

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

China

Rome, 2014

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Global Forest Resources Assessment (FRA). This country report is prepared as a contribution to the FAO publication, the Global Forest Resources Assessment 2015 (FRA 2015).

The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guide for country reporting for FRA 2015 (<http://www.fao.org/3/a-au190e.pdf>). These reports were submitted to FAO as official government documents.

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TABLE OF CONTENTS

Report preparation and contact persons.....	4
1. What is the area of forest and other wooded land and how has it changed over time?	10
2. What is the area of natural and planted forest and how has it changed over time?	25
3. What are the stocks and growth rates of the forests and how have they changed?	32
4. What is the status of forest production and how has it changed over time?	44
5. How much forest area is managed for protection of soil and water and ecosystem services?	55
6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?	61
7. What is the area of forest affected by woody invasive species?	66
8. How much forest area is damaged each year?	69
9. What is the forest area with reduced canopy cover?	76
10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?	77
11. Is there a national platform that promotes stakeholder participation in forest policy development?	81
12. What is the forest area intended to be in permanent forest land use and how has it changed over time?	83
13. How does your country measure and report progress towards SFM at the national level?	86
14. What is the area of forest under a forest management plan and how is this monitored?	89
15. How are stakeholders involved in the management decision making for publicly owned forests?	92
16. What is the area of forest under an independently verified forest certification scheme?	93
17. How much money do governments collect from and spend on forests?	96
18. Who owns and manages the forests and how has this changed?	98
19. How many people are directly employed in forestry?	104
20. What is the contribution of forestry to Gross Domestic Product (GDP)?	107
21. What is forest area likely to be in the future	109

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Introductory Text

Place an introductory text on the content of this report

China government actively participates in the global forest resources assessment activities. According to the request from FAO, national correspondents have been nominated by the State Forestry Administration (SFA) since 2000. SFA has participated in FRA2000, FRA2005 and FRA2010 on behalf of China government, and submitted the national reports about latest forest resources cultivation and the progress of forestry development in China. The high-quality country report and RSS data are produced which were fully evaluated and globally pronounced by FAO.

The SFA attaches great importance to FRA2015. Aiming at solid completion of country reporting for FRA2015, the relevant 13 departments and agencies of SFA completely participated in it to take on the thematic assessment task, and compile thematic assessment report according to the requirements and format from FAO. Fulfilling the timetable of FRA2015 made by FAO and the actual conditions of forestry monitoring & statistics in China, special investigations, data collection, thematic analysis, thematic reports preparation, national report compilation, forestry agencies consultation and expert validation have been carried out since May 2013. The country report was formatted aiming at provision of the basis for FAO to evaluate the process of China reporting and understand the achievements of forest resources protection and development since 1990s.

The general situation of forestry monitoring & statistics in China

Forestry monitoring is the basic and important component of forestry development, aiming at identification of forestry resources and its management situations. It is gradually strengthened since the inventory for forest management at management units was started in the state-owned forest region in 1953, derived by the requirement from forestry industry and forest management. National forest inventories, inventory for forest planning and design at management units, national desertification & sandification monitoring, wetland monitoring and investigation of wildlife, the monitoring schemes in terms of forest fire and forestry biotic agents, plant disease and rat disasters, and the specified management of forest resources are established to provide the information supporting in terms of enactment of forestry development policy and plan, and forestry management practice at national and local levels. The relatively independent and complete systems in terms of monitoring techniques and organizational management are set up.

The information on the progress of national forestry development is annually collected in the next year, and the *National Forestry Statistics Yearbook* is annually published. Furthermore, the national statistics related to the specific tasks of the forestry departments and agencies of SFA are periodically summed up from the lower forestry authorities. The continuous improved forestry monitoring & statistics provide accurate-effective information at national level. The detailed information on the existing forestry monitoring & statistics works directly closed with FRA2015 as the below table showed.

Monitoring schemes	Objective	Methods	Indicators	implementation
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National forest inventory	To periodically re-survey the status quo of forest resources at national and provincial levels, and identify the macro-change in terms of growth and consumption of forest resources.	Field measurement of ground sampling plots and interpretation of RS sampling plots, based on sampling survey techniques.	About 160 indicators about the quantity, quality, structure and functions of forestland, forest and trees	8 NFIs finished, and the 9 th NFI is started in 2014.
Forest fire monitoring	To monitor the happen and expanding trend, and warn and forecast countrywide forest fire	Satellites remote sensing, aircraft patrolling, watchtower and ground patrolling	Fire type, happening region, burned area and fire insurance rank, etc.	Continuous real time monitoring. Information collect by month and year
Investigation of forest insect, pest and rat disasters	To monitor and early forecast the happen and expanding of forest biotic agents	Field observation, inspection and quarantine of wildlife	Happening, prevention and cure of main types, baleful life-form broadcasting, diffusing and spreading, etc.	Real-time monitoring and annual national report.
Specific management survey of forest resources	To master annual plantation results and effectiveness at national and provincial levels, the implementation of local timber cutting quota system and illegal occupied forestry land.	County self-check, provincial countercheck and national sampling check; questionnaire and field-checking survey.	About 20 indicators in terms of afforestation/ reforestation, implementation of annual timber cutting quota, and protection and management of forestry land.	Annual

Annual forestry statistics	Identification of the general situation of nationwide forestry activities to figure out the achievement of forestry ecological improvement and industry development.	National information collection from local level to national level.	Forestry industry, afforestation, forestry key programmes, forest disaster, industrial production, education, employment and financial investment, etc.	Annual statistics
Dept. statistics	To make clear the national situation focused on the specific fields.	Collection of the local reported figures by the Dept. of SFA from.	Resources management, natural reserve establishment, afforestation, prevention and cure of insects and pests, research & education and human resources.	Periodical/aperiodical

The process of China reporting for FRA2015

After the technical meeting of the national correspondents to FRA2015 on 6-10 May 2013, SFA reporting team for FRA2015 was created with the approval of minister, in view of wide assessment issues, several functional agencies and heavy duties. Total of 13 departments of SFA joined in the team, Department of Forest Resources Management and Department of International Forestry Affairs act as the coordination and technical responsibility. The relevant documents including *FOREST DATA REPORTING PACKAGE FOR 2015* and *Guide for country reporting for FRA 2015* are translated in Chinese and send relevant organizations in hardcopy. 16 thematic analyses are issued.

Since November, 2013, the participated experts and technicians deeply learned the guideline and technical specification of FRA2015, aiming at the specific assessment issues and covered C&I and the detailed requirements. The reclassification of assessed indicators definition/ standard between FRA2015 and China current forestry monitoring system are carried out, especially focused on the new indicators or modified indicators compared to FRA2010. Thematic investigation for insufficient indicators is carried into execution, relying on the assistance of relevant forestry agencies and local government. Thematic documents including reporting tables are well compiled via data processing, analysis/evaluation and indicators assessment.

With the principle of objective reflection of the forestry development situation and the trend of forest resources change, the nationwide forest resources data review, analysis and forecasting are strengthened in the results of thematic assessment. The national report for FRA2015 is prepared based on the systematic compiled national

reporting tables covering all assessment issues, and passed through the expert validation launched by the Department of Forest Resources Management, SFA on April 3, 2014.

Compilation of national reporting tables

The tables include T1a, T2b, T2a, T2c, T3a, T3b, T3c, T3d, T3e, T4a, T4b, T4c, T5a, T5b, T6, T8a, T8b, T10, T11, T12, T13a, T13b, T14a, T14b, T15, T16b, T17, T18a, T18b, T19, T21a, T21b are fully filled. The tables including T1b, T10a, T13 and T17b are partially compiled. T7 provides the information on invasive herbal species, T2b, T9 and T20 is default because of not available information in China.

National data sources

The National Forest Resources Statistics since 3rd NFI, China Forestry Statistics Yearbook since 1988, national statistics on the specific forestry issues and other forestry monitoring results launched by the forestry agencies of SFA, and thematic investigation results for FRA2015 are adopted as the basic data sources.

(1) The National Forest Resources Statistics (1984-1988, 1989-1993, 1994-1998, 1999-2003, 2004-2008 and 2009-2013) provide basic information on national forest resources during recent 30 years.

(2) China Forestry Statistics Yearbook since 1988, providing the annual national figures on afforestation, natural reserve establishment, forest disaster, wood & non-woody forest products, employment and funding, etc.

(3) Dept. statistics and monitoring results including comprehensive check of afforestation effect, forest fire monitoring and forest biotic agents investigation.

(4) Thematic investigation for FRA2015, such as forest management plan compilation, establishment and update of local forest resources information archives (FRIMS), wood & other woody products value and forest certification.

Adjustment

It isn't necessary to calibrate forest area between T1 and other relevant tables, for all basic figures cover the whole country in the Report.

Assessment methods

According to Guidelines for country reporting to FRA2015, several assessment methods are used. Among them,

(1) Estimate, including (a) Linear interpolation between two NFIs adopted to estimate the indicators about national forest resources in 1990, 2000, 2005 and 2010, (b) 5-year average for artificial reforestation, (c) annual Stat. for wood and non-wood removal, forest fire and biotic agents, forest financial revenue & expenditure and employment etc, (c) IPCC-BEF method from FAO for forest biomass and carbon stock.

(2) Forecasting, performed based on the trends of forest resources dynamics since 1990s, afforestation and forestry development plan focused on forest resources, forest area and forest area within nature reserve and forest park in 2015.

(3) Qualified evaluation for the issue on forest management laws and policies, and assessment of sustainable management progress in China.

Datacoordination/reclassification

Big gaps of definition and criteria happen among forest extent and other major assessment indicators between FRA2015 and China forestry inventory & statistics, existing national figures can't be directly used for country reporting. A lot of experts are invited to provide technical support during the thematic analysis phases. Reclassification is performed to split and emerge relevant indicators to ensure the coordination in terms of definition and criteria.

Total of about 100 experts and technicians from relevant departments and organizations of SFA participated in thematic investigation, data collection, information processing and analysis, thematic report compilation and results consultation. Thanks for their contribution in the China reporting for FRA2015.

Desk Study?

Check "yes" if this survey is a Desk Study, "no" otherwise	
Desk Study?	no

1. What is the area of forest and other wooded land and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

1.1 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as "Forest" spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of 5-10 percent or trees able to reach these thresholds ; or with a combined cover of shrubs bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as "Forest" or "Other wooded land".
...of which with tree cover (<i>sub-category</i>)	Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity. It includes bothe forest and non-forest tree species.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.
Forest expansion	Expansion of forest on land that, until then, was not defined as forest.
...of which afforestation (<i>sub-category</i>)	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not defined as forest.
...of which natural expansion of forest (<i>sub-category</i>)	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).
Deforestation	The conversion of forest to other land use or the longterm reduction of the tree canopy cover below the minimum 10 percent threshold.
...of which human induced (<i>sub-category</i>)	Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold.
Reforestation	Natural regeneration or re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.
...of which artificial reforestation (<i>sub-category</i>)	Re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.

1.2 National data

1.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest Resources Statistics (1984-1988)	Extent	1986	NFI results
2	National Forest Resources Statistics (1989-1993)	Extent	1991	NFI results

3	National Forest Resources Statistics (1994-1998)	Extent	1996	NFI results
4	National Forest Resources Statistics (1999-2003)	Extent/natural expansion/ afforested area	2001	NFI results
5	National Statistics during 7th NFI (2004-2008)	Extent/natural regeneration/ afforested area	2006	NFI results
6	National Statistics during 8th NFI (2009-2013)	Extent/natural regeneration/ afforested area	2011	NFI results
7	China Statistical Yearbook	country area	2007	National statistics
8	China Forestry Statistics Yearbook	afforestation/reforestation area	1988-2012	Statistical data

1.2.2 Classification and definitions

National class	Definition
Arbor forest	Forest land of arbor species spanning more than 0.0667 ha with a canopy cover of more than 20%.
Economic forest	Forest land of economic species spanning more than 0.0667 ha with canopy cover of more than 20%. The mainly purpose is the provision of non-wooded forest products and fruit.
Bamboo forest	Forest land spanning more than 0.0667 ha, growing bamboo species with the diameter at breast height over 2 cm.
Open forest land	Land of arbor species with canopy cover of which is between 0.10 and 0.19, and 0.0667 ha in size.
Shrub land	Area spanning more than 0.0667 ha with canopy cover of which less than 0.1 and the combined cover of shrub, bushes and tree is more than 30 percent.
Unestablished afforestation land	Areas under afforestation that are temporarily unstocked areas, but can reach the thresholds of forest during 3-5 years; and plot size is more than 0.0667 ha.
Unestablished enclosure land	Area under enclosure or man-promoted natural regeneration that the regenerated rank reaches middle level and temporarily unstocked, however may be forested in situ.
Nursery land	Land for cultivating sapling.
Cut-over area & fired-over area	Areas under felling/fired that haven't got to above thresholds, but can become forest land in 3-5 years.
Other non-stocked forestry land	Including: 1) The afforestation area that not reach the threshold of unestablished afforestation land; 2) Unestablished afforestation land over the threshold of forested time, but not reach the threshold of forest, shrub and open forest land; 3) Area that is prepared, but temporarily not planted; 4) Forestry land prepared for natural protection, scientific research and forest fire, temporarily not covered by trees, however, may cover scattered trees, shrub and bushes.

Forest suitable land	Area planned for planting, including wild land and sandy land liable to forest cultivation. Its canopy cover is less than 0.1, and a combined cover of shrub, bushes and trees less than 30 percent, however, generally more than 10 percent.
Land used for forestry auxiliary production	Area of engineer facilities with forestry land ownership and growing scattered trees and shrub, including forest roads and facilities sites for forestry production.
Other land	Non-forestry land, including inland water.
Afforestation	The area including the barren hills, wasteland, sand dune and cropland covered to forest land planted by manual seeding, air-seeding, planting and planting with cutting, and qualified acceptance with inspection.
Slash regeneration	Forest formed in the cut-over area and fired-area by planting/ seeding or man-improved natural regeneration.
Forested land	Forestland growing forest vegetation spanning more than 0.0667ha with a canopy cover of more than 20%, including arbor forest, economic forest and bamboo forest

1.2.3 Original data

1.2.3.1 Data of NFIs						
Land use	Area (1000 ha)					
	1986	1991	1996	2001	2006	2011
Arbor forest	107248.8	113700	134355.7	144736.8	157559.8	166579.4
Economic forest	13743.8	16098.8	20222.1	21390	20410	20565.2
Bamboo forest	3660.2	3904.7	4363.1	4994.9	5533.3	6158.6
Open forest land	19636.5	18025.7	7195	5999.6	4822.2	4006.8
Shrub land	28116	29706.3	34445.7	45296.8	53653.4	55902.2
Unestablished afforestation land	7288.1	7138.3	4615.1	4893.6	10461.8	6502.6
Unestablished enclosure land	-	-	-	-	864.5	604.9

Nursery land	184.5	114.9	122.5	270.9	454	506.4
Cut-over area	3096	2756.8	2506	1802.3	1914.7	2084
Fired-over area	1334.6	912.8	600.8	807.8	879.6	781.4
Other non-stocked forestry land	-	-	-	-	4301.8	7382.1
Forest suitable land	82181.6	69591.4	53929.9	54713.1	44035.4	39576.1
Land used for forestry auxiliary production	-	-	-	-	1013.6	1940.3
Other land	693509.9	698050.3	697644.1	657059.6	654095.9	647410
Total	960000	960000	960000	960000	960000	960000

Note: Unestablished enclosure land, other non-stocked forestry land and land used for forestry auxiliary production are new forestry land types inventoried since 7th NFI, and not surveyed during other NFIs.

