



Food and Agriculture  
Organization of the  
United Nations

# Global Forest Resources Assessment 2020

Report

**Thailand**

Rome, 2020



FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The Global Forest Resources Assessments (FRA) are now produced every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The FRA is a country-driven process and the assessments are based on reports prepared by officially nominated National Correspondents. If a report is not available, the FRA Secretariat prepares a desk study using earlier reports, existing information and/or remote sensing based analysis.

This document was generated automatically using the report made available as a contribution to the FAO Global Forest Resources Assessment 2020, and submitted to FAO as an official government document. The content and the views expressed in this report are the responsibility of the entity submitting the report to FAO. FAO cannot be held responsible for any use made of the information contained in this document.

## TABLE OF CONTENTS

### Introduction

1. Forest extent, characteristics and changes
2. Forest growing stock, biomass and carbon
3. Forest designation and management
4. Forest ownership and management rights
5. Forest disturbances
6. Forest policy and legislation
7. Employment, education and NWFP
8. Sustainable Development Goal 15

# Introduction

## Report preparation and contact persons

The present report was prepared by the following person(s)

| Name                         | Role                             | Email                | Tables |
|------------------------------|----------------------------------|----------------------|--------|
| Chonlanet Preechachareoensri | Collaborator                     | cpreech@gmail.com    | All    |
| Korn Manassrisuksi           | National correspondent           | korn45@gmail.com     | All    |
| Passarasorn Promchot         | Collaborator                     | chawanun70@gmail.com | All    |
| Sukan Pungkul                | Alternate national correspondent | mr.sukan@gmail.com   | All    |

## Introductory text

Thailand covers a land area of 513.115 km<sup>2</sup>. It shares borders in the northwest and west with Myanmar, in the northeast and east with Lao PDR, in the southeast with Cambodia and in the south with Malaysia. Thailand's economy is predominantly agricultural and 70 percent of the population earns their living in agricultural or related enterprises. In 1973 the first report of assessment of existing forest area using interpretation of Landsat-MSS at the scale of 1:250,000 was published. It was reported that the existing forest area of Thailand in 1973 amounted to 221,725.00 sq. km or about 43.33 percent of the total area of the country. After the first successful existing forest assessment in 1973, the natural forest resources assessments were conducted in 1976, 1978, 1982, 1985, 1988, 1989, 1991, 1993, 1995, 1998 by the Forest Resources Assessment Division of the RFD. In the year 2000, GIS and Remote Sensing software were employed to assess forest cover changes and found that 33.15 percentage of country area or 17,011,078 hectares was forest. In 2002, after bureaucratic reform, Royal Forest Department (RFD) was divided into three Departments: the Royal Forest Department, Department of National Park Wildlife and Plant Conservation (DNP) and the Department of Marine and Coastal Resources (DMC). All the departments are under the supervision of the Ministry of Natural Resources and Environment (MONRE). Between 2014-2019, forest cover changes were carried out by RFD and the number of forest cover percentage were approximately stable at 31.57-31.62% resulting from national awareness and strictly law enforcement on forest areas.

Thailand has promulgated many forest laws which have been effective to control and define the processes for forest protection and forest resource management toward the stability and sustainable utilization of forest resources. At present, there are six forest laws being employed to regulate the forestry activities as follows:

- Forest Act B.E. 2484 (1941) and subsequent amendment B.E. 2532 (1989),
- National Park Act B.E. 2504 (1961),
- National Reserved Forest Act B.E. 2507 (1964) and subsequent amendments B.E. 2522 (1979X and B.E. 2528 (1985),
- Wildlife Preservation and Protection Act B.E. 2535 (1992),
- Forest Plantation Act B.E. 2535 (1992),
- Chainsaw Act B.E. 2545 (2002).
- Community Forest Act B.E. 2562 (2019)

There are many strategies and plans have been launched to protect and promote forests such as Master Plan to solve deforestation and public encroachment in 2014, 20 years National Strategy (2018-2038), National Reform on Natural Resources in 2018, Revised National Forest Policy in 2019, revised Forest Act, item 7 to promote tree species which used to prohibited to use or cut even in their private lands. Those national strategies and plans are currently still deployed to protect existing forest, suppress illegal logging and encroachment and promote private forest plantation in community participation based approach to the target of national sustainable forest management following FRA2020 global aim.

# 1 Forest extent, characteristics and changes

## 1a Extent of forest and other wooded land

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments                                   |
|--|-----------|---|
| RFD 2018. Forestry Statistics Data 2017<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 2000-2017 | Forest area classified from satellite imageries       |
| RAOT<br>Para rubber database system (online: availabel at<br><a href="http://emarket.raot.co.th/rdu/#il_14_128_134">http://emarket.raot.co.th/rdu/#il_14_128_134</a> ; access october 2018)    | 1996-2007 | Rubber plantation area                                |
| OAE 2017. Agricultural Statistics of Thailand 2017   | 2008-2016 | Rubber plantation classified from satellite imageries |

RFD: Royal Forest Department, RAOT: Rubber Authority of Thailand, OAE: Office of Agricultural Economics

#### National classification and definitions

Existing forest area: Land with vegetation, natural and plantaion, cover and span more than 0.5 hectares which can be classified by satellite imagery. Land that predominantly covered with agroforestry, agriculture and urban land use are not included in the definition of forest.

#### Original data

##### Forest Area

| Year               | Forest Area (1000 ha) | Year               | Forest Area (1000 ha) | Year               | Forest Area (1000 ha) |
|--------------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|
| 1988               | 14380.3               | 2000 <sup>*3</sup> | 17011.1               | 2014 <sup>*5</sup> | 16365.7               |
| 1989 <sup>*1</sup> | 14341.7               | 2004 <sup>*4</sup> | 16759.1               | 2015 <sup>*5</sup> | 16358.5               |
| 1991 <sup>*2</sup> | 13669.8               | 2005               | 16100.1               | 2016 <sup>*5</sup> | 16348.0               |
| 1993 <sup>*2</sup> | 13355.4               | 2006               | 15865.3               | 2017 <sup>*6</sup> | 16345.0               |
| 1995 <sup>*2</sup> | 13148.5               | 2008 <sup>*4</sup> | 17158.6               |                    |                       |
| 1998 <sup>*2</sup> | 12972.2               | 2013 <sup>*5</sup> | 16339.1               |                    |                       |

\*1 LANDSAT-TM; \*2 LANDSAT-5(TM) Scales (1:250,000); \*3 LANDSAT-5(TM) Scales (1:50,000); \*4 LANDSAT-5 (TM) on-screen digitizing technique; \*5 THEOS and LANDSAT-8; \*6 THEOS, LANDSAT-8 and Sentinel-2

##### Rubber Plantation

| Year               | Rubber plantation (1000 ha) | Year               | Rubber plantation (1000 ha) | Year               | Rubber plantation (1000 ha) |
|--------------------|-----------------------------|--------------------|-----------------------------|--------------------|-----------------------------|
| 1996 <sup>*1</sup> | 1883.2                      | 2003 <sup>*1</sup> | 2019.2                      | 2010 <sup>*2</sup> | 3242.2                      |
| 1997 <sup>*1</sup> | 1910.4                      | 2004 <sup>*1</sup> | 2083.2                      | 2011 <sup>*2</sup> | 3386.4                      |
| 1998 <sup>*1</sup> | 1955.2                      | 2005 <sup>*1</sup> | 2460.8                      | 2012 <sup>*2</sup> | 3597.12                     |
| 1999 <sup>*1</sup> | 1985.6                      | 2006 <sup>*1</sup> | 2635.2                      | 2013 <sup>*2</sup> | 3711.04                     |

|        |        |        |        |        |         |
|--------|--------|--------|--------|--------|---------|
| 2000*1 | 1987.2 | 2007*1 | 2888.8 | 2014*2 | 3773.28 |
| 2001*1 | 1990.4 | 2008*2 | 3009.4 | 2015*2 | 3702.4  |
| 2002*1 | 2004.8 | 2009*2 | 3140   | 2016*2 | 3669.28 |

\*1 Rubber Authority of Thailand, \*2 Office of Agricultural Economics

## Analysis and processing of national data

### Estimation and forecasting

The original data show that there are no data of forest area in 1990 and 2010. In this report, forest areas of 1990 was estimated by linear extrapolation using the data of 2000 and 2004. The data 2008 and 2013 were used as basis for forecasting the forest area of 2010 by linear interpolation. Forest areas of 2018, 2019 and 2020 were forecasted by linear extrapolation using 2016 and 2017 data.

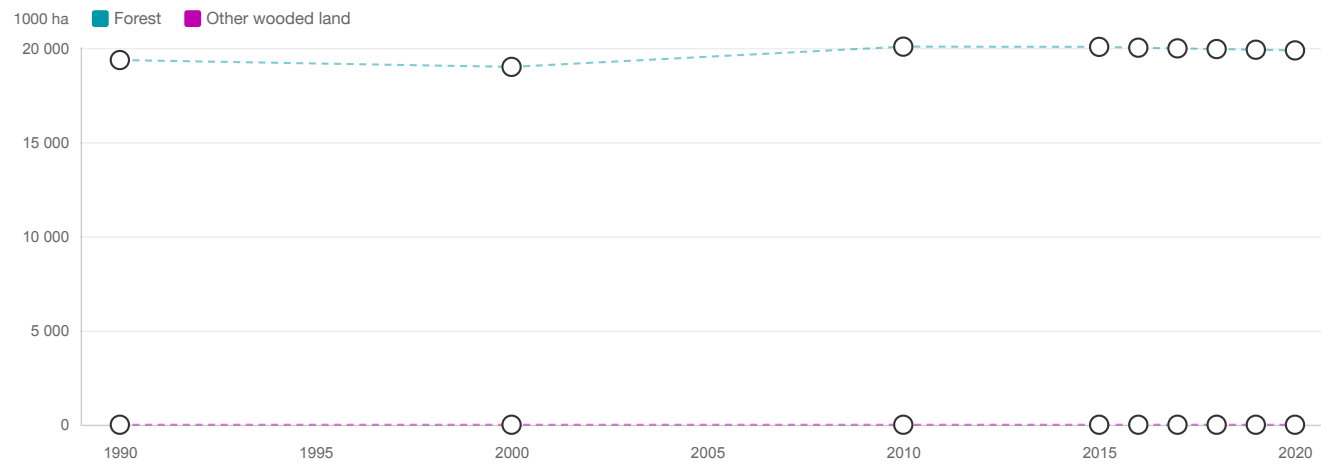
| Forest area (1000 ha) | 1990  | 2000  | 2004  | 2008  | 2010  | 2013  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                       | 17641 | 17011 | 16759 | 17159 | 16831 | 16339 | 16359 | 16348 | 16345 | 16342 | 16339 | 16336 |

