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The Forest Resources Assessment Programme

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

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

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

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

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Furthermore, the total of 2000 experts and technicians from relevant departments of SFA and forestry agencies at sub-national levels participated in thematic investigation, data collection, information processing and analysis, thematic report compilation and results consultation. Thanks for their contribution in the country reporting for FRA2010.

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Introduction

Global forest resources assessment (FRA) is the globally periodical assessment activities about forest resources conducted by FAO. The member states of FAO take part in FRA and provide the update national information on forest resources conditions. The periodic FRA reports serve as important references to illustrate the progress towards sustainable forest management at the national level. FRA findings also become the significant input for the assessment of the status of international conventions promise implementation. At the first session of the Conference of FAO, the need for up-to-date information on the forest resources of the world was highlighted. Stemmed from the constitution of FAO, the first FRA was initiated in 1947. The sixth session of the FAO Conference recommended that the Organization “maintain a permanent capability to provide information on the state of forest resources worldwide on a continuing basis”. Up to now, 11 FRAs have been conducted by FAO, and the ongoing FRA2010 is the 12th assessment.

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 and FRA2005 on behalf of China government, and submitted the national reports about forest resources development and the progress of forestry construction in China. Particularly, a special working group in China was formed to prepare a high-quality report for FRA2005, based on the results from *national forest inventories* and *China forestry statistical yearbook*, etc. China report was fully affirmed by FAO evaluated as the highlight during FRA2005.

The State Forestry Administration attaches great importance to the global forest resources assessment 2010, the relevant 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 from FAO. Furthermore, that the technical force at provincial level and local forest management units are mobilized to join in the special investigations and collect local information ensures collected data full and accurate. The coarse estimate shows the number of participated experts and technician is over 2000. Fulfilling the timetable of FRA2010 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 March 2008. 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.

The general situation of forestry monitoring & statistics in China

Forestry monitoring is the basic and important component of forestry construction, aiming at identification of forestry resources and its management conditions. 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, and the monitoring schemes in terms of forest fire and forest 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 gathered in the next year, and the *Yearbook of National Forestry Statistics* is often published. Furthermore, the national statistics related to the specific tasks of the forestry departments and agencies of SFA are periodically collected from the lower agencies. The continuous improved forestry monitoring & statistics provide accurate-effective information at national level. The detailed information on the existing forestry monitoring & statistics schemes directly closed with FRA2010 is listed in table 1.

Table 1 The general information on some forestry monitoring schemes in China

Monitoring schemes	Objective	Methods	Indicators	impementation
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.	157 indicators in terms of quantity, quality, structure and functions	6 NFIs finished The field survey of 7 th NFI came to end in 2008, and 8 th NFI is started in 2009.
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 gather by month/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 FRA2010

The State Forestry Administration (SFA) attaches great importance to FRA2010. Aiming at solid completion of country reporting for FRA2010, the Administrator of SFA (Mr. Jia Zhibang) presided over the specific meeting on June 24, 2008. He debriefed working report about FRA2010 and China's responsibility, and deployed the specific assessment. Oriented from the decision of the meeting, a cross-departments leading group is set up. Mr. Jia Zhibang serves as the lead of this group, the Director Generals of 14 forestry departments and agencies of SFA covering forest resources, forestry international cooperation, finance and plan, personnel, afforestation, protection, disaster prevention, science and policies, etc. are members of the group. The secretariat is set up for organization, coordination and supervision of China reporting on behalf of the leading group. 13 academician and top forestry experts in China are invited to take charge of technical guidance, consultation on the key issues, and the quality of country report. A task force consisting of multi-technical force is established for the compilation of country report. The total of 14 departments and forestry agencies of SFA are fully involved of FRA2010, and nominate the coordinators and assessment staff to carry out the thematic analysis (as showing in table 2). The technical force at sub-national level joined in the special investigation and information collection. Over 2000 experts and technician work for FRA2010 in China.