1.2.3.2 Forested area from natural expansion and afforestation

According to the specification of national forest inventory and definition of forest from FAO, natural expansion of forest denotes the forested land mainly from shrub land, forest suitable land and other land by natural regeneration; and forest expansion of afforestation denotes the forested land by planting/seedling or aerial seeding afforestation from shrub land, forest suitable land and other land. Accordingly estimate, forest expansion by natural establishment/ afforestation is shown in the following table since 6th NFI.

area #1000ha#	6 th NFI #1998-2003#	7 th NFI #2004-2008#	8 th NFI (2009-2013)
Forested land by natural regeneration from shrub land, forest suitable land and other land	5757.6	7013.9	4407.9

Forested land by afforestation from shrub land, forest suitable land and other land	6348.8	10548.9	7486.5
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1.2.3.3 Annual afforestation and slash regeneration

Year	area#1000ha#		years	area#1000ha#	
	afforestation ¹	slash regeneration		afforestation	slash regeneration
1988	5533.27	636.90	2003	9118.90	285.99
1989	5023.33	719.10	2004	5598.07	319.31
1990	5208.47	671.50	2005	3637.68	407.55
1991	5594.47	664.10	2006	2717.92	408.24
1992	6030.40	673.60	2007	2857.19	390.91
1998	4811.05	806.30	2008	3838.33	424.00
1999	4900.71	1042.83	2009	4382.63	344.25
2000	5105.14	919.80	2010	4068.71	306.71
2001	4953.04	515.29	2011	4262.62	326.64
2002	7770.97	379.00	2012	3957.11	305.07

Note: ¹ afforestation includes afforestation by planting/seeding or air seeding in China.

In China, besides planting, air seeding and slash regeneration, the government also invest much capital in enclosing hillsides for afforestation including non-standing trees land, open forest land, shrub land and forested land with low quality in order to better promote natural regeneration. Furthermore, afforestation under the tree canopy through complementary planting is also carried out to foster forest with large-diameter and rare species, aiming at improvement of forests structure, and establishment of stable and healthy forest ecosystems.

Year	Enclosing hillside for afforestation(1000ha)		Afforestation under trees canopy(1000ha)
	From non-standing trees land, open land	Shrub land, forested land with low quality	

2007	1050.52	383.59	115.66
2008	1515.41	229.28	97.47
2009	1879.70	326.10	137.39
2010	1841.21	311.67	76.36
2011	1733.99	296.49	119.86
2012	1638.68	431.04	150.48

1.3 Analysis and processing of national data

1.3.1 Adjustment

<p>Forest area</p> <p>The country area (9.6 million km²) come from the China Statistical Yearbook which are the official figures announced by the government. It isn't necessary to calibrate the country area and efforts are underway to change the figures in FAOSTAT accordingly with the official country area from the China statistical Yearbook.</p> <p>Forest expansion, reforestation</p> <p>Not necessary</p>

1.3.2 Estimation and forecasting

<p>1.3.2.1 Area of main forestland types</p> <p># Estimation(1990, 2000, 2005 and 2010)</p> <p>The figures in 1990, 2000, 2005 and 2010 are estimated by the interpolation between the neighboring two NFIs (as the following equation showing).</p> $\text{Value}_{2010} = \text{Value}_{2011} - (\text{Value}_{2011} - \text{Value}_{2006}) / 5$ <p>There aren't available figures on unestablished enclosure land, other non-stocked forestry land and forestry auxiliary land before 7th NFI. There are no available information on the area of above three categories in 1990 and 2000. The results of 7th NFI are used to estimate that in 2005, and that in 2010 is calculated by the interpolation based on 7th and 8th NFIs.</p>

Forecasting(2015)

Entering the 21st century, forestry developing strategy focused on ecological restoration is fully carried into execution. A series of key forestry programmes in terms of natural forest protection, establishment of shelter forest system, conversion of cropland to forest, sandy prevention around Beijing and Tianjing, establishment of fast-growing and high-yield forest et.al are gradually performed. Forest resources supervision has been strengthened. All of them accelerate the protection and development of forest resources, forest resources continue double-increase since 1990s.

Based on the dynamic of historical forest resources and situation of afforestation, greening and natural protection, the area of forest and other wooded land in 2015 are forecasted by applying the national statistics from the 8th NFI and afforestation in recent 10 years, as the following equations showing:

(1)Area of arbor forest:

$$\text{Area} = \text{area}_{2011} + \text{area}_{af} * \text{rate}_{arbor} * \text{rate}_f + \text{area}_{refn} - \text{area}_{asub}$$

Where,

(a) **area_{af}**, the area of afforestation during 2008 - 2011. According to specification of NFI in China, afforestation land which reaches the thresholds of forested land within 4 years classified as arbor forest, otherwise as unestablished afforestation land. The total afforestation area is 12057.1 thousand ha excluding economic and bamboo species during 2008- 2011,

(b) **rate_{arbor}**. According to the annual comprehensive check of afforestation, the planted percent of arbor species is about 85%,

(c) **rate_f**, the forested rate (65%) is estimated based on forested land through afforestation during 8th NFI and the total afforestation area of corresponding years,

(d) **are_{refn}**, the forested area by natural regeneration during 2012- 2015. The annual natural regenerated area is estimated based on the natural regenerated area during the 8th NFI interval,

(e) **area_{asub}**, the area of arbor forest converted to other land uses during 2012 - 2015. The annual converted arbor forest area during 2012-2015 is estimated based on the converted forest area during the 8th NFI interval. Here, other land uses refer to the land use types other than arbor forest in the table “original data”.

(2) Area of economic forest

$$\text{Area} = \text{area}_{2011} + \text{area}_{af} * \text{rate}_p + \text{area}_{refn} - \text{area}_{asub}$$

Where,

(a) **area_{af}**, the afforestation area of economic species during 2012 - 2015. According to the actual condition of economic species afforestation since 2008, it is assumed that the afforestation area of economic species during 2012- 2015 is similar to that during 2009 - 2012 (4432.8 thousand ha),

(b) **rate_p**, the afforestation qualified rate (88%),

(c) *are_{refn}*, the forested area by natural regeneration during 2012- 2015. The annual natural regenerated area is estimated based on the natural regenerated area during the 8th NFI interval,

(d) *area_{asub}*, the area of economic forest converted to other land uses from 2012 to 2015. The annual converted economic forest area during 2012-2015 is estimated based on the converted economic forest area during the 8th NFI interval. Here, other land uses refer to the land use types other than economic forest in the table “original data”.

(3) Area of bamboo forest

$$\text{Area} = \text{area}_{2011} + \text{area}_{af} * \text{rate}_p + \text{area}_{refn} - \text{area}_{asub}$$

Where,

(a) *area_{af}*, the afforestation area during 2011 - 2014, according to the general rule that afforested bamboo become forest in the second year in China. It is assumed that the afforested area of bamboo during 2011 - 2014 is similar to that during 2009 - 2012 (273.5 thousand ha),

(b) *rate_p*, the afforestation qualified rate (88%),

(c) *are_{refn}*, the forested area by natural regeneration during 2012- 2015. The annual natural regenerated area is estimated based on the natural regenerated area during the 8th NFI interval,

(d) *area_{asub}*, the area of bamboo forest converted to other land uses from 2012 to 2015. The annual converted bamboo forest area during 2012-2015 is estimated based on the converted forest area during the 8th NFI interval. Here, other land uses refer to the land use types other than bamboo forest in the table “original data”.

(4) Area of open forest land, shrub land and nursery land

The area of open forest land, shrub land and nursery land in 2015 is calculated by extrapolation method based on the change during the 7th and 8th NFI intervals.

(5) Area of unestablished afforestation land

$$\text{Area} = \text{area}_f * \text{rate}_{arbor} * \text{rate}_p$$

Where, *area_f* is the afforestation area from 2012 to 2015. It is assumed that the average annual planting areaduring 2012 - 2015 is same as that during 2010- 2012 (2890.7 thousand ha, excluding afforestation area of bamboo and economic species) .

(6) Area of cut-over area and fired-over area

$$\text{Area} = (\text{area}_{f2006} + \text{area}_{f2011}) / 2$$

Where, $area_{f2006}$ the area of fired-over /cut-over land during the 7th NFI, and $area_{f2011}$ the area of fired-over /cut-over land during 8th NFI.

(7) Area of forest suitable land

The area of forest suitable land in 2015 is calculated by extrapolation method based on the change during the 7th NFI and 8th NFI intervals.

(8) Area of unestablished enclosure land, other non-stocked forestry land and land used for forestry auxiliary production

The national statistics on Area of unestablished enclosure land, other non-stocked forestry land and land used for forestry auxiliary production during the 8th NFI are used to forecast them in 2015.

(9) Country area, cited from China Statistical Yearbook 2007.

The estimated/forecasted results:

Land use	Area (1000 ha)				
	1990	2000	2005	2010	2015
Arbor forest	112409.8	142660.6	154995.2	164775.5	171152.8
Economic forest	15627.8	21156.4	20606	20534.2	20946.9
Bamboo forest	3855.8	4868.5	5425.6	6033.5	6495.5
Open forest land	18347.9	6238.7	5057.7	4169.9	3354.5
Shrub land	29388.2	43126.6	51982.1	55452.4	57701.2
Unestablished afforestation land	7168.3	4837.9	9348.2	7294.4	8649.1
Unestablished enclosure land	-	-	864.5	656.8	604.9
Nursery land	128.8	241.2	417.4	495.9	548.3
Cut-over area	2824.6	1943	1892.2	2050.1	1999.4

Fired-over area	997.2	766.4	865.2	801.0	830.5
Other non-stocked forestry land	-	-	4301.8	6766.0	7382.1
Forest suitable land	72109.5	54556.5	46170.9	40468.0	36008.7
Land used for forestry auxiliary production	-	-	1013.6	1755.0	1940.3
Other land	697142.1	679604.2	652926.5	646549.7	642385.8
Total	960000	960000	960000	960000	960000

1.3.2.2 Forest expansion

1. Estimation of natural expansion from shrub land, forest suitable land and other land

Natural regenerated area from shrub land, forest suitable land and other land in 2000, is expressed as annual average natural regenerated area during 6th NFI, that during 7th NFI for 2005 and that during 8th NFI for 2010. Furthermore, because of the absent information on natural regenerated area from shrub land, forest suitable land and other land in the early of 1990s, that in 1990 keeps same with 2000.

2. Estimation of forested land through afforestation from shrub land, forest suitable land and other land

Forested land through afforestation from shrub land, forest suitable land and other land in 2000, is expressed as annual average forested area during 6th NFI, that during 7th NFI for 2005 and that during 8th NFI for 2010. Furthermore, because of the absent information on afforested area from shrub land, forest suitable land and other land in the early of 1990s, that in 1990 keeps same with 2000.

3. Estimation of slash regeneration

Five-year average is used to estimate the slash regeneration area in 1990, 2000, 2005 and 2010. Thereinto, the figure in 1990 is the mean value during 1988-1992, the mean value during 1998-2002 is used for 2000, 2003-2007 for 2005, and 2008-2012 for 2010.

According to the annual comprehensive check of plantation, the proportion of arbor planting area is 93% in 1990s, 86% during 1998-2007, and 85% in recent years. Hereby, slash regeneration area in 1990, 2000, 2005 and 2010 are estimated as the following table shown:

Category	Area (1000ha)
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	1990	2000	2005	2010
Slash regeneration	625.9	630.1	311.7	290.1

1.3.2.3 Composition of introduced species

There are rich plant species resources in China, and the number of woody species is more than 8000 including 2000 arbor species. Forest area and volume are inventoried by species group named by dominant species in NFI, however, composition of introduced species in national forest area isn't collected and analyzed.

The thematic analysis of native and introduced species is set up to estimate the composition of introduced species in forest resources. With the reference of the *Records of Chinese Tree* and expert consultation, the distribution, introduction and cultivation of main species for each species group are identified. Then, composition of introduced species in species group is analyzed based on expert knowledge at the support of national forms on forest area by species group during latest NFI. The proportion of introduced species in natural forest and plantation is estimated. The results show the per cent of introduced species in plantation reaches 28%, and 5% in natural forest.

1.3.3 Reclassification

Land use	Fra2015					
	Forest	Other wooded land	Other land	Inland water	Total	OLWTC ²
Arbor forest	100%				100%	
Economic forest ¹	73%		27%		100%	27%
Bamboo forest	100%				100%	
Open forest land	100%				100%	
Shrub land		100%			100%	
Unestablished afforestation land	100%				100%	

Unestablished enclosure land		100%				
Nursery land	100%				100%	
Cut-over area	100%				100%	
Fired-over area	100%				100%	
Other non-stocked forestry land		100%				
Forest suitable land		100%			100%	
Land used for forestry auxiliary production		100%				
Other land (excluding inland water)			100%		100%	n.a. ³
Inland water				100%	100%	

(Note: 1) 73% of economic forest is classified as forest, and the remaining (fruit forest) classified as other land and OLWTC. 2) There isn't available information about "other land with tree cover". 3) n.a. denotes "not available".)