The rubber plantation is part of forest in FRA. Since its area is not counted as forests in the national classification, it is therefore added to the area of forests. The figure of rubber plantation area of 1990 was estimated by linear extrapolation of 1996 and 1997 data. The area of 2018, 2019 and 2020 were forecasted using linear extrapolation of 2016 and 2017 data.

| Rubber plantation (1000 ha) | 1990 | 1996 | 1997 | 2000 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
|                             | 1720 | 1883 | 1910 | 1987 | 3242 | 3702 | 3669 | 3636 | 3603 | 3570 | 3537 |

### Reclassification into FRA 2020 categories

| Classifications and definitions | FRA classes |                   |            |
|---------------------------------|-------------|-------------------|------------|
|                                 | Forest      | Other wooded land | Other land |
| Forest                          | 100%        | 0%                | 0%         |
| Rubber plantation               | 100%        | 0%                | 0%         |
| Other land                      | 0%          | 0%                | 100%       |



| FRA categories             | Area (1000 ha)   |                  |                  |                  |                  |                  |                  |                  |                  |
|----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                            | 1990             | 2000             | 2010             | 2015             | 2016             | 2017             | 2018             | 2019             | 2020             |
| Forest (a)                 | 19 361.00        | 18 998.00        | 20 073.00        | 20 061.00        | 20 017.00        | 19 981.00        | 19 945.00        | 19 909.00        | 19 873.00        |
| Other wooded land (a)      | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             |
| <b>Other land (c-a-b)</b>  | <b>31 728.00</b> | <b>32 091.00</b> | <b>31 016.00</b> | <b>31 028.00</b> | <b>31 072.00</b> | <b>31 108.00</b> | <b>31 144.00</b> | <b>31 180.00</b> | <b>31 216.00</b> |
| <b>Total land area (c)</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> | <b>51 089.00</b> |

The FAOSTAT land area figure for the year 2015 is used for all reference years

| Climatic domain | % of forest area 2015 | Override value |
|-----------------|-----------------------|----------------|
| Boreal          | 0.00                  |                |
| Temperate       | 0.00                  |                |
| Sub-tropical    | 0.00                  |                |
| Tropical        | 100.00                |                |

## Comments

Available national data do not allow for estimating the area of other wooded land. Any such areas are included in the figures given for other land.

The increase in forest between 2000 and 2010 is due to increase of rubber plantation.

Difference in forest area with FRA 2015 are mainly due to the fact that rubber plantations were not included in the forest area reported for FRA 2015.



# 1b Forest characteristics

## National Data

### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments                                   |
|--|-----------|---|
| RFD 2018. Forestry Statistics Data 2017<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 2000-2017 | Forest area classified from satellite imageries       |
| RAOT<br>Para rubber database system (online: available at<br><a href="http://emarket.raot.co.th/rdu/#il_14_128_134">http://emarket.raot.co.th/rdu/#il_14_128_134</a> ; access october 2018)    | 1996-2007 | Rubber plantation area                                |
| OAE 2017. Agricultural Statistics of Thailand 2017   | 2008-2016 | Rubber plantation classified from satellite imageries |

RFD: Royal Forest Department, RAOT: Rubber Authority of Thailand, OAE: Office of Agricultural Economics

### National classification and definitions

There are no national classification and definitions relevant to this table.

### Original data

#### Forest Area

| Year               | Forest Area (1000 ha) | Year               | Forest Area (1000 ha) | Year               | Forest Area (1000 ha) |
|--------------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|
| 1988               | 14380.3               | 2000 <sup>*3</sup> | 17011.1               | 2014 <sup>*5</sup> | 16365.7               |
| 1989 <sup>*1</sup> | 14341.7               | 2004 <sup>*4</sup> | 16759.1               | 2015 <sup>*5</sup> | 16358.5               |
| 1991 <sup>*2</sup> | 13669.8               | 2005               | 16100.1               | 2016 <sup>*5</sup> | 16348.0               |
| 1993 <sup>*2</sup> | 13355.4               | 2006               | 15865.3               | 2017 <sup>*6</sup> | 16345.0               |
| 1995 <sup>*2</sup> | 13148.5               | 2008 <sup>*4</sup> | 17158.6               |                    |                       |
| 1998 <sup>*2</sup> | 12972.2               | 2013 <sup>*5</sup> | 16339.1               |                    |                       |

\*1 LANDSAT-TM; \*2 LANDSAT-5(TM) Scales (1:250,000); \*3 LANDSAT-5(TM) Scales (1:50,000); \*4 LANDSAT-5 (TM) on-screen digitizing technique; \*5 THEOS and LANDSAT-8; \*6 THEOS, LANDSAT-8 and Sentinel-2

#### Rubber Plantation

| Year               | Rubber plantation (1000 ha) | Year               | Rubber plantation (1000 ha) | Year               | Rubber plantation (1000 ha) |
|--------------------|-----------------------------|--------------------|-----------------------------|--------------------|-----------------------------|
| 1996 <sup>*1</sup> | 1883.2                      | 2003 <sup>*1</sup> | 2019.2                      | 2010 <sup>*2</sup> | 3242.2                      |
| 1997 <sup>*1</sup> | 1910.4                      | 2004 <sup>*1</sup> | 2083.2                      | 2011 <sup>*2</sup> | 3386.4                      |
| 1998 <sup>*1</sup> | 1955.2                      | 2005 <sup>*1</sup> | 2460.8                      | 2012 <sup>*2</sup> | 3597.12                     |
| 1999 <sup>*1</sup> | 1985.6                      | 2006 <sup>*1</sup> | 2635.2                      | 2013 <sup>*2</sup> | 3711.04                     |
| 2000 <sup>*1</sup> | 1987.2                      | 2007 <sup>*1</sup> | 2888.8                      | 2014 <sup>*2</sup> | 3773.28                     |
| 2001 <sup>*1</sup> | 1990.4                      | 2008 <sup>*2</sup> | 3009.4                      | 2015 <sup>*2</sup> | 3702.4                      |

|        |        |        |      |        |         |
|--------|--------|--------|------|--------|---------|
| 2002*1 | 2004.8 | 2009*2 | 3140 | 2016*2 | 3669.28 |
|--------|--------|--------|------|--------|---------|

\*1 Rubber Authority of Thailand, \*2 Office of Agricultural Economics

## Analysis and processing of national data

### Estimation and forecasting

The original data show that there are no data of forest area in 1990 and 2010. In this report, forest areas of 1990 was estimated by linear extrapolation using the data of 2000 and 2004. The data 2008 and 2013 were used as basis for estimating the forest area of 2010 by linear interpolation. Forest areas of 2018, 2019 and 2020 were forecasted by linear extrapolation using 2016 and 2017 data.

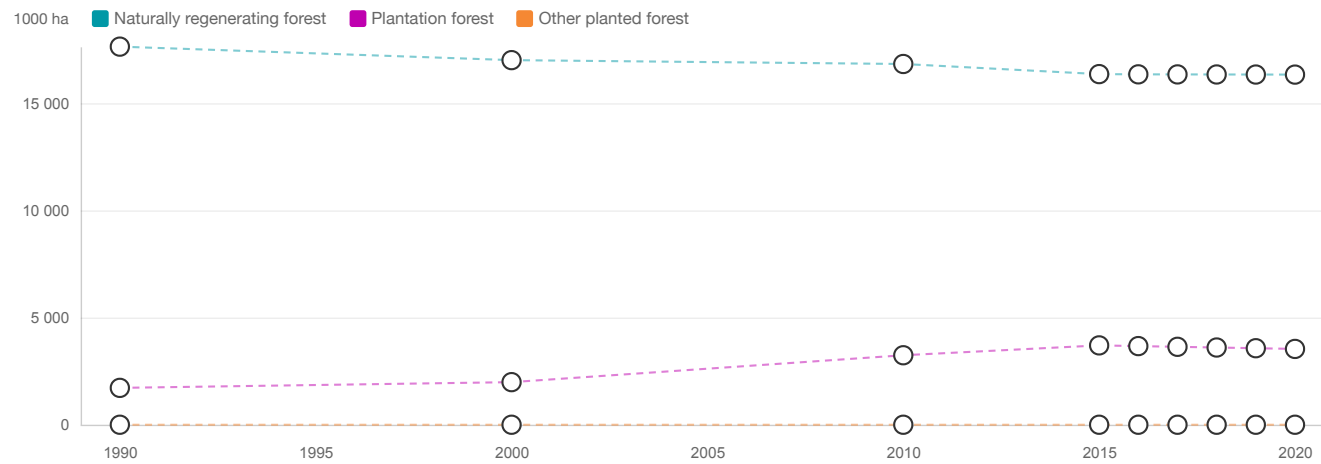
|                       | 1990  | 2000  | 2004  | 2008  | 2010  | 2013  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Forest area (1000 ha) | 17641 | 17011 | 16759 | 17159 | 16831 | 16339 | 16359 | 16348 | 16345 | 16342 | 16339 | 16336 |

The rubber plantation is part of forest in FRA. Since its area is not counted as forests in the national classification, it is therefore added to the area of forests. The figure of rubber plantation area of 1990 was estimated by linear extrapolation of 2000 and 2010 data. The area of 2018, 2019 and 2020 were forecasted using linear extrapolation of 2016 and 2017 data. The figure of rubber plantation indicated decreasing in trend in the later years. The feasibility of reducing in the area is because of changing the area to other plants especially oil palm that its area is increasing. And the decreasing trend of rubber plantation is the same direction the related organization of the country has forecasted the figure of 2018.

|                             | 1990 | 1996 | 1997 | 2000 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Rubber plantation (1000 ha) | 1720 | 1883 | 1910 | 1987 | 3242 | 3702 | 3669 | 3636 | 3603 | 3570 | 3537 |

### Reclassification into FRA 2020 categories

| Classifications and definitions | FRA classes                 |                   |
|---------------------------------|-----------------------------|-------------------|
| National class                  | Natural regenerating forest | Plantation forest |
| Forest                          | 100%                        | 0%                |
| Rubber plantation               | 0%                          | 100%              |



| FRA categories                    | Forest area (1000 ha) |                  |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                   | 1990                  | 2000             | 2010             | 2015             | 2016             | 2017             | 2018             | 2019             | 2020             |
| Naturally regenerating forest (a) | 17 641.00             | 17 011.00        | 16 831.00        | 16 359.00        | 16 348.00        | 16 345.00        | 16 342.00        | 16 339.00        | 16 336.00        |
| <b>Planted forest (b)</b>         | <b>1 720.00</b>       | <b>1 987.00</b>  | <b>3 242.00</b>  | <b>3 702.00</b>  | <b>3 669.00</b>  | <b>3 636.00</b>  | <b>3 603.00</b>  | <b>3 570.00</b>  | <b>3 537.00</b>  |
| Plantation forest                 | 1 720.00              | 1 987.00         | 3 242.00         | 3 702.00         | 3 669.00         | 3 636.00         | 3 603.00         | 3 570.00         | 3 537.00         |
| ...of which introduced species    | 1 720.00              | 1 987.00         | 3 242.00         | 3 702.00         | 3 669.00         | 3 636.00         | 3 603.00         | 3 570.00         | 3 537.00         |
| Other planted forest              | 0.00                  | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             |
| <b>Total (a+b)</b>                | <b>19 361.00</b>      | <b>18 998.00</b> | <b>20 073.00</b> | <b>20 061.00</b> | <b>20 017.00</b> | <b>19 981.00</b> | <b>19 945.00</b> | <b>19 909.00</b> | <b>19 873.00</b> |
| <b>Total forest area</b>          | <b>19 361.00</b>      | <b>18 998.00</b> | <b>20 073.00</b> | <b>20 061.00</b> | <b>20 017.00</b> | <b>19 981.00</b> | <b>19 945.00</b> | <b>19 909.00</b> | <b>19 873.00</b> |