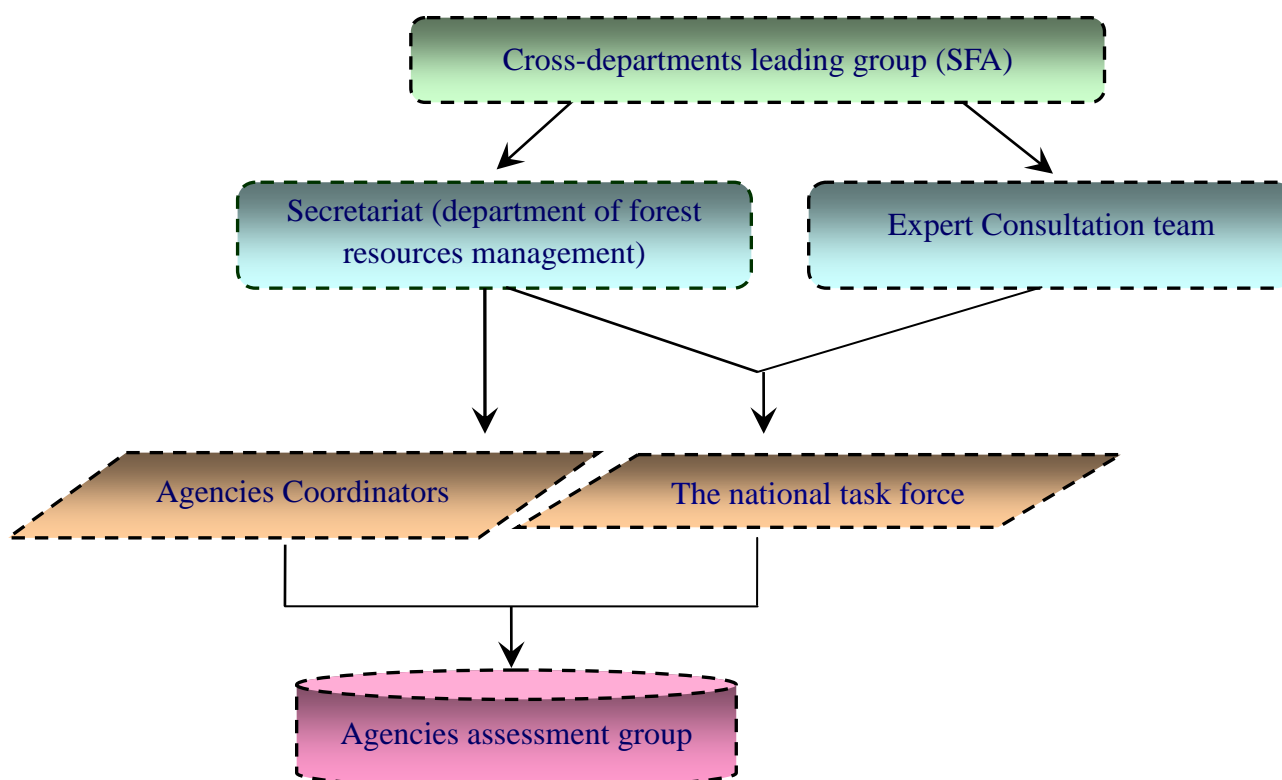


Fig. 1 Organization framework of China reporting to FRA2010

Table 2 The forestry agencies of SFA and responsibility

Organization	Responsibility
Department of Forest Resources Management (The task force)	Thematic analysis in terms of forest resources, afforestation/reforestation species composition and forest biomass and carbon stock
	Compilation of country report
Department of International cooperation	International coordination, submission and confirmation of national assessment results
Department of Forestry Development Planning and Financial Management	Thematic analysis: wood removal & non-wood products, employment in forestry primary production and forestry financial revenue and expenditure
Department of Wildlife Protection and Natural Reserve Management	Thematic analysis: natural reserve establishment and management
Department of Afforestation	Thematic analysis: plantation tree species structure, forest insect & pests and invasive woody species
Department of Forestry Policy and Regulation	Thematic analysis: forestry policy, laws and regulation construction
Personnel Department	Thematic analysis: forestry institution and education
Department of Science and Technology	Thematic analysis: forestry research
Science and Technology Development Center	Thematic analysis: forest certification
Bureau of Forest Police	Thematic analysis: forest fire
General Station of State-owned Forest Farm and Trees Seedlings	Thematic analysis: national forest park establishment and management
Force at sub-national level	Assisted collection of relevant basic data

In order to review the progress of thematic analysis and solve the existing issues, the agency-coordinators meeting on strengthening of harmonization of China reporting to FRA2010 was launched by SFA on September 26, 2008 to find out the reasonable countermeasures for strengthening the agencies-coordination and promotion of national reporting. Relevant tasks for FRA2010 in China are performed smoothly with the concerted efforts of all organization and personnel since March, 2008. All thematic analysis is finished on schedule, and national report then prepared.

Preparation phase

The technical documents including *Specification of National Reporting Table for FRA2010 and Guidelines for Country Reporting to FRA2010* were translated into Chinese version, and provided the relevant Departments of SFA as technical guideline, after the Technical Meeting of the National Correspondents of FRA 2010 on 3-7 March 2008 in Rome. The cross-department leading group is

set up, and the secretariat is founded in the Department of Forest Resources Management. Expert consultation group and the task force are established, and agency-assessment groups are also formed under the direct lead of Director General. The work scheme of national reporting was prepared by SFA to identify assessment contents, undertaken agencies, agency-coordination, work plan and specific requirement. Country reporting tables are further divided into forest resources analysis and other 13 themes. The departments of SFA are responsible for the information collection, data process, estimate/forecasting, indicator coordination and compilation of agencies function-related thematic report.

Thematic analysis phase

Since September, 2008, the participated experts and technicians deeply learned *the guideline and technical specification of FRA2010*, aiming at the specific assessment issues and covered C&I and the detailed requirements. The coordination of assessed indicators definition/ standard between FRA2010 and China current forestry monitoring system are carried out, especially focused on the new indicators or definition changed indicators compared to FRA2005. Existing national data collection is performed. Thematic investigation of some issues such as planned forest fire, prices of industrial round-wood and value of non-wood products are carried into execution, relying on the assistance of relevant forestry agencies and local government. According to *guidelines for Country Reporting to FRA2010*, data processing, analysis/evaluation and indicators assessment are done by the relevant forest agencies. Based on the above results, the corresponding thematic assessment tables are filled and thematic reports excluding forest resources analysis are formed in January, 2009.