Category	FRA2015		
	Forest expansion by afforestation	Natural expansion	Artificial reforestation
Artificial afforestation from shrub land, forest suitable land and other land	100%		

Natural regeneration from shrub land, forest suitable land and other land		100%	
Slash regeneration			100%

1.4 Data

Table 1a













Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	157140.6	177000.5	193043.9	200610.3	208321.3
	Other wooded land	101497.7	97683.1	104332.9	105098.2	103637.2
	Other land	683891.7	667846.4	645153.2	636821.5	630571.5
	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
	Inland water bodies	17470	17470	17470	17470	17470
	TOTAL	960000.00	960000.00	960000.00	960000.00	960000.00

Table 1b

Categories		Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
		1990	2000	2005	2010	1990	2000	2005	2010
	Forest expansion	2421.3	2421.3	3512.6	2378.9	413.1	413.1	660.8	463.3
	... of which afforestation	1269.8	1269.8	2109.8	1497.3	355.5	355.5	590.7	419.2
	... of which natural expansion of forest	1151.5	1151.5	1402.8	881.6	57.6	57.6	70.1	44.1
	Deforestation	N/A	N/A	N/A	62.1	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	62.1	N/A	N/A	N/A	N/A
	Reforestation	625.9	630.1	311.7	290.1	175.3	176.4	87.3	81.2
	... of which artificial	625.9	630.1	311.7	290.1	175.3	176.4	87.3	81.2

Tiers

Category	Tier for status	Tier for reported trend
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Forest	Tier 3	Tier 3
Other wooded land	Tier 3	Tier 3
Forest expansion	Tier 3	Tier 3
Deforestation	Tier 1	Tier 1
Reforestation	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> • Forest • Other wooded land • Afforestation • Reforestation • Natural expansion of forest • Deforestation 	<p>Tier 3 : Data sources: Either recent (less than 10 years ago) National Forest Inventory or remote sensing, with ground truthing, or programme for repeated compatible NFIs</p> <p>Tier 2 : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago)</p> <p>Tier 1 : Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status)</p> <p>Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status)</p> <p>Tier 1 : Other</p>

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	N/A	N/A
Other wooded land	It is suggested to assess the situation of shrub land separately, considering the increasing interest of shrub land in terms of ecological functions in the dry and semi-dry area from international society.	N/A
Other land	N/A	N/A
Other land with tree cover	no data available	no data available
Inland water bodies	N/A	N/A
Forest expansion	Forest expansion is the forested area (including arbor forest, bamboo forest and economic forest) through afforestation or natural regeneration from shrub land, forest suitable land and other land which are classified as non-forest of FRA 2015.	Forest expansion describes the new gain from original non-forest area, its value should be larger than annual forest area change.
Deforestation	Deforestation area is the annual average conversion area of forested land to construction land (pipelines, railway, road and urban etc) and waterbodies (reservoirs, etc) in recent years	no data available before 2010
Reforestation	no data available for natural reforestation	N/A

Other general comments to the table

For table 1a, (1) According to NFI system, the least forest area is 0.0667 ha, and it is difficult to estimate the patch size of forest between 0.0667 ha and 0.5 ha. (2) The fruit forest including apple, peach and pear that occupies about 27% of economic forest is classified as “other land with tree cover”, 73% of economic forest is classified as forest. (3) Specific investigation of sub-category “Other land with tree cover” isn’t carried out in China, and the actual national figures aren’t available. (4) Total country area and inland water data do not correspond with the figures currently in FAOSTAT. As a result, the country area and inland water in China Statistical Yearbook 2007 are adopted in table 1a following that during country reporting for FRA 2010. For table 1b, (1) Forest expansion is forested land through afforestation or natural regeneration from shrub land, forest suitable land and other land. (2) The annual planted area by introduced species is estimated by 28% of annual afforestation area, and the annual natural expansion area by introduced species is estimated by 5% of annual natural expansion area. (3) Especial investigation of deforestation isn’t performed in China. According to FAO’s definition, annual average conversion area of forested land to construction land (pipelines, railway, road and urban etc) and waterbodies (reservoirs) (about 62.1 thousand ha) in recent years is regared as deforestation area. (4) According to FAO’s definition, area of reforestation includes artificial reforestation and natural reforestation. There are official statistics on artificial reforestation, however, not clear about natural reforestation area. In China, it is a positive trend for forestry land area increase since 1990s, benefiting from continuously strengthened forestland protection and implementation of forestry key programmes along with the in-depth promotion of national ecological rehabilitation policies. Furthermore, besides national forest inventories, nationwide forestland database has been established by using satellite images with spatial resolution finer than 5 meters and local forest inventory data in 2010-2012. The change survey of forestland has being started in 2012 to update national forestland database, using fine satellite images.

2. What is the area of natural and planted forest and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

2.1 Categories and definitions

Term	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Naturalized introduced species	Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time.
Introduced species	A species, subspecies or lower taxon occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Category	Definition
Primary forest	Naturally regenerated forest of native species where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
...of which of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized (<i>sub-sub category</i>)	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species (<i>sub-category</i>)	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted (<i>sub-category</i>)	Mangroves predominantly composed of trees established through planting.

2.2 National data

2.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest resources statistics (1984-1988)	Characteristics	1986	The 3rd NFI
2	National forest resources statistics (1989-1993)	Characteristics	1991	The 4th NFI
3	National forest resources statistics (1994-1998)	Characteristics	1996	The 5th NFI
4	National forest resources statistics (1999-2003)	Characteristics	2001	The 6th NFI

5	National forest resources statistics(2004-2008)	Characteristics	2006	The 7th NFI
6	National forest resources statistics (2009-2013)	Characteristics	2011	The 8th NFI
7	China Forest statistical yearbook	plantation	2008-2012	Statistical
8	Mangrove resources report	Mangrove	2002	Survey report

2.2.2 Classification and definitions

National class	Definition
Natural forest	Forest established through natural regeneration manner.
Plantation	Forest of native species or introduced, established through planting, seeding or assisted natural regeneration.
N/A	N/A
N/A	N/A

2.2.3 Original data

2.2.3.1 Natural forest and plantation						
Land use/ Characteristics	Area(1000ha) ¹					
	1986	1991	1996	2001	2006	2011
Natural forest	93219.0	99029.3	111851.4	117441.8	121392.1	123546.8
Plantation	27723.0	30327.5	41629.5	47904.6	56600.3	64203.8
Open forest land	19636.5	18025.7	7195.0	5999.6	4822.2	4006.8
Unestablished afforestation stands	7288.1	7138.3	4615.1	4893.6	10461.8	6502.6
Nursery land	184.5	114.9	122.5	270.9	454.0	506.4
Cut-over area	3096.0	2756.8	2506.0	1802.3	1914.7	2084.0

Fired-over area	1334.6	912.8	600.8	807.8	879.6	781.4
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(Note: ¹⁾ Excluding fruit forest)

2.2.3.2 Mangrove

Mangroves resources were surveyed in 2001 to obtain the national figures on mangroves area. At present, the new inventory is still under implementation. Area of mangroves in 2000, 2005, 2010 keep same as that in 2001.

2.3 Analysis and processing of national data

2.3.1 Adjustment

Not necessary.

2.3.2 Estimation and forecasting

2.3.2.1 Natural forest and plantation area

1. Estimation (1990, 2000, 2005 and 2010)

The area of natural forest and plantation in 1990, 2000, 2005 and 2010 is respectively estimated by the interpolation of two NFIs results (as the following equation shown).

$$\text{Value}_{2010} = \text{Value}_{2011} - (\text{Value}_{2011} - \text{Value}_{2006}) / 5$$

2. Forecasting (2015)

(1) Plantation

$$\text{Area}_{p2015} = \text{area}_{p2011} + \text{area}_{p2012-2015} - \text{area}_c$$

Where, $\text{Area}_{p2012-2015}$ the forested area by afforestation from 2012 to 2015, including arbor plantation, bamboo plantation and economic plantation; Area_c the plantation area converted to other land (The annual average converted forest area is estimated based on the converted plantation area during the 8th NFI).

(2) Natural forest

$$\text{Area}_{n2015} = \text{area}_{n2011} + \text{area}_i - \text{area}_c$$

Where, $Area_i$ natural regenerated forest area, and $Area_c$ the natural forest area converted to other land. The annual average value of them is estimated based on the converted natural forest during the 8th NFI.

2.3.2.2 Other forestry land area

Estimate and forecasting of other forestland area can be seen in Chapter 1.3.2.1#

2.3.2.3 Results of estimate and forecasting

Land use/ Characteristics	Area (1000 ha)				
	1990	2000	2005	2010	2015
Natural forest	97867.2	116323.7	120602	123115.9	125508.9
Plantation	29806.6	46649.6	54861.2	62683.1	67430.6
Open forest land	18347.9	6238.7	5057.7	4169.9	3354.5
Unestablished afforestation land	7168.3	4837.9	9348.2	7294.4	8649.1
Nursery land	128.8	241.2	417.4	495.9	548.3
Cut-over area	2824.6	1943	1892.2	2050.1	1999.4
Fired-over area	997.2	766.4	865.2	801	830.5

2.3.3 Reclassification

Based on the main distribution area of primary forest in Northeast&Inner Mongolia forest area, Southwest high mountain forest area, Northwest high mountain forest area and tropical forest area, primary forest area is about 10% of natural forest in 2000, and 11.9% in 1990s using expert estimate.



Category	FRA2015
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	Primary ¹	Other naturally regenerated Forest	Other naturally regenerated forest of introduced species (<i>sub-category</i>)	Planted forest	Planted forest of introduced species (<i>sub-category</i>)
Natural forest	10%	90%	5%		
Plantation				100%	28%
Open forest land ²		72%	5%	28%	28%
Unestablished afforestation land ³				100%	28%
Nursery land ³				100%	28%
Cut-over area ⁴		50%	5%	50%	28%
Fired-over area ⁴		50%	5%	50%	28%

Notes: 1. Proportion of primary forest in natural forest is 10% in 2000 and 11.9% in 1990s, based on expert knowledge. Natural forest area in 2005 and 2010 keep same with that in 2000. 2. The proportion of natural regenerated/planted open forest land comes from NFIs. Thereinto, the proportion of natural regenerated/man-made open forest land in 1990 comes from the results of 4th NFI, namely 84% and 16%. That in 2000 comes from the results of 6th NFI (79% and 21%), that in 2005 comes from the results of 7th NFI (76% and 24%), and that in 2010 comes from the results of 8th NFI (72% and 28%). It is assumed the proportion of natural regenerated/man-made open forest land in 2015 keep consistent of that in 2010. 3. The percent of introduced species in unestablished afforestation land and nursery land is same as that of plantation (28%). 4) The proportion of natural regenerated/man-made cut-over/ fired-over area comes from the results of 8th NFI, respectively about 50%.

2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	11646.2	11632.4	11632.4	11632.4	11632.4
	Other naturally regenerated forest	103544.1	110974.6	114192.2	115911.4	117706.7





	... of which of introduced species	5177.2	5548.7	5709.6	5795.6	5885.3
	... of which naturalized	N/A	N/A	N/A	N/A	N/A
	Planted forest	41950.3	54393.5	67219.3	73066.5	78982.2
	... of which of introduced species	11746.1	15230.2	18821.4	20458.6	22115
TOTAL		157140.60	177000.50	193043.90	200610.30	208321.30

Table 2b

Primary forest converted to (000 ha)								
1990-2000			2000-2010			2010-2015		
Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2c

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Mangroves (forest and OWL)	N/A	82.76	82.76	82.76	82.76
... of which planted	N/A	N/A	N/A	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Primary forest	Tier 3	Tier 3
Other naturally regenerated forest	Tier 3	Tier 3
Planted forest	Tier 3	Tier 3
Mangroves	Tier 2	Tier 1

Tier Criteria

Category	Tier for status	Tier for reported trend
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Primary forest/Other naturally regenerated forest/Planted forest	<p>Tier 3 : Data sources: Recent (less than 10 years) National Forest Inventory or remote sensing with ground truthing or data provided by official agencies or programme for repeated compatible NFIs</p> <p>Tier 2 : Data sources: Full cover mapping/remote sensing or old NFI (more than 10 years) Tier 1 : Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p>
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2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	N/A
Other naturally regenerating forest	N/A	N/A
Planted forest	N/A	N/A
Mangroves	N/A	N/A

Other general comments to the table

For Table 2a, (1) Forest area is divided into natural forest and plantation in China by stands origin. (2) The proportion of primary forest in natural forest is estimated based on expert knowledge, and that of introduced species in natural forest and plantation is based on the thematic analysis of afforestation/reforestation species structure. (3) there are no available figures on the naturalized area of introduced species. For table 2b, there are no available figures on conversion of primary forest for the special survey of primary forests isn't implemented.

3. What are the stocks and growth rates of the forests and how have they changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

3.1 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net Annual Increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
Above-ground biomass	All living biomass above the soil including stem stump branches bark seeds and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter either standing lying on the ground or in the soil. Dead wood includes wood lying on the surface dead roots and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in above-ground biomass	Carbon in all living biomass above the soil including stem stump branches bark seeds and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm) lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a soil depth of 30 cm.

3.2 National data

3.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest resources statistics (1984-1988)	Growing stock/net increment	1986	The 3rd NFI
2	National forest resources statistics (1989-1993)	Growing stock/net increment	1991	The 4th NFI
3	National forest resources statistics (1994-1998)	Growing stock/net increment	1996	The 5th NFI
4	National forest resources statistics (1999-2003)	Growing stock/net increment	2001	The 6th NFI
5	National forest resources statistics (2004-2008)	Growing stock/net increment	2006	The 7th NFI

6	National forest resources statistics (2009-2013)	Growing stock/net increment	2011	The 8th NFI
7	IPCC Good Practice Guidance for LULUCF	Biomass, carbon parameters	2004	IPCC

3.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees more than 5 cm in diameter at breast height. The volume refers to above ground that excludes branches, twigs, foliage, flowers, seeds, and roots.
N/A	N/A
N/A	N/A
N/A	N/A

3.2.3 Original data

3.2.3.1 Growing stock

Category	Volume (1000 cubic meters)					
	1986	1991	1996	2001	2006	2011
Arbor forest	9141076.4	10136753	11267126	12456381	13721339	15137297.2
Open forest land	545852.7	544901.7	136068.7	128163.9	114237.7	105700.3
Scattered trees	694530.9	771442.4	703367.4	710329.4	744681.2	788590.3
Four-side trees	191038.6	332142	381301.4	323225.9	332424.4	400683.4
Total	10572498.6	11785239.3	12487863.9	13618100	14912681.9	16432271.2

3.2.3.2 Growing stock of coniferous and broadleavespecies

With analysis based on the NFIs results, growing stock of coniferous and broadleavespecies occupy respectively 54% and 46% of arbor forest volume during the 4th NFI, 51% and 49% during the 6th NFI, 47% and 53% during the 7th NFI, and 41% and 59% during the 8th NFI.

For FRA 2015, the proportion of coniferous and broadleaf stands in arbor forest in 1990, 2000, 2005 and 2010 are respectively identical to that during the 4th NFI, 6th NFI, 7th NFI and 8th NFI. That in 2015 is same as that in 2010.

3.2.3.3 Dominant species (group) growing stock

Species (group)	Volume (1000 cubic meters)					
	1986	1991	1996	2001	2006	2011
Quercus	1101971.3	1208686.4	1335785.1	1321402.6	1208414.3	1277564.0
Abies fabri	800797.0	1074981.7	1098841.9	1194700.6	1135620.3	1166053.3
Larix gmelinii	940070.1	871968.1	940885.8	920551.3	955216.9	1001261.2
Picea asperata	904626.8	1126705.2	1279075.5	1036152.7	1001596.1	998992.9
Betula	600358.0	672093.7	775519.9	845703.2	799463.1	917498.9
Cunninghamia lanceolata	268515.1	342650.2	473573.3	734817.0	734094.8	726016.1
Pinus massoniana	407192.6	430206.7	558703.9	671675.7	587877.2	623841.4
Populus	246212.6	281786.0	359298.3	425965.3	549391.4	590999.3
Pinus yunnanensis	253806.0	240122.6	279160.8	518233.5	468721.5	502284.1
Pinus densata	153606.4	69035.1	197788.5	378175.0	354256.1	349685.7
Others	4009773.2	4363419.0	4104561.7	4537168.0	6040925.0	7088800.6
Total	9686929.1	10681654.7	11403194.7	12584544.9	13835576.7	15242997.5

Note: Total is stock volume of arbor forest plus stock volume of open forest land.

3.2.3.4 Annual net increment of forests per hectare

The results of each NFIs show that annual average net increment of forests reaches 2.90 m³ during 3rd NFI), 3.25 m³ during 4th NFI, 2.99 m³ during 5th NFI, 3.00 m³ during 6th NFI, 3.27 m³ during 7th NFI, and 3.56 m³ during 8th NFI).

3.2.3.5 Parameters of main species (group) biomass estimate

Parameters	Quercus	Abies fabri	Picea asperata	Larix gmelinii	Betula	Cunninghamia lanceolata	Pinus massoniana	Populus	Pinus yunnanensis	Pinus densata
Basic wood density (T/ m ³)	0.58	0.4	0.4	0.46	0.51	0.4	0.42	0.4	0.42	0.42
BEF	1.4	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.3	1.3
Root-shoot ratio	0.46	0.32	0.32	0.32	0.46	0.46	0.46	0.46	0.46	0.32

Note: Relevant parameters value of biomass estimation for FRA 2015 follow that for FRA 2005 and FRA 2010. Basic wood densities, BEF and Root-shoot ratio of main species (group) are the default value of IPCC Good Practice Guidance for LULUCF 2004, and that of other species are the weighted average of main species (group).