## Comments

## 1c Primary forest and special forest categories

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)                            | Additional comments    |
|--|------------------------------------|------------------------|
| RFD 2000. Forestry Statistics Data 2000<br><a href="http://forestinfo.forest.go.th/Content/file/stat2543/TAB3.pdf">http://forestinfo.forest.go.th/Content/file/stat2543/TAB3.pdf</a>     | 1979, 1986, 1989, 1991, 1993, 1996 | Mangrove area          |
| DNP 2005. Forestry Statistics Data 2005<br><a href="http://www.dnp.go.th/statistics/Stat%2048_Forest%C2%A0Area.html">http://www.dnp.go.th/statistics/Stat%2048_Forest%C2%A0Area.html</a> | 2000                               | Mangrove area          |
| DMCR 2018<br><a href="https://km.dmcg.go.th/th/c_11/d_8201">https://km.dmcg.go.th/th/c_11/d_8201</a>   | 2004, 2009, 2014                   | Mangrove area          |
| RAOT 2018<br>Para rubber database system<br><a href="http://emarket.raot.co.th/rdu/#il_14_128_134">http://emarket.raot.co.th/rdu/#il_14_128_134</a>                                      | 1996-2007                          | Rubber plantation area |
| OAE 2017. Agricultural Statistics of Thailand 2017   | 2008-2016                          | Rubber plantation area |

RFD: Royal Forest Department

DNP: Department of National Parks, Wildlife and Plant Conservation

DMCR: Department of Marine and Coastal Resources

RAOT: Rubber Authority of Thailand

OAE: Office of Agricultural Economics

#### National classification and definitions

There is no classification and definitions relevant to this table.

#### Original data

##### Mangrove (1000 ha)

| Year            | 1979 <sup>*1</sup> | 1986 <sup>*2</sup> | 1989 <sup>*3</sup> | 1991 <sup>*4</sup> | 1993 <sup>*5</sup> | 1996 <sup>*5</sup> | 2000   | 2004   | 2009   | 2014   |
|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|--------|--------|--------|
| <b>Mangrove</b> | 287.31             | 196.44             | 180.56             | 173.82             | 168.68             | 167.58             | 245.25 | 238.44 | 244.01 | 245.53 |

\*1 LANDSAT-2, \*2 LANDSAT-3, \*3 LANDSAT-5, \*4 LANDSAT-4 and 5, \*5 LANDSAT-5 (TM)

##### Rubber Plantation (1000 ha)

The data is the same as in table 1a.

| Year               | Rubber plantation (1000 ha) | Year               | Rubber plantation (1000 ha) | Year               | Rubber plantation (1000 ha) |
|--------------------|-----------------------------|--------------------|-----------------------------|--------------------|-----------------------------|
| 1996 <sup>*1</sup> | 1883.2                      | 2003 <sup>*1</sup> | 2019.2                      | 2010 <sup>*2</sup> | 3242.2                      |
| 1997 <sup>*1</sup> | 1910.4                      | 2004 <sup>*1</sup> | 2083.2                      | 2011 <sup>*2</sup> | 3386.4                      |
| 1998 <sup>*1</sup> | 1955.2                      | 2005 <sup>*1</sup> | 2460.8                      | 2012 <sup>*2</sup> | 3597.12                     |
|                    | 1985.6                      |                    | 2635.2                      |                    | 3711.04                     |

|                    |        |                    |        |                    |         |
|--------------------|--------|--------------------|--------|--------------------|---------|
| 1999 <sup>*1</sup> |        | 2006 <sup>*1</sup> |        | 2013 <sup>*2</sup> |         |
| 2000 <sup>*1</sup> | 1987.2 | 2007 <sup>*1</sup> | 2888.8 | 2014 <sup>*2</sup> | 3773.28 |
| 2001 <sup>*1</sup> | 1990.4 | 2008 <sup>*2</sup> | 3009.4 | 2015 <sup>*2</sup> | 3702.4  |
| 2002 <sup>*1</sup> | 2004.8 | 2009 <sup>*2</sup> | 3140   | 2016 <sup>*2</sup> | 3669.28 |

\*1 Rubber Authority of Thailand, \*2 Office of Agricultural Economics

## Analysis and processing of national data

### Estimation and forecasting

#### Mangrove

The were no data of mangrove for FRA reporting years 1990, 2010, 2015 and 2020. The linear interpolation were applied for the mangrove of 1989, using the data of 1989 and 1991, and 2010, using the data of 2009 and 2014. The mangrove data of 2015 and 2020 were forecasted by linear extrpolation which the data of 2009 and 2014 were used as basis.

| Year    | 1989   | 1990   | 1991   | 1993   | 1996   | 2000   | 2004   | 2009   | 2010    | 2014   | 2015    | 2020    |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------|---------|
| 1000 ha | 180.56 | 177.19 | 173.82 | 168.68 | 167.58 | 245.25 | 238.44 | 244.01 | 244.314 | 245.53 | 245.226 | 243.706 |

#### Rubber Plantation

The data of rubber plantation is the same as in table 1a.

| Rubber plantation (1000 ha) | 1990 | 1996 | 1997 | 2000 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
|                             | 1720 | 1883 | 1910 | 1987 | 3242 | 3702 | 3669 | 3636 | 3603 | 3570 | 3537 |

### Reclassification into FRA 2020 categories

It is unnecessary to do this step.

| FRA categories                                    | Area (1000 ha) |          |          |          |          |
|---|----------------|----------|----------|----------|----------|
|   | 1990           | 2000     | 2010     | 2015     | 2020     |
| Primary forest                                    |                |          |          |          |          |
| Temporarily unstocked and/or recently regenerated |                |          |          |          |          |
| Bamboos   |                |          |          |          |          |
| Mangroves   | 177.00         | 245.00   | 244.00   | 245.00   | 244.00   |
| Rubber wood                                       | 1 720.00       | 1 987.00 | 3 242.00 | 3 702.00 | 3 537.00 |

### Comments

The increase of mangrove in the year 2000 might be due to change in inventory.

## 1d Annual forest expansion, deforestation and net change

### National Data

#### Data sources + type of data source eg NFI, etc

The data in table 1a is used in this table.

#### National classification and definitions

There are no national classification and definitions relevant to this table.

#### Original data

The data in table 1a is used in this table.

### Analysis and processing of national data

#### Estimation and forecasting

The data in table 1a is used in this table.

#### Reclassification into FRA 2020 categories

The data in table 1a is used in this table.



| FRA categories                | Area (1000 ha/year) |               |              |               |
|-------------------------------|---------------------|---------------|--------------|---------------|
|                               | 1990-2000           | 2000-2010     | 2010-2015    | 2015-2020     |
| Forest expansion (a)          | 26.70               | 125.50        | 92.00        | 0.00          |
| ...of which afforestation     | 26.70               | 125.50        | 92.00        | 0.00          |
| ...of which natural expansion | 0.00                | 0.00          | 0.00         | 0.00          |
| Deforestation (b)             | 63.00               | 18.00         | 94.40        | 37.60         |
| Forest area net change (a-b)  | <b>-36.30</b>       | <b>107.50</b> | <b>-2.40</b> | <b>-37.60</b> |

## Comments

# 1e Annual reforestation

## National Data

### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments |
|--|-----------|---------------------|
| RFD<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 1999-2017 | Reforestation data  |
| FIO Reforestation data (Official contact)  | 1999-2017 |                     |
| DNP Reforestation data (Official contact)  | 2006-2017 |                     |

RFD: Royal Forest Department, FIO: Forest Industry Organization, DNP: Department of National Parks, Wildlife and Plant Conservation

### National classification and definitions

There are no national classification and definitions relevant to this table.

### Original data

|              | 1990         | 1991         | 1992         | 1993         | 1994         | 1995         | 1996         | 1997         | 1998         | 1999         | 2000         | 2001         | 2002         | 2003         | 2004         | 2005          | 2006         | 2007         | 2008         | 2009         | 2010         |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|
| <b>RFD</b>   | 40.29        | 37.72        | 51.64        | 32.51        | 32.79        | 22.72        | 11.31        | 38.06        | 19.29        | 26.7         | 20.36        | 22.61        | 62.91        | 28.41        | 79.2         | 136.46        | 4.38         | 24.23        | 17.11        | 16.75        | 17.59        |
| <b>DNP</b>   | 0            | 0            | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 20.47        | 0.00         | 4.64         | 1.15         | 0.00         |
| <b>FIO</b>   | 0.66         | 0.67         | 0.48         | 0.07         | 0.06         | 0.20         | 0.22         | 0.20         | 0.06         | 0.18         | 0.41         | 1.50         | 1.61         | 1.64         | 2.93         | 2.29          | 2.67         | 1.52         | 2.10         | 2.25         | 1.42         |
| <b>Total</b> | <b>40.95</b> | <b>38.39</b> | <b>52.12</b> | <b>32.58</b> | <b>32.85</b> | <b>22.92</b> | <b>11.53</b> | <b>38.26</b> | <b>19.35</b> | <b>26.88</b> | <b>20.77</b> | <b>24.11</b> | <b>64.52</b> | <b>30.05</b> | <b>82.13</b> | <b>138.75</b> | <b>27.52</b> | <b>25.75</b> | <b>23.85</b> | <b>20.15</b> | <b>19.01</b> |
|              | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         | 2017         | 2018         |              |              |              |              |              |              |              |               |              |              |              |              |              |
| <b>RFD</b>   | 6.49         | 3.35         | 10.33        | 12.67        | 15.43        | 11.07        | 17.24        |              |              |              |              |              |              |              |              |               |              |              |              |              |              |
| <b>DNP</b>   | 4.26         | 5.18         | 0.00         | 0.00         | 0.00         | 0.80         | 2.24         |              |              |              |              |              |              |              |              |               |              |              |              |              |              |
| <b>FIO</b>   | 1.32         | 1.84         | 1.22         | 1.66         | 1.13         | 1.30         | 1.47         |              |              |              |              |              |              |              |              |               |              |              |              |              |              |
| <b>Total</b> | <b>12.07</b> | <b>10.37</b> | <b>11.55</b> | <b>14.33</b> | <b>16.56</b> | <b>13.17</b> | <b>20.95</b> | <b>0.00</b>  |              |              |              |              |              |              |              |               |              |              |              |              |              |

(Area: 1000 ha)

## Analysis and processing of national data

### Estimation and forecasting

It is unnecessary to do this step.