Country report compilation phase

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 forecastation are strengthened in the results of thematic assessment. The national report for FRA2010 is prepared based on the systematical compiled national reporting tables covering all assessment issues.

Consultation and validation phase

The national report is sent to the forestry agencies of SFA for thematic consultation early in June, 2009. The assessment results are carefully verified and in-depth studied by the experts from relevant forestry departments. Benefit on the feedback advice, national report is revised again, and passes through the validation of 19 academicians and renowned experts at the meeting of FRA2010 national report held on August 4, 2009.

Compilation of national reporting tables

All 27 national reporting tables covering 17 issues are completely analyzed and systematically filled, based on national forestry monitoring & statistics.

Compilation of national reporting tables

The tables including T1, T2a, T2b, T3a, T3b, T4a, T4b, T5, T6a, T6b, T7, T8, T9b, T10b, T11, T12, T14, T15a, T15b, T16a, T16b and T17a are fully filled. The tables including T9a, T10a, T13 and T17b are partially compiled. T10c is default because of not available information on the invasive woody species in China. The detailed information lists in the following table.

Table 3 Compilation of country reporting tables for FRA2010

Reporting tables		information	Comments
T1		Complete	
T2	T2a	Complete	
	T2b	Complete	
T3	T3a	Complete	
	T3b	Complete	
T4	T4a	Complete	
	T4b	Complete	
T5		Complete	
T6	T6a	Complete	
	T6b	Complete	
T7		Complete	
T8		Complete	
T9	T9a	Partial	Not available figures on vegetation fire in other wooded land and other land
	T9b	Complete	
T10	T10a	Partial	Not available figures on disturbance by abiotic factors
	T10b	Complete	
	T10c	Absent	Not available information on invasive woody species
T11		Complete	
T12		Complete	
T13		Partial	The figures on self-employment are absent
T14		Complete	
T15	T15a	Complete	
	T15b	Complete	
T16	T16a	Complete	
	T16b	Complete	
T17	T17a	Complete	
	T17b	Partial	The figure on external funding in 2000 is absent

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 FRA2010 are adopted as the basic data sources.

- The *National Forest Resources Statistics* (3rd NFI: 1984-1988, 4th NFI: 1989-1993, 5th NFI: 1994-1998, 6th NFI: 1999-2003), and national statistics during the 7th NFI (2004-2008) provide basic information on national forest resources during recent 20 years.
- *China Forestry Statistics Yearbook* since 1988, providing the annual national figures on afforestation, natural reserve establishment, forest disaster, wood & non-woody forest products, employment, education and funding, etc.
- Dept. statistics and monitoring results including comprehensive check of afforestation effect, forest fire monitoring and forest biotic agents investigation.
- Thematic investigation for FRA2010, such as planned fire, wood & other woody products value and forest certification.

Calibration

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 FRA2010 and Specification of national reporting tables for FRA2010*, several assessment methods are used. Among them,

- Estimate, including (a) Linear interpolation between two NFIs adopted to estimate the indicators about national forest resources in 1990, 2000 and 2005, (b) 5-year average for wood removal, forest fire and biotic agents in 1990, 2000 and 2005, (c) annual Stat. for forest financial revenue & expenditure, forest research & education, institutional construction, other woody products removal and employment etc, (d) BEF method from FAO for forest biomass and carbon stock.
- Forecasting, performed based on the actual conditions of forestry development and forestry plan, focused on forest resources, forest area in nature reserve and forest park in 2010.
- Qualified evaluation for the issue on forestry policy and law to reflect the framework of forestry developing law & policies in China.

Indicators standard coordination

Huge gaps of definition and criteria happen among major assessment indicators including forest extent between FRA2010 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 divide and integrate relevant indicators to ensure the coordination in terms of definition and criterias.

1 Table T1 -Extent of Forest and Other wooded Land

1.1 FRA2010 Categories and definitions

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

1.2 National Data

1.2.1 Data sources

Reference	Quality (H/M/L)	Variable	Year	Additional comments
National Forest Resources Statistics (1984-1988)	H	Extent	1986	The 3 rd NFI
National Forest Resources Statistics (1989-1993)	H	Extent	1991	The 4 th NFI
National Forest Resources Statistics (1994-1998)	H	Extent	1996	The 5 th NFI
National Forest Resources Statistics (1999-2003)	H	Extent	2001	The 6 th NFI
National Statistics during 7 th NFI (2004-2008)	H	Extent	2006	The 7 th NFI
China Statistical Yearbook	H	Country area	2007	Statistics
China Forestry Statistics Yearbook	H	Plantation area	2001-2007	Statistics

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 0.067 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 <i>in situ</i> .
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. 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.
Forestry auxiliary land	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.