3.3 Analysis and processing of national data

3.3.1 Adjustment

Not necessary.

3.3.2 Estimation and forecasting

3.3.3.1 Growing stock

(1) Estimation (1990, 2000, 2005 and 2010)

The growing stock in 1990, 2000, 2005 and 2010 is estimated by the interpolation of two NFIs results.

(2) Forecasting #2015#

Volume of arbor forest per hectare reaches 89.79m³ with an increase of 3.91 m³ (annual 0.782 m³) during 8th NFI obvious higher than previous NFI. Abiding by this trend and caution's sake, volume of arbor forests per hectare will enhance 3.13 m³ to 92.92 m³ by an increase of 0.782 m³ per year. Growing stock of nationwide arbor forests will reach to 15903518.2 thousand m³.

The volume of open forest land, scattered trees and four-side trees in 2015 is forecasted by the extrapolation method based on the change of volume during the 7th and 8th NFI

(3) Results for estimation and forecasting

Category	Volume (1000 cubic meters)				
	1990	2000	2005	2010	2015
Arbor forest	9937617.7	12218530.0	13468347.4	14854105.6	15903518.2
Open forest land	545091.9	129744.9	117022.9	107407.8	98870.4
Scattered trees	756060.1	708937.0	737810.8	779808.5	823717.6
Four-side trees	303921.3	334841.0	330584.7	387031.6	455290.6
Total	11542691.0	13392052.9	14653765.8	16128353.5	17281396.8

3.3.3.2 Growing stock of main species (group)

The growing stock by species in 1990, 2000, 2005 and 2010 is estimated by the interpolation based on two NFIs results.

3.3.3.3 Biomass of living trees**1. Biomass of living trees for each NFIs**

Biomass of arbor forest, open forest land, scattered trees and four-side trees are respectively estimated using IPCC BEF method suggested by FRA2015 Guidance.

Inventory year	Biomass of arbor forests and open forest land #1000ton#			Biomass of scattered trees and four-side trees #1000ton#		
	Stem biomass	Above ground biomass	Blow ground Biomass	Stem biomass	Above ground biomass	Blow ground Biomass
1986	4227755	5674991	2143040	354228	460496	147359
1991	4651460	6244318	2386890	441434	573864	183636
1996	4983731	6698048	2597857	433868	564028	180489
2001	5472023	7384191	2828351	413422	537449	171984

2006	5959569	8070486	3056787	463155	625260	237598
2011	6553541	8890669	3328737	511388	690373	262342

2. Biomass of living trees for FAO assessment years

(1) Estimation (1990, 2000, 2005 and 2010#)

Biomass of living trees in 1990, 2000, 2005 and 2010 is respectively estimated by the linear interpolation between two NFIs.

(2) Forecasting (2015)

Biomass of living trees in 2015 is respectively forecasted using growing stock in 2015 and BEF method. The value of applied wood density, biomass expansion factor and root-shoot ratio are the weighted average value by species, namely 0.43, 1.36 and 0.37.

3.3.3.4 Biomass of economic forest and bamboo forest

Biomass of economic forest and bamboo forest is calculated by the average biomass per hectare (ton/ha) based on expert estimate, originated from thematic study-“ *The change of land use and the list for green house gas letting in 1994* ”. Average biomass per hectare is 166.67 ton for *Phyllostachys pubescens*, 119.35 for other bamboo forest, and 39.9 for economic forest.

Category		Biomass(1000 ton)				
		1990	2000	2005	2010	2015
Biomass of arbor forest and open forest land	Stembiomass	4566719	5374365	5862060	6434747	6879791
	Above groundbiomass	6130453	7246962	7933227	8726632	9333266
	Blow ground biomass	2338120	2782252	3011100	3274347	3494449
	Total	8468573	10029215	10944327	12000979	12827715
Biomass of scattered trees and four-side trees	Stembiomass	423993	417511	453208	501741	549974
	Above groundbiomass	551190	542765	607698	677351	742465
	Blow ground biomass	176381	173685	224475	257393	282137

	Total	727571	716450	832173	934744	1024602
Biomass of economic forest and bamboo forest	Above ground biomass	1040637	1357691	1432307	1528788	1612071
	Blow ground biomass					
	Total	1040637	1357691	1432307	1528788	1612071

Note: Total biomass of economic forest and bamboo forest is the above-ground biomass.

3.3.3.5 Deadwood biomass

Following GPG, a dead to live ratio of 0.11 for tropic forest, 0.20 for evergreen forest and 0.14 for deciduous. The proportions of tropic forest, evergreen forest and deciduous forest in China are 0.07, 0.58 and 0.35, respectively.

Deadwood	Biomass(1000 ton)				
	1990	2000	2005	2010	2015
Deadwood of arbor forest and open forest land	1462523	1732045	1890085	2072569	2215346
Deadwood of scattered trees and four-side trees	125652	123731	143716	161430	176949

3.3.3.6 Carbon storage

The default carbon conversion factor (0.47) supplied by FAO is used to estimate carbon storage.

3.3.3 Reclassification

Category	Forestgrowing stock	Growing stock of other wooded land
Arbor forest	100%	

Open forest land	100%	
Scattered trees		100%
Four-side trees		100%

Note: the growing stock of economic forest isn't inventoried in China's NFI, and excluded in the growing stock calculation for FRA 2015.

3.4 Data

Table 3a




Category		Growing stock volume (million m ³ over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	10482.7	12348.3	13585.4	14961.5	16002.4	1060	1043.8	1068.4	1166.8	1279
	... of which coniferous	5660.7	6297.6	6385.1	6134.2	6561	572.4	532.3	502.1	478.4	524.4
	... of which broadleaved	4822	6050.7	7200.2	8827.3	9441.4	487.6	511.5	566.2	688.4	754.6

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	Quercus	Oak	1187.3	1324.3	1231	1263.7
2 nd	Abies fabri	Fir	1020.1	1175.5	1147.4	1160
3 rd	Picea asperata	Spruce	1082.3	1084.7	1008.5	999.5
4 th	Larix gmelinii	Larch	885.6	924.6	948.3	992.1
5 th	Betula	Birch	657.7	831.7	808.7	893.9
6 th	Cunninghamia lanceolata	China fir	327.8	682.6	734.2	727.6
7 th	Pinus massoniana	Masson pine	425.6	649.1	604.6	616.6
8 th	Populus	Poplar	274.7	412.6	524.7	582.7
9 th	Pinus yunnanensis	Yunnan pine	242.9	470.4	478.6	495.6

10 th	Pinus densata	Alpine pine	85.9	342.1	359	350.6
Remaining			4292.8	4450.7	5740.4	6879.2
TOTAL			10482.70	12348.30	13585.40	14961.50

THE PRE-FILLED VALUES FOR GROWING STOCK REFER TO THE FOLLOWING THRESHOLD VALUES (SEE TABLE BELOW)

Item	Value	Complementary information
Minimum diameter (cm) at breast height of trees included in growing stock (X)	5	N/A
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	ID	N/A
Minimum diameter (cm) of branches included in growing stock (W)	No	N/A
Volume refers to above ground (AG) or above stump (AS)	AG	N/A

PLEASE NOTE THAT THE DEFINITION OF GROWING STOCK HAS CHANGED AND SHOULD BE REPORTED AS GROWING STOCK DBH 10 CM INCLUDING THE STEM FROM GROUND LEVEL UP TO A DIAMETER OF 0 CM, EXCLUDING BRANCHES.

Table 3c





Category		Net annual increment (m ³ per hectare and year)				
		Forest				
		1990	2000	2005	2010	2015
	Net annual increment	3.18	3	3.22	3.5	3.56
	... of which coniferous	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	N/A	N/A	N/A	N/A	N/A

Table 3d

Category		Biomass (million metric tonnes oven-dry weight)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Above ground biomass	7171.1	8604.7	9365.5	10255.4	10945.3	551.2	542.8	607.7	677.4	742.5










	Below ground biomass	2338.1	2782.3	3011.1	3274.3	3494.4	176.4	173.7	224.5	257.4	282.1
	Dead wood	1462.5	1732	1890.1	2072.6	2215.3	125.7	123.7	143.7	161.4	176.9
TOTAL		10971.70	13119.00	14266.70	15602.30	16655.00	853.30	840.20	975.90	1096.20	1201.50

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Carbon in above ground biomass	3370.4	4044.2	4401.8	4820	5144.3	259.1	255.1	285.6	318.4	349
	Carbon in below ground biomass	1098.9	1307.7	1415.2	1538.9	1642.4	82.9	81.6	105.5	121	132.6
	<i>Subtotal Living biomass</i>	4469.3	5351.9	5817	6358.9	6786.7	342	336.7	391.1	439.4	481.6
	Carbon in dead wood	687.4	814	888.3	974.1	1041.2	59.1	58.1	67.5	75.9	83
	Carbon in litter	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	687.4	814	888.3	974.1	1041.2	59.1	58.1	67.5	75.9	83.1
	Soil carbon	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		5156.70	6165.90	6705.30	7333.00	7827.90	401.10	394.80	458.60	515.30	564.60

Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 3	Tier 3
Net annual increment	Tier 3	Tier 3
Above ground biomass	Tier 1	Tier 1
Below ground biomass	Tier 1	Tier 1

Dead wood	Tier 1	Tier 1
Carbon in above-ground biomass	Tier 1	Tier 1
Carbon in below ground biomass	Tier 1	Tier 1
Carbon in dead wood and litter	Tier 1	Tier 1
Soil carbon	Tier 1	Tier 1

Tier criteria

Category	Tier for status	Tier for reported trend
Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other
Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other
Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> Carbon in above ground biomass Carbon in below ground biomass Carbon in dead wood and litter Soil carbon 	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
Total growing stock	N/A	N/A

Growing stock of broadleaved coniferous	Growing stock of mixed forest is fallen under that of broadleave forest for FRA2015. It is suggested to add the indicator "growing stock of mixed forest" in next FRA.	N/A
Growing stock composition	N/A	N/A
Net annual increment	there aren't available data on change of net annual increment of coniferous forest and broadleaved forest.	N/A
Above-ground biomass	N/A	N/A
Below-ground biomass	N/A	N/A
Dead wood	N/A	N/A
Carbon in above-ground biomass	N/A	N/A
Carbon in below-ground biomass	N/A	N/A
Carbon in dead wood	N/A	N/A
Carbon in litter	no data available	no data available
Soil carbon	no data available	no data available

Other general comments to the table

For table 3a, according to specification of NFI, growing stock is described with volume over bark of stem more than 5cm in diameter at breast height, excluding branches, twigs et al. For table 3c, there aren't available data on change of net annual increment of coniferous forest and broadleaved forest. For table 3d, (1) Trees volume biomass is preliminary estimated by IPCC method, and the results may not accurately image the actual situation of forest biomass in China. (2) Biomass per hectare for economic forest and bamboo forest come from The change of land utilization and the list for green house gas letting in 1994, based on expert knowledge. (3) Biomass parameters for Dead trees come from FAO (default values). For table 3e, (1) forest carbon stock is estimated by the default value (0.47) that may not accurately image the actual situation of forest carbon stock in China. (2) The system of forest carbon monitoring and reporting hasn't been well developed in China yet. Especially, it is nearly blank about national carbon storage in litter and soil layers in forest. As a result, that of carbon storage in litter and soil layers are deficient without scientific basis and certain accuracy. And this way is same solution of China report for FRA 2010.

4. What is the status of forest production and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

4.1 Categories and definitions

Term	Definition
Primary designated function	The primary function or management objective assigned to a management unit either by legal prescription documented decision of the landowner/manager or evidence provided by documented studies of forest management practices and customary use.
Non wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Commercial value of NWFP	For the purpose of this table, value is defined as the commercial market value at the forest gate.
Category	Definition
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Total wood removals	The total of industrial round wood removals and woodfuel removals.
...of which woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

4.2 National data

4.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest resources statistics (1984-1988)	Designated functions	1986	The 3rd NFI
2	National forest resources statistics (1989-1993)	Designated functions	1991	The 4th NFI
3	National forest resources statistics (1994-1998)	Designated functions	1996	The 5th NFI
4	National forest resources statistics (1999-2003)	Designated functions	2001	The 6th NFI
5	National Forest Resources Statistics (2004-2008)	Designated functions	2006	The 7th NFI
6	National Forest Resources Statistics (2009-2013)	Designated functions	2011	The 8th NFI
7	China Forestry statistical Yearbook	wood and other forest products	1988-2012	Statistics

4.2.2 Classification and definitions

National class	Definition
Timber forest	Forest land supplying industrial wood.
Fuel-wood forest	Forest land yielding heat energy materials.
Economic forest	Forest land only for non-wood forest product, not include fruit forest.
Industrial roundwood	The wood removed (volume of roundwood over bark) by wood enterprises for production of goods and services other than energy production, which is yielded by a series of processes, including felling, transporting and reaching storage sites and checking in order to keep consistent with national wood criteria.
Fuel wood	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.
Forest plant products	The forest products obtained not via bamboo/trees cutting. 1. including Raw Lacquer, Tong oil tree seed, Camellia oil seed, Tallow tree seed, Chinese gallnut, Palm tree bark, Pine seeds, Dried bamboo shoots, Walnut, Chestnut, .Scraped Lac, Chinese date, white fruit (Gingko), Pinus seeds, Cashew, Eucommia seeds, and branches or leaves (for example, skin of Eucommia, vitex branch, wicker and leaves of Livistona chinensis). 2. Excluding mulberry leaves, tea and fruit.

4.2.3 Original data

4.2.3.1 Area of forest designated functions

In the 1980s and early days, forestry focused on timber development and utilization, which resulted in providing timber as the main function of forest. China issued *Forestry Zoning in China* in 1987, has implemented Natural Forest Protection Program (NFPP) since 1997, and initiated forest ecological benefit compensation since 2001. Hereafter, in accordance with ecological locations and forest dominant functions, China gradually categorized the forest at the upper and middle reaches of big rivers with important ecological locations as public welfare forest. The structure of forest designated functions has been adjusted to cut down percentage of commercial forest (timber forest, fuel-wood forest and economic forest), and increase that of public welfare forest (protective forest and special-purpose forest). With the issued *China Forestry Development Zoning* in 2011, change of forest designated functions is gradually leveled out.

Designated functions	Area (1000 ha)					
	1986	1991	1996	2001	2006	2011
Timber forest	80069.6	84928.6	99395.0	78625.8	60074.4	62930.8

Protection forest	19619.1	21134.7	26541.0	56696.4	83916.7	87674.7
Fuel-wood forest	4443.8	4288.6	4451.7	3034.4	1747.3	1767.1
Special purpose forest	3116.3	3348.1	3968.0	6380.2	11821.4	14206.8
Economic forest ¹	10033.0	11752.1	14762.1	15614.7	14899.3	15012.6
Bamboo forest	3660.2	3904.7	4363.1	4994.9	5533.3	6158.6
Open forest land	19636.5	18025.7	7195.0	5999.6	4822.2	4006.8
Unestablished afforestation land	7288.1	7138.3	4615.1	4893.6	10461.8	6502.6
Nursery land	184.5	114.9	122.5	270.9	454.0	506.4
Cut-over area	3096.0	2756.8	2506.0	1802.3	1914.7	2084.0
Fired-over area	1334.6	912.8	600.8	807.8	879.6	781.4
Total	152481.7	158305.3	168520.3	179120.6	196524.7	201631.8

Note: ¹⁾ Excluding fruit forest.