### Reclassification into FRA 2020 categories

It is unnecessary to do this step.

| FRA categories | Area (1000 ha/year) |           |           |           |
|----------------|---------------------|-----------|-----------|-----------|
|                | 1990-2000           | 2000-2010 | 2010-2015 | 2015-2020 |
| Reforestation  | 30.60               | 43.33     | 14.98     | 8.45      |

**Comments**

# 1f Other land with tree cover

## National Data

### Data sources + type of data source eg NFI, etc

| References to sources of information               | Year(s)   | Additional comments |
|--|-----------|---------------------|
| OAE, Agricultural Statistics of Thailand 2012-2017 | 2003-2016 |                     |

OAE: Office of Agricultural Economics

### National classification and definitions

There are no national classification and definitions relevant to this table.

### Original data

| Year       | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   | 2013   | 2014   | 2015   | 2016   |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Oil palm   | 329.12 | 384.80 | 439.68 | 473.12 | 512.00 | 588.16 | 622.40 | 624.64 | 653.92 | 701.76 | 718.24 | 737.92 | 793.44 | 821.92 |
| Coconut    | 285.12 | 276.32 | 270.4  | 261.6  | 254.4  | 243.52 | 235.68 | 228.8  | 213.6  | 213.92 | 196.48 | 199.52 | 191.68 | 185.92 |
| Longan     | 136.64 | 148.96 | 162.08 | 161.28 | 162.24 | 167.36 | 169.92 | 173.12 | 172.48 | 174.4  | 175.2  | 175.2  | 182.56 |        |
| Rambutan   | 87.68  | 86.24  | 82.56  | 78.08  | 70.88  | 67.84  | 62.4   | 59.36  | 56.16  | 52.32  | 48.32  | 45.76  | 44     |        |
| Durian     | 136.96 | 139.84 | 133.12 | 116.16 | 109.28 | 116.64 | 109.76 | 106.88 | 106.4  | 103.84 | 104.96 | 106.72 | 113.12 |        |
| Mangosteen | 69.28  | 72.16  | 74.4   | 76.96  | 78.72  | 78.4   | 79.36  | 78.56  | 77.28  | 74.4   | 73.44  | 72.96  | 72     |        |
| Lychee     | 26.4   | 27.68  | 27.84  | 28.8   | 29.6   | 28.48  | 25.92  | 25.92  | 24.48  | 24.16  | 22.88  | 21.28  | 20.16  |        |
| Longkong   | 57.22  | 62.81  | 67.52  | 71.68  | 75.2   | 75.84  | 76.16  | 76.16  | 74.88  | 70.08  | 67.2   | 63.84  | 57.12  |        |

(Area:1000 ha)

## Analysis and processing of national data

### Estimation and forecasting

The original data was estimated and forecasted using linear extrapolation. Some data especially the data of 1990 were repeated the data of 2000 following the trend of the original data.

#### Oil palm

| Year           | 1990   | 2000   | 2010   | 2015  | 2020   |
|----------------|--------|--------|--------|-------|--------|
| Area (1000 ha) | 162.08 | 162.08 | 329.12 | 384.8 | 439.68 |

#### Coconut

| Year           | 1990   | 2000   | 2010   | 2015   | 2020  |
|----------------|--------|--------|--------|--------|-------|
| Area (1000 ha) | 399.52 | 311.52 | 285.12 | 276.32 | 270.4 |

#### Longan

| Year | 1990 | 2000 | 2010 | 2015 | 2020 |
|------|------|------|------|------|------|
|      |      |      |      |      |      |

|                |       |       |        |        |        |
|----------------|-------|-------|--------|--------|--------|
| Area (1000 ha) | 99.68 | 99.68 | 136.64 | 148.96 | 162.08 |
|----------------|-------|-------|--------|--------|--------|

**Rambutan**

|                |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|
| Year           | 1990  | 2000  | 2010  | 2015  | 2020  |
| Area (1000 ha) | 106.4 | 83.36 | 87.68 | 86.24 | 82.56 |

**Durian**

|                |       |       |        |        |        |
|----------------|-------|-------|--------|--------|--------|
| Year           | 1990  | 2000  | 2010   | 2015   | 2020   |
| Area (1000 ha) | 174.4 | 145.6 | 136.96 | 139.84 | 133.12 |

**Mangosteen**

|                |       |       |       |       |      |
|----------------|-------|-------|-------|-------|------|
| Year           | 1990  | 2000  | 2010  | 2015  | 2020 |
| Area (1000 ha) | 60.64 | 60.64 | 69.28 | 72.16 | 74.4 |

**Lychee**

|                |       |       |      |       |       |
|----------------|-------|-------|------|-------|-------|
| Year           | 1990  | 2000  | 2010 | 2015  | 2020  |
| Area (1000 ha) | 22.56 | 22.56 | 26.4 | 27.68 | 27.84 |

**Longkong**

|                |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|
| Year           | 1990  | 2000  | 2010  | 2015  | 2020  |
| Area (1000 ha) | 40.45 | 40.45 | 57.22 | 62.81 | 67.52 |

**Reclassification into FRA 2020 categories**

| Classifications and definitions | FRA categories |              |              |                       |       |
|---------------------------------|----------------|--------------|--------------|-----------------------|-------|
|                                 | Palm           | Tree orchard | Agroforestry | Tree in urban setting | Other |
| Oil palm                        | 100%           | 0%           | 0%           | 0%                    | 0%    |
| Coconut                         | 100%           | 0%           | 0%           | 0%                    | 0%    |
| Longan                          | 0%             | 100%         | 0%           | 0%                    | 0%    |
| Rambutan                        | 0%             | 100%         | 0%           | 0%                    | 0%    |
| Durian                          | 0%             | 100%         | 0%           | 0%                    | 0%    |
| Mangosteen                      | 0%             | 100%         | 0%           | 0%                    | 0%    |
| Lychee                          | 0%             | 100%         | 0%           | 0%                    | 0%    |
| Longkong                        | 0%             | 100%         | 0%           | 0%                    | 0%    |

| FRA categories                     | Area (1000 ha)   |                  |                  |                  |                  |
|------------------------------------|------------------|------------------|------------------|------------------|------------------|
|                                    | 1990             | 2000             | 2010             | 2015             | 2020             |
| Palms (a)                          | 562.00           | 474.00           | 614.00           | 661.00           | 710.00           |
| Tree orchards (b)                  | 481.00           | 452.00           | 514.00           | 538.00           | 548.00           |
| Agroforestry (c)                   |                  |                  |                  |                  |                  |
| Trees in urban settings (d)        |                  |                  |                  |                  |                  |
| Other (specify in comments)<br>(e) |                  |                  |                  |                  |                  |
| <b>Total (a+b+c+d+e)</b>           | <b>1 043.00</b>  | <b>926.00</b>    | <b>1 128.00</b>  | <b>1 199.00</b>  | <b>1 258.00</b>  |
| Other land area                    | <b>31 728.00</b> | <b>32 091.00</b> | <b>31 016.00</b> | <b>31 028.00</b> | <b>31 216.00</b> |

## Comments

## 2 Forest growing stock, biomass and carbon

### 2a Growing stock

#### National Data

##### Data sources + type of data source eg NFI, etc

| References to sources of information                                       | Year(s)                 | Additional comments |
|--|-------------------------|---------------------|
| FAO. 2001. Forest Plantations Thematic Papers: Non-forest Tree Plantations | all Fra reporting years |                     |
| DNP. 2012. National Forest Inventory 2009.                                 | all Fra reporting years |                     |

DNP: Department of National Parks, Wildlife and Plant Conservation

#### National classification and definitions

There are no national classification and definitions relevant to this table.

#### Original data

##### Natural Forest

Forest inventory conducted during 2003-2008 indicates the volume over bark per hectare of trees over 15 cm gbh (about 5 cm dbh) is 94.16 m<sup>3</sup>/ha.

| Region        | Forest Type            | Forest Area (ha)     | Volume (m <sup>3</sup> ) (gbh≥15 cm) | Volume (m <sup>3</sup> /ha) (gbh≥15 cm) |
|---------------|------------------------|----------------------|--------------------------------------|---|
| Whole country | Evergreen forest       | 4,642,201.10         | 669,655,721.64                       | 144.25                                  |
|               | Pine forest            | 62,057.02            | 7,950,390.43                         | 128.11                                  |
|               | Mixed deciduous forest | 7,604,250.37         | 549,377,897.90                       | 72.25                                   |
|               | Dry dipterocarp forest | 3,271,046.70         | 272,359,032.39                       | 83.26                                   |
|               | Other forest           | 51,5867.97           | 14,044,814.27                        | 27.23                                   |
|               | <b>Total</b>           | <b>16,219,357.13</b> | <b>1,527,295,126.88</b>              | <b>94.16</b>                            |

##### Rubber Plantation

FAO 2001 stated that "Available log volume for diameters above 15 cm ranges from 52 m<sup>3</sup> ha<sup>-1</sup> to 162 m<sup>3</sup> ha<sup>-1</sup> (assessed for nine cultivars by Gan et al. 1985)" in assessments a figure of 100 m<sup>3</sup> ha<sup>-1</sup> is normally used." Therefore, that figure is used to estimate growing stock of Planted forest in the report.

## Analysis and processing of national data

### Estimation and forecasting

The total growing stock of naturally regenerating forest and planted forest are calculated by multiplying the volume of 94.16 and 100 m<sup>3</sup>/ha respectively by the forest area of all FRA reporting years.

### Reclassification into FRA 2020 categories

It is unnecessary to do this step.

| FRA categories                   | Growing stock m <sup>3</sup> /ha (over bark) |        |        |        |        |        |        |        |        |
|----------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|
|                                  | 1990   | 2000   | 2010   | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   |
| Naturally regenerating forest    | 94.16  | 94.16  | 94.16  | 94.16  | 94.16  | 94.16  | 94.16  | 94.16  | 94.16  |
| Planted forest                   | 100.00                                       | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| ...of which plantation forest    | 100.00                                       | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| ...of which other planted forest | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| Forest                           | 94.68  | 94.77  | 95.10  | 95.24  | 95.23  | 95.22  | 95.21  | 95.21  | 95.20  |
| Other wooded land                | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |

| FRA categories                   | Total growing stock (million m <sup>3</sup> over bark) |          |          |          |          |          |          |          |          |
|----------------------------------|--|----------|----------|----------|----------|----------|----------|----------|----------|
|                                  | 1990   | 2000     | 2010     | 2015     | 2016     | 2017     | 2018     | 2019     | 2020     |
| Naturally regenerating forest    | 1 661.08   | 1 601.76 | 1 584.81 | 1 540.36 | 1 539.33 | 1 539.05 | 1 538.76 | 1 538.48 | 1 538.20 |
| Planted forest                   | 172.00   | 198.70   | 324.20   | 370.20   | 366.90   | 363.60   | 360.30   | 357.00   | 353.70   |
| ...of which plantation forest    | 172.00   | 198.70   | 324.20   | 370.20   | 366.90   | 363.60   | 360.30   | 357.00   | 353.70   |
| ...of which other planted forest | 0.00   | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     |
| Forest                           | 1 833.08   | 1 800.46 | 1 909.01 | 1 910.56 | 1 906.23 | 1 902.65 | 1 899.06 | 1 895.48 | 1 891.90 |
| Other wooded land                | 0.00   | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     |

## Comments

The growing stock volume of naturally regenerating forest is under estimated since the inventory is not including all the provinces and all the forest types.