1.2.3 Original data

Land use	Area (1000 ha)				
	1986	1991	1996	2001	2006
Arbor forest	107248.8	113700.0	134355.7	144736.8	157559.8
Economic forest	13743.8	16098.8	20222.1	21390.0	20410.0
Bamboo forest	3660.2	3904.7	4363.1	4994.9	5533.3
Open forest land	19636.5	18025.7	7195.0	5999.6	4822.2
Shrub land	28116.0	29706.3	34445.7	45296.8	53653.4
Unestablished afforestation land	7288.1	7138.3	4615.1	4893.6	10461.8
Unestablished enclosure land	-	-	-	-	864.5
Nursery land	184.5	114.9	122.5	270.9	454.0
Cut-over area	3096.0	2756.8	2506.0	1802.3	1914.7
Fired-over area	1334.6	912.8	600.8	807.8	879.6
Other non-stocked forestry land	-	-	-	-	4301.8
Forest suitable land	82181.6	69591.4	53929.9	54713.1	44035.4
Forestry auxillary land	-	-	-	-	1013.6
Other land	693509.9	698050.3	697644.1	657059.6	654095.9
Total	960000	960000	960000	960000	960000

Note: Unestablished enclosure land, other non-stocked forestry land and forestry auxilliary land are new forestry land types inventoried during the 7th NFI, and not investigated during other NFIs.

1.3 Analysis and Processing of National Data

1.3.1 Calibration

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.

1.3.2 Estimation and forecasting

• Estimation

The figures in 1990, 2000 and 2005 are estimated by the interpolation between the neighboring two NFIs. For example, the interpolation equation for the forest extent in 2005 as shown

$$Value_{2005} = Value_{2006} - (Value_{2006} - Value_{2001})/5$$

There aren't available figures on unestablished enclosure land, other non-stocked forestry land and forestry auxilliary land during the previous NFIs, except the 7th NFI (2004-2008). The area of above three categories during the 7th NFI is used to estimate that in 2005.

• Forecasting

Entering the 21st century, forestry developing strategy focused on ecological restoration is carried into execution. A series of key forestry programmes in terms of natural forest protection, conversion of cropland to forest, sandy cure around Beijing and Tianjing, et.al are gradually performed. Important achievements have been achieved in terms of plantation and forest conservation, and supervision and management of forest resources are continuously strengthened. All of these measures have strongly promoted the protection and development of forest resources. It shows the positive trend of forest resource increase in a high rate.

The area of Forest and other wooded land in 2010 are forecasted based on the national statistics from the 7th NFI and afforestation in recent 10 years, as the following equations showing:

1. Area of arbor forest in 2010:

$$Area = area_{2006} + area_{af} \times rate_{arbor} \times rate_p + area_{refn} - area_{asub}$$

Where,

- (a) $area_{af}$, the area of afforestation during 2003 - 2006. According to specification of NFI in China, afforestation land which reaches the thresholds of forest land during 4 years classified as arbor forest, otherwise as unestablished afforestation land. The total afforestation area (19804.73 thousand ha) during 2003- 2006 is used to calculate arbor forest area in 2010,
- (b) $rate_{arbor}$, the percentage (84%) of arbor species in $area_{af}$. According to the annual comprehensive check of afforestation, the planting percent of shrub species is about 14% during 2003-2006, which is deducted from the annual afforestation area,
- (c) $rate_p$, the forested rate (75%) is the value that multiply afforestation qualified rate (88%) by survival rate (85%) of qualified afforestation land per year since 2003, which come from the annual comprehensive check of afforestation,
- (d) are_{refn} , the forested area by natural regeneration during 2007 - 2010. The annual natural regenerated area is estimated based on the natural regenerated area during the 7th NFI interval,
- (e) $area_{asub}$, the area of arbor forest converted to other land uses during 2007 - 2010. The annual converted arbor forest area during 2007-2010 is estimated based on the converted forest area during the 7th 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 in 2010

$$Area = area_{2006} + area_{af} \times rate_p - area_{asub}$$

Where,

- (a) $area_{af}$, the area of economic species afforestation during 2007 - 2010 (1676.3 thousand ha). According to the actual condition of economic species afforestation since 2001, it is assumed that the annual afforestation area of economic species per year during 2007 - 2010 is similar to that during 2004 - 2007 (1676.3 thousand ha),
- (b) $rate_p$, the afforestation qualified rate (88%),
- (c) $area_{asub}$, the area of economic forest converted to other land uses from 2007 to 2010. The annual converted economic forest area during 2007-2010 is estimated based on the converted economic forest area during the 7th 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 in 2010

$$Area = area_{2001a} + area_{af} \times rate_p - area_{asub}$$

Where,

- (a) $area_{af}$, the afforestation area during 2006 - 2009, according to the general rule that afforested bamboo become forest in the second year in China. It is assumed that the annual afforested area of bamboo during 2006 - 2009 (98.39 thousand ha) is similar to that during 2004 - 2007 (393.56 thousand ha),
- (b) $rate_p$, the afforestation qualified rate (88%),
- (c) $area_{asub}$, the area of bamboo forest converted to other land uses from 2007 to 2010. The annual converted bamboo forest area during 2007-2010 is estimated based on the converted forest area during the 7th 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 2010 is calculated by extrapolation method based on the change during the 6th NFI and 7th NFI intervals.