Designated functions of bamboo forest was first surveyed during 8th NFI. The results show, the area of protective forest reaches 1501.2 thousand ha, Special purpose forest 191.8 thousand ha, and timber forest 4313.1 thousand ha.

4.2.3.2 Wood removal

According to the definition of industrial roundwood and woodfuel from FAO, industrial roundwood covers Chinese industrial roundwood and fuel wood, and also includes the wood harvest for household use. Burning wood belongs to FAO's woodfuel, there isn't available information on nationwide burning wood removal.

Year	Removal (10000m³)	Year	Removal (10000m³)
-------------	-------------------------------------	-------------	-------------------------------------

	industrial roundwood and fuel wood	wood harvest for household use		industrial roundwood and fuel wood	wood harvest for household use
1988	62175.5		2001	45520.3	
1989	58017.7		2002	44360.7	
1990	55710.0		2003	47588.7	5148.8
1991	58073.3		2004	51973.3	7698.6
1992	61735.7		2005	55603.1	5126.2
1993	63922.3		2006	66117.8	5544.4
1994	66151.4		2007	69766.5	5430.3
1995	67668.6		2008	81083.4	6493.0
1996	67102.7		2009	70682.9	5887.2
1997	63947.9		2010	80896.2	5211.9
1998	59662.0		2011	81459.2	4233.4
1999	52368.0		2012	81748.7	4431.6
2000	47239.7				

Note: The annual wood harvest for farmer household use has been collected since 2003 at national level. In the table, wood removal for household use is estimated using wood harvest for household use and timber-produced rate in the same period. Among them, timber-produced rate is 59.9% during the 10th five years (2001-2005), 63.3% during the 11th five years (2006-2010), that during 12th five years (2011-2015) is same as that during 2006-2010.

4.2.3.3 Removal and value of main forest products

No.	Forest products	Removal (ton)	Value (1000 RMB)
1	Walnut	1284351	28255722
2	Chestnut	1701680	11911760
3	Dried bamboo shoots	481192	11067416

4	Camellia oil seed	1092243	7645701
5	Raw Lacquer	20093	1386417
6	Tong oil tree seed	433624	1734496
7	Chiense tallow tree seed	33709	101127
8	Gallnut	18197	291152
9	Palm tree bark	55698	334188
10	pine resin	1115711	8925688
11	Scraped Lac	3240	48600

4.3 Analysis and processing of national data

4.3.1 Adjustment

Not necessary.

4.3.2 Estimation and forecasting

Forest area by the designated functions in 1990, 2000, 2005 and 2010 is estimated with the interpolation between the two NFIs. The forest area by designated functions in 2015 is forecasted with the per cent of different designated functions during 8th NFI and forest area in 2015.

Designated function	Area (1000 ha)				
	1990	2000	2005	2010	2015
Timber forest	83956.8	82779.6	63784.7	62359.5	64661.5
Protection forest	20831.7	50665.3	78472.6	86923.1	90077.8
Firewood forest	4319.6	3317.9	2004.7	1763.1	1814.2
Special purpose forest	3301.7	5897.8	10733.2	13729.7	14599.3
Economic forest	11408.3	15444.2	15042.4	14989.9	15291.2
Bamboo forest	3855.8	4868.5	5425.6	6033.5	6495.5
Open forest land	18347.9	6238.7	5057.7	4169.9	3354.5
Unestablished afforestation land	7168.3	4837.9	9348.2	7294.4	8649.1
Nursery land	128.8	241.2	417.4	495.9	548.3
Cut-over area	2824.6	1943	1892.2	2050.1	1999.4
Fired-over area	997.2	766.4	865.2	801	830.5
Total	157140.7	177000.5	193043.9	200610.1	208321.3

4.3.3 Reclassification

Category	ForestCategory(FRA2015)				
	production	Protection of soil and water	Biodiversity protection	Ecosystem service	Multiple use
Timber forest	100%				

Protective forest ¹		60%			40%
Fuel-wood forest	100%				
Specialpurpose forest (2010) ²			68%	32%	
Economic forest	100%				
Bamboo forest (2010) ³	72%	15%	2%	1%	10%
Open forest land ⁴ (2010)	27%	39%	5%	3%	26%
Unestablished afforestation land (2010)	59%	23%	2%	1%	15%
Nursery land	100%				
Cut-over area ⁵					100%
Fired-over area ⁵					100%

Note: 1. Protection forest is divided into forests for protection of soil and water and multiple use, the proportion of them is based on expert knowledge. 2. Special purpose forest is divided into forests for biodiversity protection and ecosystem service based on expert knowledge, the percentages of them are respectively 67% and 33% during 7th NFI for 1990, 2000 and 2005, and 68% and 32% during 8th NFI for 2010 and 2015. 3. All of bamboo area is reclassified as multiple use for 1990, 2000 and 2005. Structure of bamboo designated functions for 2010 and 2015 is expressed as that during 8th NFI. 4. The designated function structure of open forest land, unestablished afforestation land in 1990 and 2000 are expressed as the proportion of different functions in arbor forest during the 6th NFI based on expert estimate, the results are separately 56%, 23%, 3%, 2%, and 16%. Designated function structure of open forest land, unestablished afforestation land in 2005 is respectively estimated by their function structure during the 7th NFI, as 30%, 38%, 4%, 3% and 25%, and 28%, 42%, 1%, 1% and 28%. Function structure in 2015 follows that in 2010 listed in the table. 5. The nursery land is designated as production. 6. Cut-over area and fired-over area are estimated as multiple use.

4.4 Data

Table 4a



Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	114102.5	107985.8	85384	89345.5	92958.1
	Multiple use forest	20092.9	29616.3	43454	40424.3	41706.1

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	Walnut	Walnut	28255722	1
2 nd	Chestnut	Chestnut	11911760	1
3 rd	Dried bamboo shoots	Dried bamboo shoots	11067416	1
4 th	Camellia oil seed	Camellia oil seed	7645701	1
5 th	Raw Lacquer	Raw Lacquer	1386417	7
6 th	Tong oil tree seed	Tong oil tree seed	1734496	1
7 th	Chiense tallow tree seed	Chiense tallow tree seed	101127	1
8 th	Gallnut	Gallnut	291152	3
9 th	Palm tree bark	Palm tree bark	334188	8
10 th	pine resin	pine resin	8925688	7
TOTAL			71653667.00	

2010	
Name of local currency	Chinese Yuan (RMB)

Category
Plant products / raw material
1 Food

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

Table 4c Pre-filled data from FAOSTAT

Year	FRA 2015 category (1000 m ³ u.b.)	
	Total wood removals	...of which woodfuel
1990	51085.3	4624.7
1991	52892.8	5180.5
1992	56268.9	5466.8
1993	58603.9	5318.4
1994	60133.9	6017.5
1995	62469.9	5198.7
1996	60730.9	6371.8
1997	59354.4	4593.5

1998	55557.4	4104.6
1999	48486.9	3881.1
2000	43957.2	3282.5
2001	41970.3	3550
2002	41272.1	3088.6
2003	43198.6	4390.1
2004	47120.9	4852.4
2005	50228.7	5374.5
2006	61116.8	5001
2007	64920.5	4846
2008	73573.2	7510.2
2009	64762.7	5920.2
2010	75132.1	5764.1
2011	74496.4	6962.8

Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 3	Tier 3
Multiple use forest	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
Production forest Multiple use forest	Tier 3: Updated including field verifications national forest maps including functions Tier 2: Forest maps older than 6 years including forest functions Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	N/A	N/A
Multiple use forest	N/A	N/A

Total wood removals	total wood removal only includes industrial roundwood, there aren't available figures on woodfuel removal.	N/A
Commercial value of NWFP	N/A	N/A

Other general comments to the table

For table 4b, the top ten products list comes from national forestry statistical yearbook 2010, and their names represent main specie or species group. For table 4c, total wood removal only includes industrial roundwood, there aren't available figures on woodfuel removal.

5. How much forest area is managed for protection of soil and water and ecosystem services?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

5.1 Categories and definitions

Category	Definition
Protection of soil and water	Forest area designated or managed for protection of soil and water
...of which production of clean water (<i>sub-category</i>)	Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality.
...of which coastal stabilization (<i>sub-category</i>)	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control (<i>sub-category</i>)	Forest area primarily designated or managed for desertification control.
...of which avalanche control (<i>sub-category</i>)	Forest area primarily designated or managed to prevent the development or impact of avalanches on human life assets or infrastructure.
...of which erosion, flood protection or reducing flood risk (<i>sub-category</i>)	Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion riparian floods and landslides or for providing flood plain services.
...of which other (<i>sub-category</i>)	Forest area primarily designated or managed for other protective functions.
Ecosystem services, cultural or spiritual values	Forest area primarily designated or managed for selected ecosystem services or cultural or spiritual values.
...of which public recreation (<i>sub-category</i>)	Forest area designated or managed for public recreation.
...of which carbon storage or sequestration (<i>sub-category</i>)	Forest area designated or managed for carbon storage or sequestration.
...of which spiritual or cultural services (<i>sub-category</i>)	Forest area designated or managed for spiritual or cultural services.
...of which other (<i>sub-category</i>)	Forest area designated or managed for other ecosystem services.

5.2 National data

5.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest Resources Statistics (1984-1988)	Designated function	1986	The 3rd NFI

2	National Forest Resources Statistics (1989-1993)	Designated function	1991	The 4th NFI
3	National Forest Resources Statistics (1994-1998)	Designated function	1996	The 5th NFI
4	National Forest Resources Statistics (1999-2003)	Designated function	2001	The 6th NFI
5	National Forest Resources Statistics (2004-2008)	Designated function	2006	The 7th NFI
6	National Forest Resources Statistics (2009-2013)	Designated function	2011	The 8th NFI

5.2.2 Classification and definitions

National class	Definition
Protection forest	Forest land designated for ecological protection.
Special purpose forest	Forest land mainly for tree species resources conservation, ecological environment protection, forest tour and scientific experiments, including experimental forest, reserved-seed forest, environmental protection forest, scenic forest and natural protection forest.
N/A	N/A
N/A	N/A

5.2.3 Original data

Seen in chapter 4.2.3.

5.3 Analysis and processing of national data

5.3.1 Adjustment

Not necessary.

5.3.2 Estimation and forecasting

Methods of estimation and forecasting of forest designated functions area in 1990, 2000, 2005, 2010 and 2015 as well as the results can be found in chapter 4.3.2.

5.3.3 Reclassification

Reclassification between FAO's water and soil protection and ecosystem service and China's forest designated functions structure can be found in chapter 4.3.3. According to definition and standards for protective forest and special purpose forest in China,







1. Protective forest is further divided into forests for water resources conservation, soil and water conservation, wind prevention, cropland and pasture protection, road and bank shielding and other protective purpose, it is difficult to merge into the sub-functions of FAO's water and soil protection.


2. Special purpose forest include forests for natural scene, historic interest and revolutionary memorial, seed collection, scientific experiment and environmental protection, besides natural protective forest (biodiversity protection). Among the sub-designated functions, scenic forest can be reclassified as public recreation, forest for historic interest and revolutionary memorial as spiritual or cultural services, and other area of special purpose forest as other in ecosystem services.

3. Forest for carbon storage or sequestration doesn't list in the structure of forest designated functions of NFI in China, and special investigation on forest resources of forest for carbon sequestration isn't performed yet. There isn't accurate information on area of forest for carbon sequestration.

5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
	Protection of soil and water	18367.7	32946.8	52931.7	56360	58314.3
	... of which production of clean water	N/A	N/A	N/A	N/A	N/A
	... of which coastal stabilization	N/A	N/A	N/A	N/A	N/A
	... of which desertification control	N/A	N/A	N/A	N/A	N/A
	... of which avalanche control	N/A	N/A	N/A	N/A	N/A
	... of which erosion, flood protection or reducing flood risk	N/A	N/A	N/A	N/A	N/A

	... of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A
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Other

no data available

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	1599.9	2167.8	3787.2	4633.7	4909.6
...of which public recreation	352	476.9	833.2	1065.8	1129.2
...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...of which spiritual or cultural services	48	65	113.6	185.3	196.4
...of which other (please specify in comments below the table)	1199.9	1625.9	2840.4	3382.6	3584

Tiers

Category	Tier for reported trend	Tier for status
Protection of soil and water	Tier 3	Tier 3
Ecosystem services, cultural or spiritual values	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
Protection of soil and water	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

<ul style="list-style-type: none"> • Cultural or spiritual values • Public recreation • Spiritual or cultural services • Other 	<p>Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p>
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5.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Protection of soil and water	N/A	N/A
Production of clean water	no data available	N/A
Coastal stabilization	no data available	N/A
Desertification control	no data available	N/A
Avalanche control	no data available	N/A
Erosion, flood protection or reducing flood risk	no data available	N/A
Other protective functions	no data available	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A
Public recreation	N/A	N/A
Carbon storage or sequestration	Both of public welfare forest and commercial forest possess the function of carbon fixation. Considering the importance of carbon sink and existing carbon storage assessment in table 3e, it is advised to remove this indicator when next FRA.	N/A
Spiritual or cultural services	N/A	N/A
Other ecosystem services	include forest for seed collection, scientific experiment and environmental protection, etc.	N/A

Other general comments to the table

For table 5a, (1) forest is designated 5 categories (protective, especial use, timber, fuel and economic forests) according to dominant functions in China. The area of soil and water protection is estimated from that of protective forest. Other parts of forest area can't be separated for soil and water protection without a definite boundary. (2) The protective forest is further divided into forests for water resources conservation, soil and water conservation, wind prevention, cropland and pasture protection, road and bank shielding and other protective purpose, it is difficult to merge into the sub-functions of FAO's water and soil protection. For table 5b, forest for carbon storage or sequestration doesn't list in the structure of forest designated functions in China, and special investigation on forest resources of forest for carbon sequestration isn't also performed. There isn't accurate information on area of forest for carbon sequestration.

6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

6.1 Categories and definitions

Category	Definition
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

6.2 National data

6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest resources statistics (1984-1988)	Designated function	1986	The 3rd NFI
2	National forest resources statistics (1989-1993)	Designated function	1991	The 4th NFI
3	National forest resources statistics (1994-1998)	Designated function	1996	The 5th NFI
4	National forest resources statistics (1999-2003)	Designated function	2001	The 6th NFI
5	National Forest Resources Statistics (2004-2008)	Designated function	2006	The 7th NFI
6	National Forest Resources Statistics (2009-2013)	Designated function	2011	The 8th NFI
7	Annual statistics on China forestry nature reserve	Forestry nature reserve	2012	Statistical data
8	Thematic analysis on nature reserve construction and management	Nature reserve	1990-2015	Thematic report
9	Thematic analysis on forest parks construction and management	Forest park	1990-2015	Thematic report

6.2.2 Classification and definitions

National class	Definition
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Special purpose forest	Forest land mainly for tree species resources conservation, ecological environment protection, forest tour and scientific experiments, including experimental forest, reserved-seed forest, environmental protection forest, scenic forest and natural protection forest.
Nature reserve	A certain area where determined by law to provide special protection and regulation for representative natural ecosystem, the natural concentrated area distribution with rare and endangered fauna and flora species, and the land, water inland or sea area where protect significant natural relic.
Forest park	A lawfully applied and approved forest area with centralized delightful forest landscape, natural scene and artificial scenery of a certain size to provide people recreation, fitness, scientific research, culture and education activities, including forest parks at national, provincial and city or county levels.
N/A	N/A

6.2.3 Original data

6.2.3.1 Area of forest designated functions

See chapter 4.2.3.