## **2b Growing stock composition**

### **National Data**

**Data sources + type of data source eg NFI, etc**

-

**National classification and definitions**

-

**Original data**

-

### **Analysis and processing of national data**

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

| FRA categories                                 | Scientific name | Common name | Growing stock in forest (million m <sup>3</sup> over bark) |      |      |      |      |
|--|-----------------|-------------|--|------|------|------|------|
|  |                 |             | 1990   | 2000 | 2010 | 2015 | 2020 |
| <b>Native tree species</b>                     |                 |             |  |      |      |      |      |
| #1 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #2 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #3 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #4 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #5 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #6 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #7 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #8 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #9 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #10 Ranked in terms of volume                  |                 |             |  |      |      |      |      |
| <b>Remaining native tree species</b>           |                 |             |  |      |      |      |      |
| <b>Total volume of native tree species</b>     |                 |             | -  | -    | -    | -    |      |
| <b>Introduced tree species</b>                 |                 |             |  |      |      |      |      |
| #1 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #2 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #3 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #4 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| #5 Ranked in terms of volume                   |                 |             |  |      |      |      |      |
| <b>Remaining introduced tree species</b>       |                 |             |  |      |      |      |      |
| <b>Total volume of introduced tree species</b> |                 |             | -  | -    | -    | -    |      |
| <b>Total growing stock</b>                     |                 |             | -  | -    | -    | -    |      |

**Comments**

The data is not sufficient to rank the volume.

## 2c Biomass stock

### National Data

#### Data sources + type of data source eg NFI, etc

Data in this table is derived from the data of table 2a.

Biomass was estimated using FRA 2020 Excel calculator.

#### National classification and definitions

There are no national classification and definitions relevant to this table.

#### Original data

The biomass has been estimated based on growing stock data, table 2a.

### Analysis and processing of national data

#### Estimation and forecasting

Estimating and forecasting have been calculated following the data of table 2a and FRA excel calculator form for biomass.

#### Reclassification into FRA 2020 categories

| Region        | Forest Type            | Forest Area (ha)     | Volume (m <sup>3</sup> ) (gbh≥15 cm) | Volume (m <sup>3</sup> /ha) | FRA Forest Categories       | IPCC              |
|---------------|------------------------|----------------------|--------------------------------------|-----------------------------|-----------------------------|-------------------|
|               |                        |                      |                                      | (gbh≥15 cm)                 |                             |                   |
| Whole country | Evergreen forest       | 4,642,201.10         | 669,655,721.64                       | 144.25                      | Natural regenerating forest | Broadleaved humid |
|               | Pine forest            | 62,057.02            | 7,950,390.43                         | 128.11                      | Natural regenerating forest | Coniferous        |
|               | Mixed deciduous forest | 7,604,250.37         | 549,377,897.90                       | 72.25                       | Natural regenerating forest | Broadleaved humid |
|               | Dry dipterocarp forest | 3,271,046.70         | 272,359,032.39                       | 83.26                       | Natural regenerating forest | Broadleaved humid |
|               | Other forest           | 515,867.97           | 14,044,814.27                        | 27.23                       | Natural regenerating forest | Broadleaved humid |
|               | <b>Total</b>           | <b>16,219,357.13</b> | <b>1,527,295,126.88</b>              | <b>94.16</b>                |                             |                   |

| FRA categories       | Forest biomass (tonnes/ha) |        |        |        |        |        |        |        |        |
|----------------------|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 1990                       | 2000   | 2010   | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   |
| Above-ground biomass | 141.69                     | 141.83 | 142.35 | 142.56 | 142.55 | 142.54 | 142.53 | 142.51 | 142.50 |
| Below-ground biomass | 34.04                      | 34.07  | 34.19  | 34.24  | 34.24  | 34.24  | 34.24  | 34.23  | 34.23  |
| Dead wood            |                            |        |        |        |        |        |        |        |        |

### Comments

Biomass stock is under estimated since the inventory is not including all the provinces and all the forest types.

## 2d Carbon stock

### National Data

#### Data sources + type of data source eg NFI, etc

Data in this table is derived from the data of table 2a.

#### National classification and definitions

There are no national classification and definitions relevant to this table.

#### Original data

The biomass has been estimated based on growing stock data, table 2a.

### Analysis and processing of national data

#### Estimation and forecasting

Estimating and forecasting have been calculated following the data of table 2a and FRA excel calculator form for biomass.

| Insert the percentages of Growing stock by IPCC forest type for each of the FRA forest categories |                               |                   |                      |                     |      |      |      |      |      |
|---|-------------------------------|-------------------|----------------------|---------------------|------|------|------|------|------|
| IPCC forest types   | FRA forest categories         |                   |                      |                     |      |      |      |      |      |
|   | Naturally regenerating forest | Plantation forest | Other planted forest |                     |      |      |      |      |      |
|   | % of Growing stock            |                   |                      |                     |      |      |      |      |      |
| Broadleaved humid   | 99%                           | 100%              | 0%                   |                     |      |      |      |      |      |
| Broadleaved dry   | 0%                            | 0%                | 0%                   |                     |      |      |      |      |      |
| Coniferous  | 1%                            |                   | 0%                   |                     |      |      |      |      |      |
|   | 100%                          | 100%              | 0%                   | Must add up to 100% |      |      |      |      |      |
|   |                               |                   |                      |                     |      |      |      |      |      |
|   |                               |                   |                      |                     |      |      |      |      |      |
| Insert Carbon fraction used by country (IPCC default = 0.47)                                      |                               |                   |                      |                     |      |      |      |      |      |
| Carbon Fraction   | 47%                           |                   |                      |                     |      |      |      |      |      |
|   |                               |                   |                      |                     |      |      |      |      |      |
|   |                               |                   |                      |                     |      |      |      |      |      |
| Biomass conversion and expansion factors (BCEF)   |                               |                   |                      |                     |      |      |      |      |      |
|   |                               |                   |                      |                     |      |      |      |      |      |
| Naturally regenerating forest   | 1990                          | 2000              | 2010                 | 2015                | 2016 | 2017 | 2018 | 2019 | 2020 |
| Broadleaved humid   | 1.50                          | 1.50              | 1.50                 | 1.50                | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| Broadleaved dry   | 1.50                          | 1.50              | 1.50                 | 1.50                | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |

|                                      |             |             |             |             |             |             |             |             |             |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Coniferous                           | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        |
| <b>Plantation forest</b>             |             |             |             |             |             |             |             |             |             |
| Broadleaved humid                    | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        |
| Broadleaved dry                      | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        |
| Coniferous                           | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        | 0.76        |
| <b>Other planted forest</b>          |             |             |             |             |             |             |             |             |             |
| Broadleaved humid                    |             |             |             |             |             |             |             |             |             |
| Broadleaved dry                      |             |             |             |             |             |             |             |             |             |
| Coniferous                           |             |             |             |             |             |             |             |             |             |
| <b>Weighted BCEF</b>                 |             |             |             |             |             |             |             |             |             |
| Naturally regenerating forest        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        |
| Plantation forest                    | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        | 1.50        |
| Other planted forest                 |             |             |             |             |             |             |             |             |             |
|                                      |             |             |             |             |             |             |             |             |             |
|                                      |             |             |             |             |             |             |             |             |             |
| <b>Root-shoot ratios</b>             |             |             |             |             |             |             |             |             |             |
|                                      |             |             |             |             |             |             |             |             |             |
|                                      |             |             |             |             |             |             |             |             |             |
| <b>Naturally regenerating forest</b> | <b>1990</b> | <b>2000</b> | <b>2010</b> | <b>2015</b> | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> |
| Broadleaved humid                    | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        |
| Broadleaved dry                      | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        |
| Coniferous                           | 0.29        | 0.29        | 0.29        | 0.29        | 0.29        | 0.29        | 0.29        | 0.29        | 0.29        |
| <b>Plantation forest</b>             |             |             |             |             |             |             |             |             |             |
| Broadleaved humid                    | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        |
| Broadleaved dry                      | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        | 0.28        |
| Coniferous                           | 0.20        | 0.20        | 0.20        | 0.20        | 0.20        | 0.20        | 0.20        | 0.20        | 0.20        |
| <b>Other planted forest</b>          |             |             |             |             |             |             |             |             |             |
| Broadleaved humid                    |             |             |             |             |             |             |             |             |             |
| Broadleaved dry                      |             |             |             |             |             |             |             |             |             |
| Coniferous                           |             |             |             |             |             |             |             |             |             |
| <b>Weighted RS ratio</b>             |             |             |             |             |             |             |             |             |             |
| Naturally regenerating forest        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        |
| Plantation forest                    | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        | 0.24        |

|                                    |               |               |               |               |               |               |               |               |               |
|------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Other planted forest               |               |               |               |               |               |               |               |               |               |
|                                    |               |               |               |               |               |               |               |               |               |
|                                    |               |               |               |               |               |               |               |               |               |
| <b>Above-ground biomass (t/ha)</b> |               |               |               |               |               |               |               |               |               |
|                                    |               |               |               |               |               |               |               |               |               |
|                                    | <b>1990</b>   | <b>2000</b>   | <b>2010</b>   | <b>2015</b>   | <b>2016</b>   | <b>2017</b>   | <b>2018</b>   | <b>2019</b>   | <b>2020</b>   |
| Naturally regenerating forest      | 140.88        | 140.88        | 140.88        | 140.88        | 140.88        | 140.88        | 140.88        | 140.88        | 140.88        |
| Plantation forest                  | 150.00        | 150.00        | 150.00        | 150.00        | 150.00        | 150.00        | 150.00        | 150.00        | 150.00        |
| Other planted forest               |               |               |               |               |               |               |               |               |               |
| <b>Total</b>                       | <b>141.69</b> | <b>141.83</b> | <b>142.35</b> | <b>142.56</b> | <b>142.55</b> | <b>142.54</b> | <b>142.53</b> | <b>142.51</b> | <b>142.50</b> |
|                                    |               |               |               |               |               |               |               |               |               |
|                                    |               |               |               |               |               |               |               |               |               |
| <b>Below-ground biomass (t/ha)</b> |               |               |               |               |               |               |               |               |               |
|                                    |               |               |               |               |               |               |               |               |               |
|                                    | <b>1990</b>   | <b>2000</b>   | <b>2010</b>   | <b>2015</b>   | <b>2016</b>   | <b>2017</b>   | <b>2018</b>   | <b>2019</b>   | <b>2020</b>   |
| Naturally regenerating forest      | 33.85         | 33.85         | 33.85         | 33.85         | 33.85         | 33.85         | 33.85         | 33.85         | 33.85         |
| Plantation forest                  | 36.00         | 36.00         | 36.00         | 36.00         | 36.00         | 36.00         | 36.00         | 36.00         | 36.00         |
| Other planted forest               |               |               |               |               |               |               |               |               |               |
| <b>Total</b>                       | <b>34.04</b>  | <b>34.07</b>  | <b>34.19</b>  | <b>34.24</b>  | <b>34.24</b>  | <b>34.24</b>  | <b>34.24</b>  | <b>34.23</b>  | <b>34.23</b>  |