5. Area of unestablished afforestation land

$$Area = area_f \times rate_{arbor} \times rate_r$$

Where,

- (a) $area_f$, the afforestation area from 2007 to 2010. It is assumed that the average planting area (3070.93 thousand ha) during 2007 - 2010 is same as that during 2005- 2007.
- (b) $rate_{arbor}$, the percentage of arbour afforestation (90%) in $area_f$, oriented from the annual check results of afforestation during 2005 - 2007.
- (c) $rate_r$, the afforestation qualified rate (88%).

6. Area of cut-over area and fired-over area

$$Area = (area_{f2001} + area_{f2006}) / 2$$

Where, $area_{f2001}$ the area of fired-over /cut-over land during the 6th NFI, and $area_{f2006}$ the area of fired-over /cut-over land during 7th NFI.

7. Area of forest suitable land

The area of forest suitable land in 2010 is calculated by extrapolation method based on the change during the 6th NFI and 7th NFI intervals.

8. Area of unestablished enclosure land, other non-stocked forestry land and forestry auxilliary land

The national statistics on Area of unestablished enclosure land, other non-stocked forestry land and forestry auxilliary land during the 7th NFI are used to forecast them in 2010.

The estimated/forecasted results:

Land use	Area (1000 ha)			
	1990	2000	2005	2010
Arbor forest	112409.8	142660.6	154995.2	171859.2
Economic forest	15627.8	21156.4	20606.0	16955.3
Bamboo forest	3855.8	4868.5	5425.6	5712.3
Open forest land	18347.9	6238.7	5057.7	3880.3
Shrub land	29388.2	43126.6	51982.1	60338.7
Unestablished afforestation land	7168.3	4837.9	9348.2	9728.7
Unestablished enclosure land	-	-	864.5	864.5
Nursery land	128.8	241.2	417.4	600.5
Cut-over area	2824.6	1943.0	1892.2	1858.5
Fired-over area	997.2	766.4	865.2	843.7
Other non-stocked forestry land	-	-	4301.8	4301.8
Forest suitable land	72109.5	54556.5	46170.9	35493.2
Forestry auxillary land	-	-	1013.6	1013.6
Other land	697142.1	679604.2	652926.5	646549.7
Total	960000	960000	960000	960000

1.3.3 Reclassification into FRA 2010 categories

Land use (China)	FRA 2010					
	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	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%	
Forestry auxillary land		100%				
Other land (excluding inland water)			100%		100%	n.a. ³

Inland water				100%	100%	
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(Note: ¹⁾ 73% of economic forest is classified as forest, and the remainder (fruit forest) classified as other land and OLWTC. ²⁾ Not available information about “other land with tree cover”. ³⁾ n.a. denotes “not available”.)

1.4 Data for table T 1

FRA2010 categories	Area (1000 ha)			
	1990	2000	2005	2010
Forest ¹	157140.6	177000.5	193043.9	206860.6
Other wooded land	101497.7	97683.1	104332.9	102011.8
Other land	683891.7	667846.4	645153.2	633657.6
Of which with tree cover ²	n.a.	n.a.	n.a.	n.a.
Inland water bodies	17470	17470	17470	17470
Total for Country Area	960000	960000	960000	960000

(Note: ¹⁾ forest spanning more than 0.0667 ha in China; ²⁾ the investigation about “other land with tree cover” isn’t initiated, there is not available information about it.)

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest		
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.	
Other land		
Other land with tree cover		
Inland water bodies		

Other general comments to the table

(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. 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. Furthermore, Specific investigation of sub-category “Other land with tree cover” isn’t carried out in China, and the actual national figures aren’t available.

(2) It is a positive trend for forestry land area increase since 1990s, benefiting from continuously strengthened forestry land protection and implementation of forestry key programmes along with the in-depth promotion of national ecological rehabilitation policies.

3) Total country area data do not correspond with the figures currently in FAOSTAT and that efforts are underway to change the figures in FAOSTAT

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping

Field inventory	The 7 th NFI finished in 2008, and the 8 th NFI started in 2009
Remote sensing survey / mapping	Remote sensing survey is the important component of NFI, and performed in phase with field visit. RS mapping report when the 7 th NFI is planned to be published in 2010.

2 Table 2-Forest ownership and management rights

2.1 FRA2010 Categories and definitions

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

Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

2.2 National data

2.2.1 Data sources

Reference	Quality (H/M/L)	Variable	Year	Additional comments
National forest resources statistics (1984-1988)	H	Ownership	1986	The 3 rd NFI
National forest resources statistics (1989-1993)	H	Ownership	1991	The 4 th NFI
National forest resources statistics (1994-1998)	H	Ownership	1996	The 5 th NFI
National forest resources statistics (1999-2003)	H	Ownership	2001	The 6 th NFI
National Statistics during 7 th NFI (2004-2008)	H	Ownership	2006	The 7 th NFI
Thematic study on forestry policy, law and statute	H	Ownership	2008	Thematic study

2.2.2 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.

