2.1 Data sources

*No data on value of wood removals.*

#### 12.2.2 Classification and definitions

#### 12.2.3 Original data

### 12.3 Analysis and processing of national data

#### 12.3.1 Estimation and forecasting

### 12.4 Reclassification into FRA 2005 classes

### 12.5 Data for National reporting table T12

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

### 12.6 Comments to National reporting table T12

## 13 Table T13 – Non-wood forest product removal

### 13.1 FRA 2005 Categories and definitions

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

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

### 13.2 National data

#### 13.2.1 Data sources

| References to sources of information                                 | Quality (H/M/L) | Variable(s)                  | Year(s)               | Additional comments |
|--|-----------------|------------------------------|-----------------------|---------------------|
| 30 years of Latvia forestry and forest industry                      | M               | The number of hunted animals | 1988, 1989            |                     |
| Information of Forest resources prepared by The State Forest Service | M               | The number of hunted animals | 1991, 1992, 1998-2002 |                     |

#### 13.2.2 Classification and definitions

#### 13.2.3 Original data

Hunted game animals

|            | 3 year average* | 5 year average** |
|------------|-----------------|------------------|
| Elks       | 6635            | 2013             |
| Red deer   | 6010            | 2971             |
| Roe deer   | 15158           | 7800             |
| Wild boars | 18501           | 7796             |
| Foxes      | 4637            | 7897             |
| Martens    | 2529            | 892              |
| Beavers    | 3425            | 4893             |
| Minks      |                 | 224              |

|              |              |              |
|--------------|--------------|--------------|
| Musk rats    |              | 31           |
| Wolves       | 191          | 165          |
| Lynxes       | 52           | 76           |
| Raccoon dogs | 3865         | 1399         |
| Hares        | 2165         | 1534         |
| Badgers      |              | 70           |
| <b>Total</b> | <b>63168</b> | <b>37761</b> |

\* - the number of hunted game animals was calculated as average of year 1988, 1991, 1992 (insufficient data).

\*\* - the number of hunted game animals was calculated as average of hunting seasons from year 1998 to 2003.

|              | 4 year average,<br>1990 | Mass, kg       | 5 year average,<br>2000 | Mass, kg       |
|--------------|-------------------------|----------------|-------------------------|----------------|
| Elks         | 6635                    | 1194210        | 2013                    | 362412         |
| Red deer     | 6010                    | 721170         | 2971                    | 356472         |
| Roe deer     | 15158                   | 303155         | 7800                    | 155992         |
| Wild boars   | 18501                   | 1110045        | 7796                    | 467760         |
| Beaver       | 3425                    | 23975          | 4893                    | 34251          |
| Hare         | 2165                    | 3248           | 1534                    | 2301           |
| <b>Total</b> | <b>53888</b>            | <b>3355803</b> | <b>29012</b>            | <b>1379188</b> |

Forecast for year 2005 – expert estimation.

### 13.3 Analysis and processing of national data

#### 13.3.1 Estimation and forecasting

#### 13.4 Reclassification into FRA 2005 classes

#### 13.5 Data for National reporting table T13

| FRA 2005 Categories                                      | Scale factor | Unit  | NWFP removal |       |       |
|--|--------------|-------|--------------|-------|-------|
|  |              |       | 1990         | 2000  | 2005  |
| <u>Plant products / raw material</u>                     |              |       |              |       |       |
| 1. Food  |              |       |              |       |       |
| 2. Fodder  |              |       |              |       |       |
| 3. Raw material for medicine and aromatic products       |              |       |              |       |       |
| 4. Raw material for colorants and dyes                   |              |       |              |       |       |
| 5. Raw material for utensils, handicrafts & construction |              |       |              |       |       |
| 6. Ornamental plants                                     |              |       |              |       |       |
| 7. Exudates  |              |       |              |       |       |
| 8. Other plant products                                  |              |       |              |       |       |
| <u>Animal products / raw material</u>                    |              |       |              |       |       |
| 9. Living animals  |              |       |              |       |       |
| 10. Hides, skins and trophies                            | 1000         | Units | 63,2*        | 37,8* | 37,8* |
| 11. Wild honey and bee-wax                               |              |       |              |       |       |
| 12. Bush meat  | 1000         | kg    | 3356         | 1380  | 1500  |
| 13. Raw material for medicine                            |              |       |              |       |       |
| 14. Raw material for colorants                           |              |       |              |       |       |
| 15. Other edible animal products                         |              |       |              |       |       |
| 16. Other non-edible animal products                     |              |       |              |       |       |

\* - it is assumed, that hides and skins are collected from all animals killed. See also comment 8.18.

### **13.6 Comments to National reporting table T13**

1) *Reliable information on hunted game animals is available – hunters must report on hunted animals according to legislation requirements. According to Forest law, forest non-timber material value – wild berries, fruit, nuts, mushrooms and medicinal plants – may be gathered by persons at their discretion, if the forest owner or the lawful possessor has not set restrictions in accordance with this law or it is not prohibited by other legislation requirements. Forest non-timber material values in most cases are consumed by people who collect them.*

2) *Information on the number of skins or trophies is not registered, but it closely related to the number of hunted animals. From some animals more than one trophy can be obtained – for example trophies obtained from hunted wolf or lynx could be skin and skull. Trophies also are obtained from hunted Artiodactyls - horns with a skull or frontal bone (elk, red deer, roe deer) and tusks (wild boar).*

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

### 14.1 FRA 2005 Categories and definitions

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

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

### 14.2 National data

#### 14.2.1 Data sources

*No data on value of non-wood forest product removals.*

#### 14.2.2 Classification and definitions

#### 14.2.3 Original data

### 14.3 Analysis and processing of national data

#### 14.3.1 Estimation and forecasting

#### 14.4 Reclassification into FRA 2005 classes

#### 14.5 Data for National reporting table T14

#### 14.6 Comments to National reporting table T14

## 15 Table T15 – Employment in forestry

### 15.1 FRA 2005 Categories and definitions

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

### 15.2 National data

#### 15.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s)            | Year(s)    | Additional comments |
|--------------------------------------|-----------------|------------------------|------------|---------------------|
| Central Statistical Bureau           |                 | Employment in forestry | 1990, 2000 |                     |

#### 15.2.2 Classification and definitions

| National class   | Definition   |
|--|--|
| Employment in forestry, logging and related service activities | Data only on enterprises with more than 20 employees or with turnover more than 300 thous. Ls/year |

#### 15.2.3 Original data

### 15.3 Analysis and processing of national data

#### 15.3.1 Estimation and forecasting

### 15.4 Reclassification into FRA 2005 classes

### 15.5 Data for National reporting table T15

| FRA 2005 Categories             | Employment (1000 person-years) |      |
|---------------------------------|--------------------------------|------|
|                                 | 1990                           | 2000 |
| Primary production of goods     | NDA                            | NDA  |
| Provision of services           | NDA                            | NDA  |
| Unspecified forestry activities | 15                             | 19   |
| <b>TOTAL</b>                    | 15                             | 19   |

### 15.6 Comments to National reporting table T15