### Reclassification into FRA 2020 categories

Data in this table is derived from FRA excel calculator form for biomass.

| FRA categories                 | Forest carbon (tonnes/ha) |       |       |       |       |       |       |       |       |  |
|--------------------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|                                | 1990                      | 2000  | 2010  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  |  |
| Carbon in above-ground biomass | 66.59                     | 66.66 | 66.90 | 67.00 | 67.00 | 66.99 | 66.99 | 66.98 | 66.98 |  |
| Carbon in below-ground biomass | 16.00                     | 16.01 | 16.07 | 16.09 | 16.09 | 16.09 | 16.09 | 16.09 | 16.09 |  |
| Carbon in dead wood            |                           |       |       |       |       |       |       |       |       |  |
| Carbon in litter               |                           |       |       |       |       |       |       |       |       |  |
| Soil carbon                    |                           |       |       |       |       |       |       |       |       |  |

|  |  |
|--|--|
| Soil depth (cm) used for soil carbon estimates |  |
|--|--|

## Comments



## 3 Forest designation and management

### 3a Designated management objective

#### National Data

##### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments                                   |
|--|-----------|---|
| RFD 2018. Forestry Statistics Data 2017<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 2000-2017 | Forest area classified from satellite imageries       |
| RAT<br>Para rubber database system (online: availabel at<br><a href="http://emarket.raot.co.th/rdu/#il_14_128_134">http://emarket.raot.co.th/rdu/#il_14_128_134</a> ; access october 2018)     | 1996-2007 | Rubber plantation area                                |
| OAE 2017. Agricultural Statistics of Thailand 2017   | 2008-2016 | Rubber plantation classified from satellite imageries |

RFD: Royal Forest Department, RAT: Rubber Authority of Thailand, OAE: Office of Agricultural Economics

#### National classification and definitions

Existing forest area: Land with vegetation, natural and plantaion, cover and span more than 0.5 hectares which can be classified by satellite imagery. Land that predominantly covered with agroforestry, agriculture and urban land use are not included in the definition of forest.

#### Original data

The data used in this table is the same as in table1a.

### Analysis and processing of national data

#### Estimation and forecasting

The data used in this table is the same as in table1a.

#### Reclassification into FRA 2020 categories

The data used in this table is the same as in table1a.

**Primary designated management objective**

| FRA 2020 categories              | Forest area (1000 ha) |                  |                  |                  |                  |
|----------------------------------|-----------------------|------------------|------------------|------------------|------------------|
|                                  | 1990                  | 2000             | 2010             | 2015             | 2020             |
| Production (a)                   | 1 720.00              | 1 987.00         | 3 242.00         | 3 702.00         | 3 537.00         |
| Protection of soil and water (b) | 0.00                  | 0.00             | 0.00             | 0.00             | 0.00             |
| Conservation of biodiversity (c) | 17 641.00             | 17 011.00        | 16 831.00        | 16 359.00        | 16 336.00        |
| Social Services (d)              | 0.00                  | 0.00             | 0.00             | 0.00             | 0.00             |
| Multiple use (e)                 | 0.00                  | 0.00             | 0.00             | 0.00             | 0.00             |
| Other (specify in comments) (f)  | 0.00                  | 0.00             | 0.00             | 0.00             | 0.00             |
| None/unknown (g)                 | 0.00                  | 0.00             | 0.00             | 0.00             | 0.00             |
| <b>Total forest area</b>         | <b>19 361.00</b>      | <b>18 998.00</b> | <b>20 073.00</b> | <b>20 061.00</b> | <b>19 873.00</b> |

**Total area with designated management objective**

| FRA 2020 categories          | Forest area (1000 ha) |           |           |           |           |
|------------------------------|-----------------------|-----------|-----------|-----------|-----------|
|                              | 1990                  | 2000      | 2010      | 2015      | 2020      |
| Production                   | 1 720.00              | 1 987.20  | 3 242.24  | 3 702.40  | 3 536.80  |
| Protection of soil and water | 17 641.03             | 17 011.08 | 16 830.79 | 16 358.56 | 16 336.16 |
| Conservation of biodiversity | 17 641.03             | 17 011.08 | 16 830.79 | 16 358.56 | 16 336.16 |
| Social Services              | 17 641.03             | 17 011.08 | 16 830.79 | 16 358.56 | 16 336.16 |
| Other (specify in comments)  |                       |           |           |           |           |

**Comments**

## 3b Forest area within protected areas and forest area with long-term management plans

### National Data

#### Data sources + type of data source eg NFI, etc

The area of national park

#### National classification and definitions

-

#### Original data

-

### Analysis and processing of national data

#### Estimation and forecasting

The data is insufficient to report this table.

#### Reclassification into FRA 2020 categories

The data is insufficient to report this table.

| FRA categories                                    | Area (1000 ha) |      |      |      |      |      |      |      |      |
|---|----------------|------|------|------|------|------|------|------|------|
|   | 1990           | 2000 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Forest area within protected areas                |                |      |      |      |      |      |      |      |      |
| Forest area with long-term forest management plan |                |      |      |      |      |      |      |      |      |
| ...of which in protected areas                    |                |      |      |      |      |      |      |      |      |

## Comments

## 4 Forest ownership and management rights

### 4a Forest ownership

#### National Data

##### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments                                   |
|--|-----------|---|
| RFD 2018. Forestry Statistics Data 2017<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 2000-2017 | Forest area classified from satellite imageries       |
| RAT<br>Para rubber database system (online: availabel at<br><a href="http://emarket.raot.co.th/rdu/#il_14_128_134">http://emarket.raot.co.th/rdu/#il_14_128_134</a> ; access october 2018)     | 1996-2007 | Rubber plantation area                                |
| OAE 2017. Agricultural Statistics of Thailand 2017   | 2008-2016 | Rubber plantation classified from satellite imageries |

RFD: Royal Forest Department, RAT: Rubber Authority of Thailand, OAE: Office of Agricultural Economics

##### National classification and definitions

There are no national classification and definitions relevant to this table.

##### Original data

The data in table 1a is used in this table.

#### Analysis and processing of national data

##### Estimation and forecasting

The data in table 1a is used in this table.

##### Reclassification into FRA 2020 categories

It is unnecessary to do this step.

| FRA categories  | Forest area (1000 ha) |                  |                  |                  |
|---|-----------------------|------------------|------------------|------------------|
|   | 1990                  | 2000             | 2010             | 2015             |
| Private ownership (a)   | 1 720.00              | 1 987.00         | 3 242.00         | 3 702.00         |
| ...of which owned by individuals                                |                       |                  |                  |                  |
| ...of which owned by private business entities and institutions |                       |                  |                  |                  |
| ...of which owned by local, tribal and indigenous communities   |                       |                  |                  |                  |
| Public ownership (b)  | 17 641.00             | 17 011.00        | 16 831.00        | 16 359.00        |
| Unknown/other (specify in comments) (c)                         | 0.00                  | 0.00             | 0.00             | 0.00             |
| <b>Total forest area</b>  | <b>19 361.00</b>      | <b>18 998.00</b> | <b>20 073.00</b> | <b>20 061.00</b> |

### Comments

All forest area, under the national definition, in Thailand belongs to the state. The rubber plantation is considered under the private ownership.

## 4b Holder of management rights of public forests

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments                             |
|--|-----------|---|
| Royal Forest Department<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 2000-2017 | Forest area classified from satellite imageries |

RFD: Royal Forest Department

#### National classification and definitions

There are no national classification and definitions relevant to this table.

#### Original data

The data in table 1a is used in this table.

### Analysis and processing of national data

#### Estimation and forecasting

The data in table 1a is used in this table.

#### Reclassification into FRA 2020 categories

It is unnecessary to do this step.

| FRA categories                                 | Forest area (1000 ha) |                  |                  |                  |
|--|-----------------------|------------------|------------------|------------------|
|  | 1990                  | 2000             | 2010             | 2015             |
| Public Administration (a)                      | 17 641.00             | 17 011.00        | 16 831.00        | 16 342.56        |
| Individuals (b)                                | 0.00                  | 0.00             | 0.00             |                  |
| Private business entities and institutions (c) | 0.00                  | 0.00             | 0.00             |                  |
| Local, tribal and indigenous communities (d)   | 0.00                  | 0.00             | 0.00             |                  |
| Unknown/other (specify in comments) (e)        | <b>0.00</b>           | <b>0.00</b>      | <b>0.00</b>      | <b>16.44</b>     |
| Total public ownership                         | <b>17 641.00</b>      | <b>17 011.00</b> | <b>16 831.00</b> | <b>16 359.00</b> |

### Comments

Even though the government allows community to exploit forest resources under the term of community forest, the forest still belong to the state and will not be allocated to the community.



## 5 Forest disturbances

### 5a Disturbances

#### National Data

##### Data sources + type of data source eg NFI, etc

There is no data to report this table.

##### National classification and definitions

There are no national classification and definitions relevant to this table.

##### Original data

There is no data to report this table.

#### Analysis and processing of national data

##### Estimation and forecasting

There is no data to report this table.