2.2.3 Original data

Since the reform and open in 1978, the reform of forest ownership in China has been continuing promoted. The forestry land area managed by the individuals, co-operatives and corporations is gradually increased, and the proportion of managed forest area is continually extended. Investigation of forest ownership is started since the 6th NFI, as the following table showing:

Forest ownership (FRA2010)	Area (1000 ha) ¹			
	State	Collective	Private	Total
The 6 th NFI	76062.0	68703.8	34354.8	179120.6
The 7 th NFI	77004.8	57475.1	62044.7	196524.7

(Note: excluding fruit forest)

2.3 Analysis and Processing of national data

2.3.1 Calibration

Not necessary.

2.3.2 Estimation

The figures on forest ownership in 2000 come from the 6th NFI, and that in 2005 from 7th NFI. The ownership composition of forest isn't investigated before 6th NFI, great changes have happened in terms of forest ownership since 1990 stemmed from the results of experts analysis. It is difficult to estimate ownership structure of forest 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.

2.3.3 Reclassification

2.3.3.1 Reclassification matrix of T2a

Ownership ¹	Public	Private	Other types	Total
State	100%			100%
Collective	100%			100%
Individual		100%		100%

(Notes: ¹ Trees ownership structure in china consists of state-owned, collective and individual forms. The private ownership can't be further subdivided by individuals, private business entities and institutions, local communities, indigenous and tribal communities, etc.)

2.3.3.2 Reclassification matrix of T2b

Ownership ¹	Public Administration	Individuals/ households	Private institutions	Communities	Other form of management rights	Total
State	100%					100%
Collective	100%					100%

(Notes: ¹The state-owned forest is generally managed by the local government, state-owned forest farm/ enterprises, and the collective forest is generally managed by the collective economic organization at village levels, according to the national laws.)

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	157140.6	143052.3	132098.0
Private ownership		33948.2	60945.9
...of which owned by individuals		n.a.	n.a.
...of which owned by private business entities and institutions		n.a.	n.a.
...of which owned by local communities		n.a.	n.a.
...of which owned by indigenous / tribal communities		n.a.	n.a.
Other types of ownership	n.a.	n.a.	n.a.
TOTAL	157140.6	177000.5	193043.9

Does ownership of trees coincide with ownership of the land on which they are situated?	Yes ()	No (<input checked="" type="checkbox"/>)
If No above, please describe below how the two differ:		
There are differences between trees ownership and land ownership. The land ownership include two categories namely “the state-owned and collective”, however, individual form exists in trees ownership besides above two categories.		

Table 2b - Holder of management rights of public forests

FRA 2010 categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	157140.6	143052.3	132098.0
Individuals			
Private corporations and institutions			
Communities			
Other			
Total	157140.6	143052.3	132098.0

(Note: The public forest is generally managed by public administration agencies including the state-owned forest farm / enterprises and the collective economic organization at village levels, according to the national laws.)

2.5 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		
Private ownership		
Other types of ownership		
Management rights		
Other general comments to the table		
Investigation of forest ownership is carried out since 6 th NFI, trees ownership structure in 2000 and 2005 keep consistent with that during 6 th NFI and 7 th NFI intervals respectively.		

3 Table T3-Forest designation and management

3.1 FRA2010 Classifications and definitions

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

3.2 National data

3.2.1 Data sources

Reference	Quality (H/M/L)	Variable	Year	Additional comments
National forest resources statistics (1984-1988)	H	Designated function	1986	The 3 rd NFI
National forest resources statistics (1989-1993)	H	Designated function	1991	The 4 th NFI
National forest resources statistics (1994-1998)	H	Designated function	1996	The 5 th NFI
National forest resources statistics (1999-2003)	H	Designated function	2001	The 6 th NFI
National Statistics during the 7 th NFI (2004-2008)	H	Designated function	2006	The 7 th NFI
Thematic analysis on natural reserve construction and management	H	Natural reserve	2008	Statistical data
Thematic analysis on national forest park construction and management	H	Forest park	2008	Statistical data
Thematic analysis on forest certification	H	Forest certification	2008	Statistical data

3.2.2 Classification and definitions

National class	Definitions
Timber forest	Forest land supplying industrial wood.
Protection forest	Forest land designated for ecological protection.
Firewood forest	Forest land yielding heat energy materials.
Economic forest	Forest land only for non-wood forest product, not include fruit forest.
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.

3.2.3 Original data

3.2.3.1 Designated function

Designated function	Area (1000 ha)				
	1986	1991	1996	2001	2006
Timber forest	80069.6	84928.6	99395.0	78625.8	60074.4
Protection forest	19619.1	21134.7	26541.0	56696.4	83916.7
Firewood forest	4443.8	4288.6	4451.7	3034.4	1747.3
Special purpose forest	3116.3	3348.1	3968.0	6380.2	11821.4

Economic forest ¹	10033	11752.1	14762.1	15614.7	14899.3
Bamboo forest	3660.2	3904.7	4363.1	4994.9	5533.3
Open forest land	19636.5	18025.7	7195.0	5999.6	4822.2
Unestablished stands	7288.1	7138.3	4615.1	4893.6	10461.8
Nursery land	184.5	114.9	122.5	270.9	454.0
Cut-over area	3096.0	2756.8	2506.0	1802.3	1914.7
Fired-over area	1334.6	912.8	600.8	807.8	879.6
Total	152481.7	158305.3	168520.3	179120.6	196524.7

Note: ¹) Excluding fruit forest.