6.2.3.2 Development of forestry nature reserve

In China, the construction of nature reserve started from 1956. According to the instructions of the State Council, the primary Ministry of Forestry promulgated the *Draft of Planning of National Natural Reserve Forests (Nature reserves)*, which initiated nature reserve in China. First nature reserves for forest ecosystem protection including Fenglin of Heilongjiang province, Tianmushan of Zhejiang province, Dinghushan of Guangdong province and Xishuangbanna of Yunnan province were built up in succession. By 2012, 2150 forestry natural reserves in different types and grades have been established with total area of 124.87 million ha accounting for 13% nationwide. The network of forestry natural reserves in China has been preliminarily formed, which effectively protects 90% of terrestrial ecosystem types, 85% of wild animal communities and 65% of high-level plant communities.

According to thematic analysis of nature reserve, the progress of forestry nature reserve establishment since 1990s list in the following table.

Category	Area (1000ha)				
	1990	2000	2005	2010	2015
Forestry nature reserve	50590	102000	120000	123709.2	124800
Of which forest area	4513	9100	12900	14900	15092

Notes: There isn't available figure on forestry natural reserve area in 1990, and instead by that in 1993. There isn't also available figure on forest area in forestry nature reserve in 1990, and estimated based on the percent of forest in forestry nature reserve in 2000. Area and number of forestry nature reserve in 2015 come from *the 12th five-year plan of national wildlife protection and nature reserve establishment*, forest area in 2015 is estimated using the percent of forest area in forestry nature reserve in 2010.

6.2.3.3 Development of forest park

Forest parks are a stronghold in China's natural heritage protection effort. They are also important touring destinations. The total of 2855 national forest parks with area of 17382.1 thousand ha has been established at the end of 2012, since the first national forest park was built in September, 1982. The system of forest landscape resources protection and management has been formed and gradually improved, of which national forest park as backbone and synergy development of national, provincial and city or county levels forest parks. Now, there are 15 sites of 42 world natural culture heritage covering landscape resources of forest parks, and 15 sites of 24 world geological park are forest parks.

According to the thematic analysis of forest parks, the progress of forest parks establishment since 1990s list in the following table. Forest area within forest park takes up about 85% of total area in China by expert estimate.

Category	Area (1000ha)				
	1990	2000	2005	2010	2015
Forest parks	149.91	8364	12860.5	14260.37	15300
Of which forest area	127.4	7109.4	10931.4	12121.3	13005.0

6.3 Analysis and processing of national data

6.3.1 Adjustment

Not necessary.

6.3.2 Estimation and forecasting



Methods of estimation and forecasting of forest designated functions area in 1990, 2000, 2005, 2010 and 2015 as well as the results can be found in chapter 4.3.2.

6.3.3 Reclassification

1. Reclassification matrix of forest designated functions sees in chapter 4.3.3.
2. Taken into account the management rights of existing protected area types and the availability of national figures, forest area within protected areas include forest area within nature reserves and forest parks in this report.

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	2977.6	4283.8	7487	9846.8	10433.2
	Forest area within protected areas	4640.4	16209.4	23831.4	27021.3	28097

Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 3	Tier 3
Forest area within protected areas	Tier 2	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> • Conservation of biodiversity • Forests within protected areas 	Tier 3: Data obtained from national or state agencies responsible for conservation and protected area or legislation relating to area protection. Tier 2: Studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates Tier 1 Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
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Conservation of biodiversity	N/A	N/A
Forest area within protected areas	N/A	N/A

Other general comments to the table		
N/A		

7. What is the area of forest affected by woody invasive species?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

7.1 Categories and definitions

Category	Definition
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.

7.2 National data

7.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Annual statistical form on happen, prevention and cure of forestry biotic agents in “forestry biotic agents information system, SFA”	Invasive biotic agents	Occuring year	Annual monitoring results
2	Thematic analysis of forestry biotic agents	Invasive biotic agents	Occuring year	Thematic report
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

7.2.2 Classification and definitions

National class	Definition
Forestry biotic agents damage	That forestry biotic agents directly threaten the trees (including leaves, branches, trunk, roots and fruits), nursery stock, timber and other woody products, or occupation of forestry land cause the result including degradation of trees growing, decline in growth and even death. Forestry biotic agents include bacteria, fungi, viruses and other pathogenic micro-organisms, pests, rodents and harmful plants.
The harmful plant disaster	The disaster caused by the harmful plant or occupation of forestry land through loss of trees.
Area of Occurrence	Area where forestry biotic agents happen and their species density, including population density, infection index, capture rate, reaches the statistical standard of light level.
N/A	N/A

7.2.3 Original data

The common and harmful plants are most herbal in China. According to incomplete statistics, more than 300 kinds of invasive plants happen at least, which results in loss of hundreds of billion RMB. The monitoring data from network of forestry harmful biotic agents monitoring shows, area of forestland of main harmful plants occurring got to 171.8 thousand ha in 2012, and 121.6 thousand ha in 2013, of which forestland area of *Mikania micrantha* occurrence was up to 38.7 thousand ha, and *Merremia boissiana* 15 thousand ha. In particular, harmful plants disaster in Southwest and South China is becoming heavier. Among the dominant invasive herbal species, area of *Eupatorium adenophorum* distribution attained 3704.7 thousand ha, and that of *eupatorium odoratum* 305.3 thousand ha.

Currently, there aren't available figures on forest affected by woody invasive species due to absent thematic investigation in China.

7.3 Analysis and processing of national data

7.3.1 Adjustment

Not necessary.

7.3.2 Estimation and forecasting

It isn't necessary to estimate or forecasting reporting data because all of them are annual statistical figures at national level.

7.3.3 Reclassification

Not necessary.

7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
1. <i>Eupatorium adenophorum</i> , <i>eupatorium odoratum</i>	130	0.6
2. <i>Mikania micrantha</i>	N/A	38.7
3. <i>Merremia boissiana</i>	N/A	15
N/A	N/A	N/A

N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
Total	130	54.3

Tiers

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3	Tier 1

Tier Criteria

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	In general, invasive herbal species cause a heavier disturbance than invasive woody species in terms of affected area and damage. It is advised to record invasive species including herbal and woody.	N/A

Other general comments to the table

(1) The commonly harmful plants are most herbal in China. The investigation and annual statistics of invasive plant species primary aims at herbaceous. There isn't enough information on woody invasive species happening area. As a result, table 7 records invasive herbal species. (2) Because of absent statistical figures on area affected by invasive species in 2005 and 2010, the data in 2006 and 2013 are recorded in table 7.

8. How much forest area is damaged each year?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

8.1 Categories and definitions

Category	Definition
Number of fires	Number of fires per year
Burned area	Area burned per year
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.
Severe weather events	Damage caused severe weather events, such as snow, storm, drought, etc.

8.2 National data

8.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	China Forestry Statistical Yearbook	Forest fire	2003-2012	Annual statsites
2	Thematic analysis of forest fire	Forest fire	2003-2012	Thematic report
3	Annual statistics on happen, prevention and cure of forestry biotic agents in “forestry biotic agents information system, SFA”	Forestry biotic agents	Occuring year	Annual statsites
4	Thematic analysis of forestry biotic agents	Forest pest and disease	Occuring year	Thematic report

8.2.2 Classification and definitions

National class	Definition
Forest fires	The forest fires behavior lost human control and freely spreading & expanding in forest, and cause the loss of forest, forest ecosystem and mankind in some degrees.

Forestry biotic agents damage	That forestry biotic agents directly threaten the trees (including leaves, branches, trunk, roots and fruits), nursery stock, timber and other woody products, or occupation of forestry land cause the result including degradation of trees growing, decline in growth and even death. Forestry biotic agents include bacteria, fungi, viruses and other pathogenic micro-organisms, pests, rodents and harmful plants.
Insect disaster	The disaster caused by insect through loss of trees
Disease	The disaster caused by bacteria, fungi, viruses and other pathogenic micro-organisms through loss of trees

8.2.3 Original data

China has a vast territory with diverse climatic types, the natural disasters indicate the peculiarities of many kinds, wide geographical distribution, high occurrence frequency and heavy loss. In particular, in the context of global climate change, severe weather events occur frequently leads to heavy damage to forest resources.

8.2.3.1 Forest fire control

China government attaches great importance to control forest fire. A series of national laws and forestry act or codes including *Forest law, Implementation regulations of Forest law, Regulation of forest fire prevention, Emergency action plan of national forest fire disaster* have been promulgated since the founding of the People's Republic of China in 1949. The responsibility of the local administrative principals of forest fire prevention is created, 3323 forest fire prevention command are founded at national and local levels, check stations of forest fire controlling at all levels reach more than 20 thousand, and forest armed forces, aerial forest fire brigade and professional forest fir brigade have been constituted and strengthened. The total of 15921 storage facilities for forest fir prevention materials have been instaurated to lay up more than 14 million sets of all kinds of firefighting materials and 88 thousand vehicles. A comprehensive scientific system of forest fire moitoring, disaster statistics and reporting has been gradually established for realtime early warning, prevention, firefight and damage assessment. The forest fire control has achieved remarkably in China, the number of forest fires and caused losses have decreased sharply.

Year	Forest fire		Damaged forest area (ha)
	Area (ha)	Number	
2003	1123751	10463	451020
2004	344211	13466	142238
2005	290633	11542	73701
2006	562304	8170	408255
2007	125128	9260	29286
2008	184495	14144	52539

2009	213636	8859	46156
2010	116243	7723	45800
2011	63416	5550	26950
2012	43171	3966	13948

Furthermore, there isn't available information on countrywide grassland fire centralized management by Ministry of Agriculture, and city fire centralized management by Ministry of Public Security.

8.2.3.2 Forestry biotic agent prevention and cure

Forestry biotic agent disaster is one of major natural disasters in China. The occurrence area of forestry biotic agent shows an increasing trend now. Annually average occurrence area was 3.6 million ha in 1970s, and rised to more than 11 million ha with an annual average loss (including direct economic loss and ecological service value loss) 110 billion RMB in the 10th five-year plan period.

Year	Occrence area of forestry biotic agents (ha)			
	Total	Light	medium	Severe
2002	8412496	4425441	2562343	1424712
2003	8887362	4931073	2567725	1388564
2004	9448372	5385092	2824318	1238962
2005	9844202	6001410	2763932	1078860
2006	11006671	6726666	3002002	1278003
2007	12096832	7102537	3411764	1582531
2008	11418370	7066092	3185432	1166846
2009	11419714	7323784	2994807	1101123
2010	11642430	7718947	2845293	1078190
2011	11681424	8421207	2490039	770178
2012	11768988	8214314	2567673	987001

Against the incidence of forest pests and disease, China started to establish forest pest control stations in the key forest counties (cities) step by step to monitor and control forestry biotic agents, after the founding of the People's Republic of China. Especially since 1980s, forestry biotic agent control work has been largely strengthened, and the work focus has turned from eradication to prevention, from chemical control to pollution-free control, from stopgap measures to radical measures. According to the statistics in 2013, more than 29

thousand monitoring sites are established, the professional forecasters reach 72 thousand, China has formed four levels of monitoring and warning network system with national, provincial, city and county levels. The all levels of prevention and treatment quarantine stations amount to 3086, professional crew get to 34 thousand. There are 2801 professional teams of emergency prevention and control, 569 storage facilities with 70 thousand sets of various emergency prevention and control equipments, the sytem of forestry biotic agents emergency and disaster relief has basically formed. Forestry pest control has achieved remarkably. The disaster rate of major forestry biotic agents is controlled under 4.7%, pollution-free prevention and cure rate rise to more than 80%, forecasting accuracy rate increase to over 85%, and tree seedlings quarantine rate in the origin area enhance to 98% and upwards. Forestry biotic agent control powerfully safeguards forest resources, maintains ecological safety and promotes increase greenly.

According to annual statistics on occurrence area of national forestry biotic agents, some pests and diseases list in the following tables.

Category	Description/name	Year(s)of latest outbreak	Area damaged (0000 hectares)
Insects	Dendrolimus	2001	176.73
Insects	Anoplophora glabripennis	2003	13.99
Insects	Dendroctonus valens	2002	35.40
Insects	Hyphantria cunea	2011	74.59
Insects	melalopha anachoreta	2011	34.91
diseases	Bursaphelenchus macronatus	2001	8.47
diseases	Botryosphaeria dothidea	2011	16.47

8.2.3.3 Severe weather events

In 2008, central and southern China suffered from catastrophic ice storm, involved of 1,370 counties, 2,140 state-owned forest farms and over 800 nature reserves in 19 provinces of China, causing the damaged forest area of 17649.1 thousand ha which accounting for 10% of nationwide forest area; and forst growing stock loss ran up to 339.62 million m³.

8.3 Analysis and processing of national data

8.3.1 Adjustment

Not necessary.

8.3.2 Estimation and forecasting

It isn't necessary to estimate or forecasting reporting data because all of them are annual statistical figures at national level.

8.3.3 Reclassification

Not necessary.

8.4 Data

Table 8a



Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	1123.8	10.5	344.2	13.5	290.6	11.5	562.3	8.2	125.1	9.3
	... of which forest area burned	451	N/A	142.2	N/A	73.7	N/A	408.3	N/A	29.3	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	184.5	14.1	213.6	8.9	116.2	7.7	63.4	5.6	43.2	4
	... of which forest area burned	52.5	N/A	46.2	N/A	45.8	N/A	26.9	N/A	13.9	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
1	Dendrolimus	2001	1767.3
1	Anoplophora glabripennis	2003	139.9
1	Dendroctonus valens	2002	354
1	Hyphantria cunea	2001	745.9
1	melalopha anachoreta	2011	349.1
2	Bursaphelenchus macronatus	2001	84.7
2	Botryosphaeria dothidea	2011	164.7
3	catastrophic ice storm	2008	17649.1
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Outbreak category
1 Insects
2 Diseases
3 Severe weather events

Tiers

Category	Tier for status	Tier for trend
Area affected by fire	Tier 3	Tier 3
<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
Burned area	Tier 3 : National fire monitoring routines Tier 2 : Remote sensing surveys Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	<p>Tier 3 : Systematic survey (e.g. via inventory or aerial damage assessment) Tier 2 : Management records Tier 1 : Other</p>	<p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p>
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8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Burned area	N/A	N/A
Insects	N/A	N/A
Diseases	N/A	N/A
Severe weather events	N/A	N/A

Other general comments to the table

For table 8a, fires only cover forest fire, excluding grassland fire and city fire. For table 8b, Area damaged is the area caused by forest insect – pest and rats disasters when their species density, including population density, infection index, capture rate, reaches statistical standard of light level.

9. What is the forest area with reduced canopy cover?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

Category	Definition
Reduction in canopy cover	Forest that has undergone a reduction of canopy cover of more than 20% between the years 2000 and 2010 within the forest canopy cover range of 30-80% as detected by the MODIS VCF sensor.