##### Reclassification into FRA 2020 categories

There is no data to report this table.

| FRA categories                  | Area (1000 ha)   |      |      |      |      |      |      |      |      |      |                  |      |      |      |      |                  |                  |                  |
|---------------------------------|------------------|------|------|------|------|------|------|------|------|------|------------------|------|------|------|------|------------------|------------------|------------------|
|                                 | 2000             | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010             | 2011 | 2012 | 2013 | 2014 | 2015             | 2016             | 2017             |
| Insects (a)                     |                  |      |      |      |      |      |      |      |      |      |                  |      |      |      |      |                  |                  |                  |
| Diseases (b)                    |                  |      |      |      |      |      |      |      |      |      |                  |      |      |      |      |                  |                  |                  |
| Severe weather events (c)       |                  |      |      |      |      |      |      |      |      |      |                  |      |      |      |      |                  |                  |                  |
| Other (specify in comments) (d) |                  |      |      |      |      |      |      |      |      |      |                  |      |      |      |      |                  |                  |                  |
| <b>Total (a+b+c+d)</b>          | -                | -    | -    | -    | -    | -    | -    | -    | -    | -    | -                | -    | -    | -    | -    | -                | -                | -                |
| Total forest area               | <b>18 998.00</b> | -    | -    | -    | -    | -    | -    | -    | -    | -    | <b>20 073.00</b> | -    | -    | -    | -    | <b>20 061.00</b> | <b>20 017.00</b> | <b>19 981.00</b> |

## Comments

## 5b Area affected by fire

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information  | Year(s)   | Additional comments  |
|---|-----------|--|
| DNP:<br><a href="http://www.dnp.go.th/forestfire/web/frame/statistic.html">http://www.dnp.go.th/forestfire/web/frame/statistic.html</a> | 2000-2009 | Forest area was burned by fire according to the reports of Forest Fire Control Stations of the DNP (whole country).      |
| DNP 2015. Statistical Data 2014   | 2010-2011 | Forest area was burned by fire according to the reports of Forest Fire Control Stations of the DNP (whole country).      |
| DNP 2017. Statistical Data 2016   | 2012-2016 | Forest area, managed by the DNP, was burned by fire according to the reports of Forest Fire Control Stations of the DNP. |
| RFD 2016. Forestry Statistics Data 2015.  | 2015      | Forest area, managed by the RFD, was burned by fire according to the reports of Forest Fire Control Stations of the RFD. |
| RFD 2015. Forestry Statistics Data 2014.  | 2014      | Forest area, managed by the RFD, was burned by fire according to the reports of Forest Fire Control Stations of the RFD. |
| RFD 2014. Forestry Statistics Data 2013.  | 2013      | Forest area, managed by the RFD, was burned by fire according to the reports of Forest Fire Control Stations of the RFD. |
| RFD 2013. Forestry Statistics Data 2012.  | 2012      | Forest area, managed by the RFD, was burned by fire according to the reports of Forest Fire Control Stations of the RFD. |
| Forest Protection and Fire Control Bureau 2018. Forest fire data of the RFD 2017. (Official contact)                                    | 2017      | Forest area, managed by the RFD, was burned by fire according to the reports of Forest Fire Control Stations of the RFD. |
| DNP:<br><a href="http://www.dnp.go.th/forestfire/web/frame/statistic.html">http://www.dnp.go.th/forestfire/web/frame/statistic.html</a> | 2017      | Forest area, managed by the DNP, was burned by fire according to the reports of Forest Fire Control Stations of the DNP. |
| DNP 2004. Statistical Data 2003   | 2000-2002 | Forest area affected by fire based on satellite images (whole country).  |
| FRA-Geospatial tools  | 2017      | Total burned area.   |

RFD : Royal Forest Department

DNP : Department of National Parks, Wildlife and Plant Conservation

#### National classification and definitions

There are no national classification and definitions relevant to this table.

#### Original data

##### A. Total land area affected by fire

The data of total land area affected by fire is derived from FRA geospatial portal.

##### B. Forest area affected by fire

The data of forest area affected by fire were collected by the forest fire control units of the Royal Forest Department (RFD) and the Department of National parks, Wildlife and Plant Conservation (DNP). During the years 2000-2011 the RFD and DNP use the same figure that was collected from all forest area affected by fire.

| Forest area affected by fire of RFD/DNP         |           |            |           |           |           |           |           |           |          |           |          |
|---|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|
| 2000  | 2001      | 2002       | 2003      | 2004      | 2005      | 2006      | 2007      | 2008      | 2009     | 2010      | 2011     |
| 26,587.89                                       | 76,188.79 | 139,388.98 | 15,763.63 | 32,281.26 | 30,284.21 | 8,621.60  | 18,783.23 | 11,329.60 | 9,773.38 | 13,308.10 | 4,078.26 |
| Forest area affected by fire (ha <sup>1</sup> ) |           | Year       |           |           |           |           |           |           |          |           |          |
|   |           | 2012       | 2013      | 2014      | 2015      | 2016      | 2017      |           |          |           |          |
| DNP   |           | 7,663.87   | 9,362.70  | 8,115.68  | 9,672.50  | 20,143.36 | 12,067.04 |           |          |           |          |

|              |                 |                 |                 |                 |                 |                 |
|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| RFD          | 5,475.20        | 2,429.12        | 2,422.40        | 6,906.40        | 10,013.44       | 6,034.24        |
| <b>Total</b> | <b>13,139.1</b> | <b>11,791.8</b> | <b>10,538.1</b> | <b>16,578.9</b> | <b>30,156.8</b> | <b>18,101.3</b> |

## Analysis and processing of national data

### Estimation and forecasting

It is unnecessary to do this step.

### Reclassification into FRA 2020 categories

It is unnecessary to do this step.

| FRA categories                   | Area (1000 ha) |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |        |          |
|----------------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|----------|
|                                  | 2000           | 2001   | 2002   | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   | 2013   | 2014   | 2015  | 2016   | 2017     |
| Total land area affected by fire | 150.76         | 688.78 | 696.04 | 392.57 | 670.85 | 720.96 | 302.84 | 564.47 | 144.34 | 280.91 | 276.62 | 164.97 | 129.30 | 117.23 | 121.48 | 87.20 | 220.69 | 2 357.63 |
| ...of which on forest            | 26.59          | 26.98  | 40.54  | 15.76  | 32.28  | 30.28  | 8.62   | 18.78  | 11.33  | 9.77   | 13.31  | 4.08   | 13.14  | 11.89  | 10.54  | 16.58 | 30.16  | 18.10    |

### Comments

The total burning area in 2017 Thailand monitored by GISTDA using satellite images from Landsat 8 during 1 Jan.-31 May 2017, hot season showed that the area of 14,735,247 rais (6.25 rais = 1 hectare) were burnt across the country . The report is in Thai language.

## 5c Degraded forest

|  |   |    |
|--|---|----|
| <b>Does your country monitor area of degraded forest</b> |   | No |
| If "yes"   | What is the national definition of "Degraded forest"? |    |
|  | Describe the monitoring process and results           |    |

### Comments

## 6 Forest policy and legislation

### 6a Policies, Legislation and national platform for stakeholder participation in forest policy

#### National Data

##### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)      | Additional comments |
|--|--------------|---------------------|
| Government Gazette 2016. Notification on the Twelfth National Economic and Social Development Plan (2017-2021). (Book 113, Chapter 115a, 30 December 2016) | 2017-2021    |                     |
| Government Gazette 2017. Constitution of the Kingdom of Thailand 2017.   | 2017 ongoing |                     |
| RFD 2017. Royal Forest Department 20-Year Strategy (2017-2036).  |              |                     |
| Government Gazette 2018. National Strategy (2018-2037)   |              |                     |
| Government Gazette 2018. Nation Reform Plan.   |              |                     |
| Forest Act B.E. 2484 (1941)  |              |                     |

##### National classification and definitions

There is no national classification and definitions relevant to this table.

##### Original data

There is no original data.

| Indicate the existence of   | Boolean (Yes/No) |              |
|---|------------------|--------------|
|   | National         | Sub-national |
| Policies supporting SFM   | Yes              | No           |
| Legislations and regulations supporting SFM   | Yes              | No           |
| Platform that promotes or allows for stakeholder participation in forest policy development | Yes              | No           |
| Traceability system(s) for wood products  | Yes              | No           |

## Comments



## 6b Area of permanent forest estate

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information   | Year(s)   | Additional comments                             |
|--|-----------|---|
| RFD<br><a href="http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf">http://forestinfo.forest.go.th/Content/file/stat2560/Table%201.pdf</a> | 2000-2017 | Forest area classified from satellite imageries |

RFD: Royal Forest Department

#### National classification and definitions

There is no national classification and definitions relevant to this table.

#### Original data

The data in table 1a is used in this table.

| FRA 2020 categories             | Forest area (1000 ha) |           |           |           |           |           |
|---------------------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|
|                                 | Applicable?           | 1990      | 2000      | 2010      | 2015      | 2020      |
| Area of permanent forest estate | Yes                   | 17 641.03 | 17 011.08 | 16 830.79 | 16 358.56 | 16 336.16 |

### Comments

National Forest Policy defines 40% of the country area be maintained as forest area. Now the forest area is 31.5% of the country area approximately. To meet the goal, the country tries to stop deforestation and also tries to restore and promote forest plantation.

## 7 Employment, education and NWFP

### 7a Employment in forestry and logging

#### National Data

##### Data sources + type of data source eg NFI, etc

| References to sources of information                                   | Year(s)                                    | Additional comments |
|--|--|---------------------|
| RFD 1992. Forestry Statistics of Thailand                              | 1989-1991, 1999-2001                       |                     |
| RFD  |  |                     |
| OCSC 2011. Manpower in Government Sector.                              | 2010-2011, 2014-2016                       |                     |
| NSO 2018. Employment in forestry of private sector. (Official contact) | 1989-1991, 1999-2001, 2009-2011, 2014-2016 |                     |
| DNP Statistical Data   | 2011, 2014-2015                            |                     |
| DNP Recorded data on Manpower (Official contact)                       | 2016                                       |                     |
| Public Sector Development, RFD Organization and Manpower Chart         | 2014, 2016                                 |                     |
| Forest Industry Organization, Data on Manpower (Official contact)      |  |                     |

RFD: Royal Forest Department

OCSC: Office of the Civil Service Commission

NSO: National Statistical Office

DNP: Department of National Parks, Wildlife and Plant Conservation

#### National classification and definitions

There is no national classification and definitions relevant to this table.

#### Original data

|                                    | 1989      | 1990      | 1991      | 1999       | 2000       | 2001        | 2009        | 2010        | 2011        | 2014        | 2015        | 2016        |
|------------------------------------|-----------|-----------|-----------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Employment in forestry and logging | 56,028.06 | 58,183.06 | 57,857.44 | 121,493.09 | 102,357.61 | 196,399.066 | 272,852.107 | 207,823.905 | 203,001.881 | 226,400.317 | 212,536.838 | 210,722.499 |

| FRA 2020 categories                                    | Full-time equivalents (1000 FTE) |        |      |        |        |      |        |        |      |        |        |      |
|--|----------------------------------|--------|------|--------|--------|------|--------|--------|------|--------|--------|------|
|  | 1990                             |        |      | 2000   |        |      | 2010   |        |      | 2015   |        |      |
|  | Total                            | Female | Male | Total  | Female | Male | Total  | Female | Male | Total  | Female | Male |
| Employment in forestry and logging                     | 57.36                            |        |      | 140.08 |        |      | 227.89 |        |      | 216.55 |        |      |
| ...of which silviculture and other forestry activities |                                  |        |      |        |        |      |        |        |      |        |        |      |
| ...of which logging                                    |                                  |        |      |        |        |      |        |        |      |        |        |      |
| ...of which gathering of non wood forest products      |                                  |        |      |        |        |      |        |        |      |        |        |      |
| ...of which support services to forestry               |                                  |        |      |        |        |      |        |        |      |        |        |      |

### Comments

The data of employment in forestry and logging were compiled from three sectors: public sector, state enterprise, and private sector. However, there were no data available from state enterprise in 1989-2001.