3.2.3.2 Forest management scheme

According to the *Forest Law of People's Republic of China*, the scheme for forest management is generally compiled at an interval of one management term (10 years) by the state-owned management agencies, collective economic organization, mainbodies of non-public management and county forestry authority. However, at present there aren't still documents about local forest management scheme compilation. The forest area managed by the scheme isn't also clear, and can only be obtained by expert estimate.

According to the limited existing documents, the percent of forest management units or county performed inventory for forest management in late 1980s was about 30%, the percent reached 35% in 2000. There are 80% of forest management units and county carried out the inventory for forest management in recent 10 years. With the expert estimate based on the real situation of inventory for forest management in different phases, the area of compiled forest management scheme occupies about 20% of total forest area in late 1980s, 25% for 2000 and 50% for 2005.

3.2.3.3 Forest certification

Forest certification in China was initiated relatively late. The process of forest certification was formally started up in 2001. National forestry standards on the certification of forest management, production and sale supervision chain are formed and promulgated in 2007. The pilot study on national forest certification is started in 2006. Up to now, the total of 24 pilot study sites has been built up. At the same time, the systems of FSC and PEFC have been introduced to certify sale supervision chain and forest management in China since 2002. According to the thematic analysis on forest certification, the certified forest area and the area in progress by FSC is listed in the following table.

Forest certification (FRA2010)	Area (1000ha)			
	1990	2000	2005	2010
Certified forest area			430	3000
Forest area ready for certification			600	4800
Total			1030	7800

Note: forest area in the table certified by FSC or certification in progress come from the FSC website, and excludes that by Chinese forest certification system.

3.2.3.4 Natural reserve

China government attaches great importance to protection of typical ecosystem, biodiversity and rare-endangered wildlife species. The establishment of nature reserve has been started since 1950s, a batch of primary forest and rare-endangered wildlife reserve were built, for example fenglin reserve in Heilongjiang province, Tianmu mountain reserve in Zhejiang province, Dinghu mountain reserve in Guangdong province and Xishuangbanna reserve in Yunnan province. The regulation of natural reserve management in terms of forest and wildlife protection, and the Statute of nature reserve were promulgated successively. The establishment of nature reserves is being fully driven. The total of 2538 natural reserves were established by the end of 2008, the protected area reaches 149 million ha covering 15.13% of country area. Among them, the total of 2006 forestry natural reserves have been established, the protected area reaches 122.8 million ha covering 12.78% of country area. According to the development plan for forestry natural reserve, the area of forestry natural reserve will occupy about 13.5% of country area in 2010.

Natural reserve	Area (1000ha)		
	1990	2000	2005
Area of forestry natural reserve	50590 ¹	102000	119885
Of which Forest area	4513 ²	9100	11000

(Notes: ¹) There isn't available figure on forestry natural reserve area in 1990, and instead by that in 1992. ²) There isn't available figure on forest area in forestry natural reserve in 1990, and estimated based on the percent of forest in forestry natural reserve in 2000.)

3.2.3.4 Forest park

The total of 660 national forest parks, 1011 provincial forest parks and 480 forest parks at county-level were established by the end of 2007, since the first national forest park was built in 1982. The number of forest park tourist reaches over 247 million person-times, the direct financial revenue reaches 15.8 billion Chinese yuan, and the comprehensive GDP 120 billion Chinese yuan occupying 10 percent of forestry GDP in 2007. The important progresses in terms of forest park establishment have been achieved.

According to the thematic analysis of national forest park establishment and management, area of forest park listed in the following table since 1990s. The proportion of forest area in the forest park reaches about 80% of the total of forest park area based on the expert estimate.

Year	Forest park area (1000ha)	Year	Forest park area (1000ha)
1991	345.88	2000	9837.83
1992	2240.81	2001	11383.48
1993	4238.95	2002	12689.55
1994	6372.88	2003	13900.16
1995	6669.18	2004	14601.86
1996	7337.16	2005	15134.17
1997	7473.65	2006	15693.20

1998	7884.2	2007	15974.70
1999	9125.31		

3.3 Analysis and Processing of National data

3.3.1 Calibration

Not necessary.

3.3.2 Estimation and forecasting

3.3.2.1 Designated function

- Estimation (1990, 2000 and 2005)

Forest area by the designated functions in 1990, 2000 and 2005 is estimated with the interpolation between the two NFIs. For example, the interpolation equation for forest area by the functions in 2005 as shown

$$Value_{2005} = Value_{2006} - (Value_{2006} - Value_{2001})/5$$

- Forecasting (2010)

The arbor forest area by designated functions in 2010 is forecasted with the percent of different designated functions in the arbor forest during the 7th NFI.