Table 9

Category	Area of forest with reduced canopy cover (000 ha)
Reduction in canopy cover	N/A

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 1

Tier criteria

Category	Tier for reported trend
Reduction in canopy cover	Tier 3 : Remote sensing with ground truthing and/or Landsat imagery Tier 2 : Remote sensing using Modis (using pre-filled data provided by FAO) Tier 1 : Expert opinion

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	The special investigation of degraded forest isn't launched yet, there isn't available information on forest area with reduced canopy cover more than 20%. Considering the ability of coarse resolution images, much uncertainty of produced figures on forest area with reduced canopy cover exist. Here, keep table 9 N/A.

Other general comments

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10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

10.1 Categories and definitions

Category	Definition
Policies supporting sustainable forest management	Policies or strategies that explicitly encourage sustainable forest management.
Legislation and regulations supporting sustainable forest management	Legislation and regulations that govern and guide sustainable forest management, operations and use.

10.2 National data

10.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Thematic analysis of forestry legislation and policies for SFM	legisations and policies	2013	thematic report
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

10.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

10.2.3 Original data

10.2.3.1 Policy about sustainable forest management

China government attaches great importance to forest management. A series of grand decision about forestry development have been made by the central government to push forward SFM. The item “*state-owned forest designated by the law belongs to the civil*” was written into the Constitution of the People’s Republic of China in 1954, and the decision about “*The issues on protection of forest and forestry development*” was promulgated by the central government in 1981. Since 1987, The system of forest cutting quota management has been established to implement quota management for wood harvest, aiming at controlling the total forest resources consumption and its structure.

Entering 21st century, forestry key programmes in terms of natural forest resources protection, shelterbelt construction, conversion of cropland to forest, Beijing - Tianjin sand source control, wildlife protection and natural reserve establishment and development of fast-growing and high-yielding plantation base were launched. Forest ecological benefit compensation system was gradually initiated, nationwide forest categorized as public welfare forest and commercial forest in accordance with ecological locations and dominant functions, and takes differential management mechanism, policies and measurements. *The decision about “acceleration of forestry development”* was promulgated by the central government in 2003, and the sustainable forestry development strategy focused on ecological improvement is radicalized. *The opinion on “Comprehensive Promotion of of Collective Forest Rights System Reform”* was put out by the central government in 2008, collective forest productivity of countryside is strongly liberated and expanded. *The outline of national forestland protection and utilization plan (2010-2020)* was enacted in 2010, forestland protection and management has been overall strengthened by establishment of utilization control system and quota management. The red line of forest and forestland was delimited in 2013, and responsibility of forestry ecological protection red line is created to develop forestry and improve ecological environment.

Furthermore, relevant policies and regulations such as *opinion on reform and improvement of collective forest cutting management*, *measure on national public welfare forest zoning and delimitation*, *guiding opinion about pilot base construction of forest management* and *administrative measure on national public welfare forest* are successively issued. Local government also take corresponding measurements to accelerate regional sustainable forest management.

The promulgation and implementation of a series of important policy measures has greatly driven forest protection, management and supervision in China to enhance forest productivity. The double-increase of forest resources is actualized in past 30 years, forestry farmer income increase, good ecology and social harmony in forestry area are being promoted synergy.

10.2.3.2 Legislation about sustainable forest management

Since reform and opening up in 1978, following the establishment and improvement of socialist market economic system and national law construction, forestry legislation is gradually systematically. Early in 1979, the *Forest Law* (Trial) was examined and adopted at the six meeting of the 5th National People’s Congress (NPC) Standing Committee, which is a symbol of the conversion of forest management from the simply relying on the administrative approaches to use of legal and administrative approaches for adjustment, regulation, promotion and safeguard of forestry healthy development. The decision about “*the Civil Voluntary Planting*” was approved at the 4th meeting of 5th NPC in 1981. The *Forestlaw* was discussed and adopted by the 7th meeting of 6th NPC standing Committee in 1984, and amended and adopted by the 2nd meeting of the 9th NPC Standing Committee in April, 1998. The *enforcement regulation offorest law* was issued in 2000. Adapting the needs of forest sustainable development, China is considering to further amend *forest law*.

Furthermore, *land management law*, *seed law*, *Combating Sandification Law*, *countryside land contract law*, *agriculture law*, *Law of popularization of agricultural technology*, *Professional farmers cooperatives law* as well as *regulation of nature reserve*, *import/export management of endangered wildlife*, *wild plants protection*, *plant quarantine*, *prevention and cure of forest insect-pests*, *protection of new plant species* and *forest fire prevention* were promulgated in succession.

Currently, a relative prefect regulation system has been formed covering major forest management activities including seedling management, protection of forestland and forests, forest logging and regeneration, public welfare forest protection, wild animals and plants protection, plant quarantine, forest disease and pest prevention and control and forest fire prevention. It provides a sound legal safeguard in terms of stabilization of basic forestry management system, enhancement of forestry productivity relying on science and technology, better satisfying the needs of market economy and strengthening the protection and management of forest resources and wildlife.

10.3 Data

Table 10

Category				
	National	Sub-national		
		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes		yes	yes
... of which, in <u>publicly</u> owned forests	yes		yes	yes
... of which, in <u>privately</u> owned forests	yes		yes	yes
Legislation and regulations supporting sustainable forest management	yes		yes	yes
... of which, in <u>publicly</u> owned forests	yes		yes	yes
... of which, in <u>privately</u> owned forests	yes		yes	yes

10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	N/A
Legislation and regulations supporting sustainable forest management	N/A

Other general comments

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11. Is there a national platform that promotes stakeholder participation in forest policy development?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

11.1 Categories and definitions

Category	Definition
National stakeholder platform	A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy.

11.2 National data

11.2.1 Data sources

	References to sources of information	Years	Additional comments
1	Thematic analysis of forestry legislation and policies for SFM	2013	national platform for stakeholders participation in forestry policies making
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

Is there a national platform that promotes or allows for stakeholder participation in forest policy development?	yes
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11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	China government establishes the participatory platforms and coordination mechanisms of relevant ministries of State Council, all levels of local forestry authorities and public to widely hear the opinion and appeals during formulation of national laws, regulations and significant forestry policies.

Other general comments

<p>About national platforms that promotes stakeholder participation in forest policy development in china</p> <p>1. Platforms of relevant ministries of State Council</p> <p>In accordance with the requirements of the "Legislation Law", cross-departmental cooperation and coordination is one of the main legislative works. During the legislation process, relevant ministries of State Council will solicit opinions about forestry items from State Forestry Administration (SFA), such as <i>soil and</i></p>
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water conservation Law, *Law of popularization of agricultural technology*, *Environmental protection law* and *Land management law*. SFA annually handles the feedback of legal and administrative opinions nearly 50. Through the above work, the convergence and harmonization of legislation is strengthened, and but also make forestry business better connecting with other sectors. In recent years, SFA together with Ministry of Agriculture, General Administration of Customs, the National Archives and other authorities is exploring to develop the joint-departmental regulations.

For the important national forestry policies, Chinese government establishes coordination mechanism among the ministries of State Council and local authorities, and set up liaison offices to coordinate major issues. In 2009, the State Council approved the establishment of the inter-ministerial joint conference about consolidating the results of conversion of cropland to forest. The member organizations include the National Development and Reform Commission, Ministry of Supervision, Ministry of Finance, Ministry of Land Resources, Ministry of Water Resources, Ministry of Agriculture, Audit Commission, National Bureau of Statistics, SFA, State Grain Bureau and other relevant ministries. Its duty is the coordination of relevant organizations to promote consolidating the results of conversion of cropland to forest. Forest fire prevention is an essential guarantee of sustainable forest management, the national forest fire prevention command was established in 2006 to coordinate national forest fire control, involved of the relevant departments of State Council.

Regional coordination mechanism is also developed to focus on special important forestry programmes. For example, during implementation of Beijing and Tianjin sandstorm source control project, joint-conference system involved of provincial and ministerial authorities is formed to coordinate the central government and provincial governments within the project area.

2. Platforms of all levels of local forestry authority participation

During the formulation and improvement of national forestry policy, the dominant drafting departments will move to local government for thematic investigation, and bring about hearings from the forestry agencies at provincial, city and county levels. After the drafted documents of forestry policies, the responsible departments continue to seek the opinions from provincial forestry bureaus in written form, and encourage local authorities to propose amendments. Thus, discourse right of local agencies appeals is consolidated.

3. Platforms of public participation

The national laws and regulations, departmental regulations and major forestry policies will publicly hear the views of all stakeholders through the Internet and other ways, after the completion of the internal development procedures. As for particular significant issues, various activities including workshop and communication meeting will be launched to fully listen to the demands of the stakeholders.

Furthermore, SFA implements sets up the special column of government information opening at the government website (<http://www.forestry.gov.cn>) to propagate the laws and policies of forestry reform and development, receive social policy advice, and provide online consulting services. With regard to the information outside of SFA voluntarily disclosed, the public can fill out the information request form and apply in writing. The responsible agencies of SFA will reply with legal provisions to respond the demands of stakeholders and accept the public supervision.

12. What is the forest area intended to be in permanent forest land use and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

12.1 Categories and definitions

Category	Definition
Forest area intended to be in permanent forest land use	Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use.
...of which permanent forest estate (<i>sub-category</i>)	Forest area that is designated by law or regulation to be retained as forest and may not be converted to other land use.

12.2 National data

12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

12.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

12.2.3 Original data

Chinese government promulgated the *outline of national forestland protection and utilization plan (2010-2020)* in 2010, and establishes 3-level forestland protection and utilization planning system including national, provincial and county levels. The red lines of forestland (4.68 billion mu) and forest (3.74 billion mu) was set

up in 2013 to comprehensively strengthen forestland (including forest) protection and management by strict implementation of forestland utilization control system and cracking down the cases of destroying forestland.

On this basis, according to the FAO's definition, forest area excluding apples, pears, peaches and other fruit trees is reclassified as *forest area intended to be in permanent forest land use*. In view of absent provisions about permanent forest estate within current *forest Law*, there isn't accurate data about it according to FAO's definition of PFE.

12.3 Analysis and processing of national data

12.3.1 Adjustment



Not necessary.

12.3.2 Estimation and forecasting

12.3.3 Reclassification

12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	N/A
	... of which permanent forest estate	200610.3

Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3
Permanent forest estate	Tier 1

Tier Criteria

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other

Permanent forest estate	Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other
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12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	N/A
Permanent forest estate	N/A

Other general comments

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13. How does your country measure and report progress towards SFM at the national level?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

13.1 Categories and definitions

Category	Definition
Forest area monitored under a national forest monitoring framework	Forest area monitored by a national monitoring framework or systems that provide measurement based periodic monitoring of forest extent and quality.
Forest reporting at national scale	National reporting of forest extent and characteristics that includes some measure of progress toward sustainable forest management.

13.2 National data

13.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest inventory in China	Forest inventory	2006	N/A
2	Report on forest resources in China	Forest report	2005, 2009, 2014	Inventory data
3	National report on sustainable forest management in China	Country report	2013	N/A
4	Outline of national forestland protection and utilization plan	Foretland management	2010-2020	N/A

13.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/remote sensing sample based	Aerial/remote sensing full coverage
Forest inventory	100	2013	yes	yes	yes	no	no	no
Other field assessments	N/A	N/A	no	no	no	no	no	no
Updates to other sources	100	2012	yes	yes	no	no	no	yes
Expert estimate	N/A	N/A						

Table 13b

Type of forest reporting used at national scale	Check boxes that apply
1 Criteria and Indicators reporting	yes
2 Periodic national state of the forest report	yes
3 Other (please document)	no
4 None	no

Other type of forest reporting
N/A

13.4 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

For table 13a, (1) Forest inventory denotes national forest inventory. (2) Updates to other sources denote the update survey of national forestland since 2012. According to the requirements from *Outline of national forestland protection and utilization plan (2010-2020)*, nationwide forestland database was established using satellite images with spatial resolution finer than 5 meters and local forest inventory data in 2010-2012.

The change survey of forestland was started in 2012 to update national forestland database, using fine satellite images.

14. What is the area of forest under a forest management plan and how is this monitored?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

14.1 Categories and definitions

Category	Definition
Forest area with management plan	Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revised
...of which for production (<i>sub-category</i>)	Forest management plan mainly focused on production
...of which for conservation (<i>sub-category</i>)	Forest management plan mainly focused on conservation
Monitoring of forest management plans	Government monitoring of forest management plan implementation conducted through field visits or audits of forest management plan performance

14.2 National data

14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Thematic investigation of forest management plan by local management units	Forest management plan	2012	N/A
2	Thematic investigation of forest resources information archives establishment by local management units	Forest resources information archives	2012	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	132402.8
... of which for production	58257.2
... of which for conservation	74145.6

Table 14b

Indicate which (if any) of the following are required in forest management plans in your country
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1 Soil and water management	yes
2 High conservation value forest delineation	yes
3 Social considerations community involvement	yes

Table 14c

Percent of area under forest management plan that is monitored annually	82
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Tiers

Category	Tier for status
Forest area with management plan	Tier 2
Percent of area under forest management plan that is monitored annually	Tier 1

Tier criteria

Category	Tier for status
Forest area with management plan	Tier 3 : Reports that describe national records 5 years old or less that contain long-term forest monitoring plans Tier 2 : Industry or other records indicating the presence of a long-term forest management plan Tier 1 : Other
Percent of area under forest management plan that is monitored annually	Tier 3 : Government documentation of monitoring extent Tier 2 : Reports from forest managers or other documental sources Tier 1 : Other

14.4 Comments

Category	Comments
Table 14a	In China, the object of forest management plan is all of forest and forestland including commercial forest and public welfare forest, the plans for production and conservation aren't made separately. In this report, the areas with management plan for production and conservation are estimated according to the percentage of commercial forest and public welfare forest (44:56)
Table 14c	Annual national monitoring system of forest resources isn't established yet. The percent Percent of area under forest management plan that is monitored annually is computed using expert estimate, according to establishment and update of forest resources information archives
N/A	N/A

Other general comments

About Forest management plan compilation in China
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According to the *Forest Law*, the forest management plan is generally compiled at an interval of a management term (10 years), providing basis for operational activities in China. The state-owned management agencies, collective economic organization, mainbodies of non-public management and county forestry authority are responsible for its compilation and implementation. The *outline of forest management plan preparation and implementation (trial)* was promulgated in 2009. It stipulates that forest management plan should take SFM as the general objective, and cover the principle, management target, functions zoning, management types, forest health and biodiversity protection, non-woody resources management, infrastructure construction and maintenance, ecological and social impact assessment, etc.

Currently, the forest management units of state-owned forest regions and provinces with major distribution of forest resources draw up the management plan, and conduct it in operational activities. By evaluation, forest area with management plan occupies 66% of national forest area.

About Local forest resources information archives in China

Forest management units have started the local inventory for forest management since 1980s. Up to now, total of 5 cycles of local inventories are finished in China. In recent ten years, about 80% forest management units or county administrative area carried out the local inventory. The *Forest law* and its *enforcement regulation* stipulate forest management units should build up forest resources information archives (FRIMS) and periodically update.

The thematic investigation indicates about 53% forest management units have built up forest resources information archives and updated periodically, the covered forest area amounts to 82% of forest area with management plan.