## 7b Graduation of students in forest-related education

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information                               | Year(s)                                    | Additional comments  |
|--|--|--|
| Department of National Park, Wildlife and Plant Conservation 2018. | 1989, 1990, 1991                           | Survey forms for diploma graduation in forestry field of Phrae Forestry School. (Official contact) |
| Faculty of Forestry, Kasetsart University 2018.                    | 1989-1991, 1999-2001, 2009-2011, 2014-2016 | Survey forms for university education in forestry field. (Official contact)                        |

#### National classification and definitions

| National class            | Definition  |
|---------------------------|---|
| Doctoral degree           | University education which takes duration of not over than eight years after Bachelor's degree or equivalence or not over than six years after Master's degree or equivalence. (Notification of Ministry of Education on Curriculum Standard of Graduate Education 2015, Government Gazette, Book 132, Special Chapter 295 D, Dated 13 November 2015) |
| Master's degree           | University education which takes duration of not over than five years after Bachelor's degree or equivalence. (Notification of Ministry of Education on Curriculum Standard of Graduate Education 2015, Government Gazette, Book 132, Special Chapter 295 D, Dated 13 November 2015)  |
| Bachelor's degree         | University education which takes duration of four, five or not less than six years after secondary education or two years in continuous curriculum after Diploma. (Notification of Ministry of Education on Curriculum Standard of Undergraduate Education 2015, Government Gazette, Book 132, Special Chapter 295 D, Dated 13 November 2015)         |
| Higher vocational diploma | Higher study in vocational education which takes duration of two years after certificate vocational education or secondary education or equivalence. (Notification of Ministry of Education on Curriculum Standard of Higher Vocational Education 2013, Government Gazette, Book 130, Special Chapter 31 D, Dated 8 March 2013)                       |

#### Original data

|                                | Year  |    |     |       |    |     |       |    |     |       |    |    |       |    |    |       |    |     |       |    |    |       |     |    |       |     |    |       |     |    |       |    |    |      |     |    |
|--------------------------------|-------|----|-----|-------|----|-----|-------|----|-----|-------|----|----|-------|----|----|-------|----|-----|-------|----|----|-------|-----|----|-------|-----|----|-------|-----|----|-------|----|----|------|-----|----|
|                                | 1989  |    |     | 1990  |    |     | 1991  |    |     | 1999  |    |    | 2000  |    |    | 2001  |    |     | 2009  |    |    | 2010  |     |    | 2011  |     |    | 2014  |     |    | 2015  |    |    | 2016 |     |    |
|                                | Total | F  | M   | Total | F  | M   | Total | F  | M   | Total | F  | M  | Total | F  | M  | Total | F  | M   | Total | F  | M  | Total | F   | M  | Total | F   | M  | Total | F   | M  | Total | F  | M  |      |     |    |
| Doctoral degree                | 0     | 0  | 0   | 0     | 0  | 0   | 0     | 0  | 0   | 2     | 1  | 1  | 3     | 1  | 2  | 5     | 1  | 4   | 1     | 0  | 1  | 0     | 0   | 0  | 2     | 0   | 2  | 4     | 2   | 2  | 5     | 3  | 2  | 2    | 1   | 1  |
| Master's degree                | 28    | 9  | 19  | 26    | 10 | 16  | 19    | 2  | 17  | 46    | 17 | 29 | 42    | 8  | 34 | 69    | 16 | 53  | 52    | 27 | 25 | 78    | 30  | 48 | 83    | 40  | 43 | 66    | 24  | 42 | 60    | 30 | 30 | 51   | 33  | 18 |
| Bachelor's degree              | 95    | 11 | 84  | 91    | 17 | 74  | 101   | 18 | 83  | 130   | 49 | 81 | 140   | 57 | 83 | 180   | 62 | 118 | 166   | 89 | 77 | 211   | 133 | 78 | 236   | 145 | 91 | 201   | 117 | 84 | 171   | 98 | 73 | 247  | 155 | 92 |
| Technician certificate/diploma | 199   | 0  | 199 | 199   | 0  | 199 | 197   | 0  | 197 |       |    |    |       |    |    |       |    |     |       |    |    |       |     |    |       |     |    |       |     |    |       |    |    |      |     |    |

The discipline of Forestry Technician School had been ended around the year 1995.

| FRA 2020 categories              | Number of graduated students |        |        |        |        |        |        |        |        |        |        |        |
|----------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                  | 1990                         |        |        | 2000   |        |        | 2010   |        |        | 2015   |        |        |
|                                  | Total                        | Female | Male   | Total  | Female | Male   | Total  | Female | Male   | Total  | Female | Male   |
| Doctoral degree                  | 0.00                         | 0.00   | 0.00   | 3.00   | 1.00   | 2.00   | 1.00   | 0.00   | 1.00   | 4.00   | 2.00   | 2.00   |
| Master's degree                  | 24.00                        | 7.00   | 17.00  | 52.00  | 13.00  | 39.00  | 71.00  | 32.00  | 39.00  | 59.00  | 29.00  | 30.00  |
| Bachelor's degree                | 95.00                        | 15.00  | 80.00  | 150.00 | 56.00  | 94.00  | 204.00 | 122.00 | 82.00  | 206.00 | 123.00 | 83.00  |
| Technician certificate / diploma | 198.00                       | 0.00   | 198.00 | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| Total                            | 317.00                       | 22.00  | 295.00 | 205.00 | 70.00  | 135.00 | 276.00 | 154.00 | 122.00 | 269.00 | 154.00 | 115.00 |

## Comments

## 7c Non wood forest products removals and value 2015

### National Data

#### Data sources + type of data source eg NFI, etc

| References to sources of information               | Year(s) | Additional comments |
|--|---------|---------------------|
| OAE 2017. Agricultural Statistics of Thailand 2017 | 2015    |                     |

OAE: Office of Agricultural Economics

#### National classification and definitions

There is no national classification and definitions relevant to this table.

#### Original data

| Year | Planted area (1000 rais) | Harvested area (1000 rais) | Production (1000 tons) | Yield per rai (kg.) | Farm gate price (Baht per kg.) | Farm gate value (Million baht) |
|------|--------------------------|----------------------------|------------------------|---------------------|--------------------------------|--------------------------------|
| 2015 | 23,140                   | 18,426                     | 4,414                  | 240                 | 4,417                          | 194,966                        |

6.25 rais = 1 ha

|                                  | Name of NWFP product | Key species | Quantity | Unit      | Value (1000 local currency) | NWFP category |
|----------------------------------|----------------------|-------------|----------|-----------|-----------------------------|---------------|
| #1                               | Latex                | Para rubber | 4 414    | 1000 tons | 195                         | 7 Exudates    |
| #2                               |                      |             |          |           |                             |               |
| #3                               |                      |             |          |           |                             |               |
| #4                               |                      |             |          |           |                             |               |
| #5                               |                      |             |          |           |                             |               |
| #6                               |                      |             |          |           |                             |               |
| #7                               |                      |             |          |           |                             |               |
| #8                               |                      |             |          |           |                             |               |
| #9                               |                      |             |          |           |                             |               |
| #10                              |                      |             |          |           |                             |               |
| <b>All other plant products</b>  |                      |             |          |           |                             |               |
| <b>All other animal products</b> |                      |             |          |           |                             |               |
| <b>Total</b>                     |                      |             |          |           | <b>195</b>                  |               |

|                         |      |
|-------------------------|------|
| <b>Name of currency</b> | Baht |
|-------------------------|------|

### Comments

There are no other NWFP quantity and value collected at the forest gate.



## 8 Sustainable Development Goal 15

### 8a Sustainable Development Goal 15

#### SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

| Indicator   | Percent |       |       |       |       |       |       |       |
|---|---------|-------|-------|-------|-------|-------|-------|-------|
|   | 2000    | 2010  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  |
| Forest area as proportion of total land area 2015 | 37.19   | 39.29 | 39.27 | 39.18 | 39.11 | 39.04 | 38.97 | 38.90 |

|                            |  |
|----------------------------|--|
| Name of agency responsible |  |
|----------------------------|--|

#### SDG Indicator 15.2.1 Progress towards sustainable forest management

| Sub-Indicator 1                    | Percent   |           |           |           |           |           |           |
|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                    | 2000-2010 | 2010-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 |
| Forest area annual net change rate | 0.55      | -0.01     | -0.22     | -0.18     | -0.18     | -0.18     | -0.18     |

|                            |  |
|----------------------------|--|
| Name of agency responsible |  |
|----------------------------|--|

| Sub-Indicator 2                      | Forest biomass (tonnes/ha) |        |        |        |        |        |        |        |
|--------------------------------------|----------------------------|--------|--------|--------|--------|--------|--------|--------|
|                                      | 2000                       | 2010   | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   |
| Above-ground biomass stock in forest | 141.83                     | 142.35 | 142.56 | 142.55 | 142.54 | 142.53 | 142.51 | 142.50 |

|                            |  |
|----------------------------|--|
| Name of agency responsible |  |
|----------------------------|--|

| Sub-Indicator 3  | Percent (2015 forest area baseline) |      |      |      |      |      |      |      |
|--|-------------------------------------|------|------|------|------|------|------|------|
|  | 2000                                | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Proportion of forest area located within legally established protected areas | -                                   | -    | -    | -    | -    | -    | -    | -    |

|                            |  |
|----------------------------|--|
| Name of agency responsible |  |
|----------------------------|--|

| Sub-Indicator 4  | Percent (2015 forest area baseline) |      |      |      |      |      |      |      |
|--|-------------------------------------|------|------|------|------|------|------|------|
|  | 2000                                | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| Proportion of forest area under long-term forest management plan | -                                   | -    | -    | -    | -    | -    | -    | -    |

|                            |  |
|----------------------------|--|
| Name of agency responsible |  |
|----------------------------|--|

| Sub-Indicator 5  | Forest area (1000 ha) |      |       |       |       |       |      |      |
|--|-----------------------|------|-------|-------|-------|-------|------|------|
|  | 2000                  | 2010 | 2015  | 2016  | 2017  | 2018  | 2019 | 2020 |
| Forest area under independently verified forest management certification schemes | 0.00                  | 7.64 | 44.24 | 61.80 | 63.37 | 56.88 | -    | -    |