15. How are stakeholders involved in the management decision making for publicly owned forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

15.1 Categories and definitions

Category	Definition
Stakeholder involvement	Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	yes
2. Operations phase	yes
3. Review of operations	yes

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 3

Tier criteria

Category	Tier for status
Type of stakeholder inputs	Tier 3 : Government (national or sub-national) documentation of stakeholder inputs Tier 2 : Government (national or subnational) requirement but stakeholder inputs not documented Tier 1 : Other

15.2 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

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16. What is the area of forest under an independently verified forest certification scheme?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

16.1 Categories and definitions

Category	Definition
FSC certification	Forest area certified under the Forest Stewardship Council certification scheme
PEFC certification	Forest area certified under the Programme for the Endorsement of Forest Certification scheme
Other international forest management certification	Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification.
Certified forest area using a domestic forest management certification scheme	Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a thirdparty

16.2 Data

Table 16a













International forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	FSC	0	0	0	0	0	0	0
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	0	0	0	0	0	0	
	PEFC	0	0	0	0	0	0	
	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	CFCS	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
	CFCS	0	0	0	26	390.1	666.9	
		0	0	0	0	0	0	
		0	0	0	0	0	0	

Tier criteria

Category	Tier for status
International forest management certification	Tier 3: International forest management scheme records maintained by the certifying organization for the reporting year Tier 2: International forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other
Domestic forest management certification	Tier 3: National registry reports for domestic forest management certification maintained by the certifying organization for the reporting year Tier 2: Domestic forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other

Tiers

Category	Tier for status
International forest management certification	Tier 1
Domestic forest management certification	Tier 3

16.3 Comments

Category	Comments related to data definitions etc
Certified forest area using an international forest management certification scheme	no data available
Domestic forest management certification	N/A

Other general comments

About the progress of forest certification in China

Forestry sustainable development has become the focus of international society concerns after the United Nation (UN) Conference on Environment and Development in 1992. Forest certification as an important mean to promote SFM has been highly attached by the international organizations and national governments. In order to enhance the capacity of SFM, forest ecosystem service and ability of forestry industry sustainable development, China officially launched the establishment of forest certification system in 2001. The Chinese forest certification committee (CFCC) was built up, SFA promulgated the *Rules for the implementation of forest certification in China*, *Forest management in forest certification of China (GB/T 28951-2012)*, *Chain of custody in forest certification of China (GB/T 28952-2012)*, and released two professional standards including

China forest certification, forest ecological service and nature reserve in 2013. Due to all these efforts, China forest certification system (CFCS) has been created and mutually admitted with the international forest certification schemes (PEFC).

China started CFCS pilot in 2010, and expanded to Jiangxi, Fujian, Shandong, Zhejiang, Hebei, Heilongjiang and Beijing in 2011. At present, total of 16 provinces (autonomous regions and municipalities) promote the Pilot, covering forest management, chain of custody, non-wood forest products, bamboo forest, production and operation of rare and endangered species, forest ecological environment service and so on. Up to the end of 2013, there are 15 forest management units issued the certificates of CFCC forest management certification, certified forest area reaches 2098.5 thousand ha; and 8 forest products enterprises obtained the certificates of CFCC chain of custody (CoC) certification.

17. How much money do governments collect from and spend on forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

17.1 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose revenue include: <ul style="list-style-type: none"> • Goods : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • Services : including concession fees and royalties, stumpage payments, public timber sales revenue taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities.
Public expenditure on forestry	All government expenditure on forest related activities.

17.2 National data

17.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	China forestry statistical yearbook	Forestry investment	2000, 2005, 2010	Annual statistics
2	Thematic analysis of forestry financial revenue and expenditure	Public revenue and expenditure	2000, 2005, 2010	Annual statistics
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	3157130	2548970	3637900
Public expenditure on forestry	14969120	40315260	78925890
	2000	2005	2010

Name of Local Currency	Chinese yuan(RMB)	Chinese yuan(RMB)	Chinese yuan(RMB)
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17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	Forestry financial revenue decreased in 2005 because of the rescissory agricultural special products tax. In recent years, it present a positive growth with the development of forestry industry and forestry GDP increase.
Public expenditure on forestry	Entering the 21st century, central government has enlarged the supporting of forestry and ecological improvement. The conversion of cropland to forests was fully actuated in 2002 and 2003, rebuilding the shanty town (dilapidated building) and pilot of forest fostering subsidies were launched in 2005, the special plan of consolidating the results of conversion of cropland to forests was initiated in 2007. The amount of state funds invested in forestry is substantially increasing.
Other general comments	For table 17, public expenditure on forestry only covers financial input from central government, excluding from all levels of local financial forestry input which higher than input from central government#

Other general comments

Category	Revenue/expenditure(000yuan)		
	2000	2005	2010
Forestry financial revenue ¹	315713	254897	363790
Business expense ²	97796	117104	392407
Transfer payment ²	1399116	3914422	7500182

Note: 1.Forestry financial revenue include the silviculture fund collected by the local forestry agencies and turned in the financial agencies, as well as the added-value tax, sales tax and income tax paid by the state-owned forestry enterprises, forest farms and nurseries. 2. Forestry public expenditure is the financial input from central government, include business expense (administrative business payment for forestry, education and scientific research, most used for personal and institutional fee of SFA, and other used for provincial scientific technology and education) and transfer payment (other input from central government besides administrative business payment, including infrastructure construction input, national financial funds and agricultural comprehensive development funds, most used for provincial afforestation, forest management, forest protection and forest fire prevention and subsidies of farmers participating at conversion of cropland to forests, etc.)

18. Who owns and manages the forests and how has this changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

18.1 Categories and definitions

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

18.2 National data

18.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National forest resources statistics (1984-1988)	Trees ownership	1986	The 3rd NFI
2	National forest resources statistics (1989-1993)	Trees ownership	1991	The 4th NFI
3	National forest resources statistics (1994-1998)	Trees ownership	1996	The 5th NFI
4	National forest resources statistics (1999-2003)	Trees ownership	2001	The 6th NFI
5	National Forest Resources Statistics (2004-2008)	Trees ownership	2006	The 7th NFI
6	National Forest Resources Statistics (2009-2013)	Trees ownership	2011	The 8th NFI
7	Thematic analysis of collective forest ownership reform	collective forest ownership	2012	Thematic report

18.2.2 Classification and definitions

National class	Definition
State	Owned by the State and state-owned institutions and enterprise.
Collective	Owned by villages and communities.
Individuals	Owned by individuals, families, private co-operatives, corporations, and other private institutions.
N/A	N/A

18.2.3 Original data

Since the reform and open in 1978, the reform of forest ownership in China has been continually promoted. The forestland area managed by the individuals, co-operatives, foreign-funded entities and other private economical entities is gradually increased, and the proportion of managed forest area is further extended. In particular, since reform of collective forest ownership was full promoted in 2008, the proportion of forest resources owned by individual steadily increase, structure of trees ownership is further adjusted. According to the thematic analysis, up to the end of 2012, 99% of collective forest ownership reform area has confirmed the forestland management right. 100 million forest ownership certificates were issued covering 173.60 million ha. There are 89.81 million farmers receive the forest ownership certificates confirming their right to contracted management. Among the area of confirmed forest right, that of the family contracting management account for 67%, 23% of collective management and 10% from large business management or other contracting entities.

The ownership of FRA 2015 is equivalent trees ownership in China. Investigation of trees ownership has been started since the 6th NFI, as the following table shown.

Category	6th NFI(1000 ha)				7th NFI(1000 ha)				8th NFI(1000 ha)			
	Total	State	Collective	Private	Total	State	Collective	Private	Total	State	Collective	Private
Arbor forest	144736.8	70703.8	54317.8	19715.2	157559.8	72155.1	48201.5	37203.2	164603.5	71338.9	33032.4	60232.2
Economic forest	15614.7	796.1	5174	9644.6	14899.3	735.8	1844.4	12319.1	15012.6	642.1	910.7	13459.8
Bamboo forest	4994.9	471.9	2488.5	2034.5	5533.3	394.9	1041.8	4096.6	6006.3	224.9	720.2	5061.2
Open forest land	5999.6	2423.6	2698.1	877.9	4822.2	2171.1	1692.6	958.5	4006.8	1821.9	876.3	1308.6
Unestablished afforestation land	4893.6	849.2	2031.2	2013.2	10461.8	847.9	2446.5	7167.4	6502.6	718.6	1302.5	4481.5
Nursery land	270.9	68.4	133.1	69.4	454	63.8	90.2	300	506.4	51.9	69.8	384.7
Cut-over land	1802.3	558.4	1243.9		1914.7	404.7	1510		2084	255.4	1828.6	
Fired-over land	807.8	190.6	617.2		879.6	231.5	648.1		781.4	147.4	634	

18.3 Analysis and processing of national data

18.3.1 Adjustment

Not necessary.

18.3.2 Estimation and forecasting

The figures on trees ownership in 2000 are estimated based on the results of the 6th NFI, that in 2005 from 7th NFI, and that in 2010 from 8th NFI. It is difficult to estimate ownership structure of trees in 1990. Considering the very small part of private forest at that time, all forest area is classified as the state-owned and the collective.

18.3.3 Reclassification

18.3.3.1 Reclassification matrix of trees ownership

Ownership	Public	Private	Other types	Total
State	100%			100%
Collective	100%			100%
Individual		100%		100%









18.3.3.2 Reclassification matrix of public forest management rights

Ownership	Public Administration	Individuals/ households	Private institutions	Communities	Other form of management rights	Total
State	100%					100%
Collective	100%					100%

18.4 Data

Table 18a

Categories	Forest area (1000 hectares)
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		1990	2000	2005	2010
	Public ownership	157140.6	143051.8	132099.9	115210.5
	... of which owned by the state at national scale	N/A	N/A	N/A	N/A
	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
	Private ownership	0	33948.7	60944	85399.8
	... of which owned by individuals	0	33222.2	59993.3	83802.8
	... of which owned by private business entities and institutions	0	726.5	950.7	1597
	... of which owned by local, tribal and indigenous communities	0	0	0	0
	Unknown ownership	0	0	0	0
TOTAL		157140.60	177000.50	193043.90	200610.30

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 3	Tier 3
Private ownership	Tier 3	Tier 3
Unknown ownership	Tier 1	Tier 1

Tier criteria

Category	Tier for status	Tier for reported trend
Ownership	Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)
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	1990	2000	2005	2010
Public Administration	157140.6	143051.8	132099.9	115210.5
Individuals	0	0	0	0
Private companies	0	0	0	0
Communities	0	0	0	0
Other	0	0	0	0
TOTAL	157140.60	143051.80	132099.90	115210.50

Category	Tier for reported trend	Tier for status
Public Administration	Tier 3	Tier 3
Individuals	Tier 3	Tier 3
Private companies	Tier 3	Tier 3
Communities	Tier 3	Tier 3
Other	Tier 3	Tier 3

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	N/A	N/A
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A
Management rights	N/A	N/A

Other general comments to the table
N/A

19. How many people are directly employed in forestry?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

19.1 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

19.2 National data

19.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	China Forestry Statistical Yearbook	Employment	1990, 2000, 2005, 2010	Annual statistics
2	Thematic analysis of forestry employment	Employment	1990, 2000, 2005, 2010	Thematic report
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

19.2.2 Classification and definitions

National class	Definition
Agriculture, forestry, stockbreeding, fishery	Employment in activities related to primary production of forestry goods, such as industrial roundwood, woodfuel and non-wood forest products. Mainly including employment in logging and terrain transporting enterprise, state-owned forestry farm, state-owned nursery, forestry work station, wood check station, seeding station, prevention and cure station of forest insect & pest, and sand combating station.
Nature reserves management	Employment involved of natural reserve management and wildlife protection.
Wildlife protection	Employment involved of wildlife protection.
N/A	N/A

19.2.3 Original data

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In China, according to national statistical regulations, employee in forestry in first industry is categorized as that in agriculture, forestry, stock breeding and fishery. SFA is responsible to separately count forestry component.

Category	Employment (person)			
	1990 ¹	2000 ²	2005 ³	2010 ³
Agriculture, forestry, stockbreeding and fishery	1870342	1462100	1202498	1132459
Of which female	561154	439853	333403	296674
Nature reserves management		11894	15193	15680
Of which female		2992	3794	3988
Wildlife protection			1220	1331
Of which female			335	375

Note:1. Employment of agriculture, forestry, stockbreeding and fishery in 1990 include that of nature reserves management and wildlife protection. 2. Employment of nature reserve includes wildlife protection in 2000. 3. Female employment in 2005 and 2010 are estimated by the percentage of female within on-duty employment.

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	1870.3	1474	1218.9	1149.5
	... of which female	561.2	442.8	337.5	301

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend

Employment in forestry	Employment excludes self-employment such as farmers depending on forestry. Farmers depending on forestry are the main bodies of forestry development, especially forest management in collective forest region, there are a large population. However, it is difficult to estimate the number of employment because of the unstable employment number and not fixed work person.	N/A
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Other general comments to the table

According to the FAO's definition of employment in forestry, it include employment of agriculture, forestry, stockbreeding and fishery, nature reserve management and wildlife protection involved of state-owned economic entities within forestry system.

20. What is the contribution of forestry to Gross Domestic Product (GDP)?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

20.1 Categories and definitions

Category	Definition
Gross value added from forestry (at basic prices)	This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

20.2 Data

Table 20 (Pre-filled data from UNdata/EUROSTAT)

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	N/A	N/A	N/A

20.3 Comments

Category	Comments
Gross value added from forestry	no data available

Other general comments

According to relevant regulations about national statistics, gross value added from sectors isn't added up. Stemmed from the centralized management duty, state forestry authority of State Council sums up the annual forestry gross domestic production (GDP). Forestry GDP in China has increased by 11 times since 2000 to 3.9 trillion RMB (current price) in 2012 as showed in the following table.

Category	Gross production (billion yuan)						
	2000	2001	2002	2003	2004	2005	2006
forestry GDP	355.5	409	463.4	586	689.2	845.9	1065.2
	2007	2008	2009	2010	2011	2012	
forestry GDP	1253.3	1440.6	1749.4	2277.9	3059.7	3945.1	

It should be noted that the forest GDP glasses the development of forestry industry and econoic achievements since 2000 in China in above table. It isn't equivalent to Gross value added to GDP in both of definition and scope.

21. What is forest area likely to be in the future

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

21.1 Categories and definitions

Category	Definition
Government target/aspiration for forest area	Government target/aspiration for forest area for a specific year.
Forests earmarked for conversion	Forest area that is allocated/classified or scheduled to be converted into non-forest uses.

21.2 National data

21.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	The decision on accelerating forestry development	Forest coverage	2020, 2050	N/A
2	Outline of national forestland protection and utilization plan	Quota of forestland requisition and occupation	2010-2020	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	220800	230400

Table 21b

Category	Forest area (000 ha)
	2013
Forests earmarked for conversion	69.4

21.4 Comments

Category	Comments
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Government target/aspiration for forest area	Based on the forestry development goals in the decision on accelerating forestry development issued by the central committee of the Communist Party of China and State Council on June 25, 2003, forest coverage will reach more than 23% in 2020, and achieve and stabilize 26% in 2050. Accordingly estimates, national forest area will come up to 220.8 million ha in 2020, and 249.6 million ha in 2050. That in 2030 will attain 230.4 million ha by interpolation between 2020 and 2050
Forests earmarked for conversion	Forest area earmarked for conversion is reckoned using the quota of forestland requisition and occupation (annual 105.2 thousand ha) during 2011-2020 and proportion of forest area in national forestland (about 66%).

Other general comments

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