The forecastation of other land area in 2010 keeps consistent with that in T1.

- The results of estimation and forecasting:

Designated function	Area (1000 ha)			
	1990	2000	2005	2010
Timber forest	83956.8	82779.6	63784.7	65529.9
Protection forest	20831.7	50665.3	78472.6	91532.2
Firewood forest	4319.6	3317.9	2004.7	1907.6
Special purpose forest	3301.7	5897.8	10733.2	12889.5
Economic forest	11408.3	15444.2	15042.4	12377.4
Bamboo forest	3855.8	4868.5	5425.6	5712.3
Open forest land	18347.9	6238.7	5057.7	3880.3
Unestablished afforestation stands	7168.3	4837.9	9348.2	9728.7
Nursery land	128.8	241.2	417.4	600.5
Cut-over area	2824.6	1943.0	1892.2	1858.5
Fired-over area	997.2	766.4	865.2	843.7
Total	157140.7	177000.5	193043.9	206860.6

3.3.2.2 Managed forest area by forest management scheme

The managed forest area by forest management scheme in 1990, 2000, 2005 and 2010 occupies respectively 20%, 25%, 50% and 50% of national forest area.

3.3.2.3 Forest area within forest park area

Forest park area in 1990 is figured by the total of national forest park area before 1990.

Forest park area in 2000 and 2005 is respectively estimated by annual national statistics on forest park area.

Forest park area in 2010 is forecasted by the linear trend method with support of annual forest park area from 1991-2007.

The estimated / forecasted results are listed in the following table:

Forest park	Area (1000 ha)			
	1990	2000	2005	2010
Forest park area	202.78	9837.83	15134.17	19752.85
Forest area	162.224	7870.264	12107.34	12779.76

3.3.2.4 Forest area within natural reserves

According to the development plan of forestry natural reserves, the area of forestry natural reserve will occupy about 13.5% of country area in 2010, namely 129.6 million ha. Forest area is forecasted by the multiple of forestry natural reserve area and percent of forest area in the forestry natural reserve in 2005. The forecasted forest area is about 11.891 million ha.

3.3.3 Reclassification

3.3.3.1 Reclassification matrix for Primary designated function

Designated function (China)	Forest Category (FRA 2010) ¹						
	Prd	Prt	Con	Soc	Mlt	other	Un
Timber forest	100%						
Protection forest ²		60%			40%		
Firewood forest	100%						
Special purpose forest ³			67%	33%			
Economic forest	100%						
Bamboo forest					100%		
Open forest land ⁴ (2005)	30%	38%	4%	3%	25%		
Unestablished afforestation	28%	42%	1%	1%	28%		

stands ⁴ (2005)							
Nursery land ⁵	100%						
Cut-over area ⁶					100%		
Fired-over area ⁶					100%		

(Note: ¹) Prd - production, Prt - protection of soil and water, Con - conservation of biodiversity, Soc - social services, Mlt - multiple purpose, and Un - no or unknown function. ²) Protection forest is divided into forest for the protection of soil and water and special purpose, the proportion of them is based on expert knowledge. ³) 67% of special purpose forest is classified as conservation of biodiversity, and 33% of which is classified as social services, both of them are also based on expert estimate. ⁴) Function structure of open forest land, unestablished afforestation stands in 1990 and 2000 are designated with the proportion of different functions in arbor forest during the 6th NFI based on expert estimate, the results are 56% (Prd), 23% (Prt), 3% (Con), 2% (Soc), and 16% (Mlt). Function structure of open forest land, unestablished afforestation land in 2005 is estimated by their function structure during the 7th NFI. Function structure in 2010 follows that in 2005. ⁵) The nursery land is designated as production. 6) Cut-over area and fired-over area are estimated as multiple purposes.

3.3.3.2 Reclassification matrix for special designation and management categories

Area of permanent forest estate

Area of permanent forest estate includes forest area excluding fruit forest.

Forest area within protected areas

Taken into account the management rights of existing protected area types and the availability of national figures, forest area within protected areas include forest within nature reserves and forest parks, according to IUCN I-IV.

Forest area under sustainable management

A series of policy measures have been adopted to strengthen forest management for a long time, aiming at forest scientific management. Forest cutting quota management system is built up and implemented stemmed from the forest law, and forestry classification management is implemented particularly after 1980s. Entering 21st century, the key forestry programmes are initiated, and forestry reforms in terms of forest resources management system and collective forest management rights have been accelerated. Forest certification system is introduced and carried out, certified area is rapidly increased. The pilot of forest sustainable management is launched, and a new round of nationwide forest management scheme is ongoing. The forest management scheme is scientifically

prepared and strictly implemented by forest management units, which strongly promote the sustainable utilization of forest resources. The development of forest resources indicates the positive trend including gradually increased amount, improved quality and harmonized functions.

At present, the pilot study of forest sustainable management is in a deepgoing way, and the national SFM C&I still at the development stage. Considering the current situation, forest area by sustainable manner in T3b is analyzed by the expert estimate method according to the definition and standard of SFM from FAO, after consultation with relevant experts and performance of thematic study. Forest areas with management scheme, certified forest or certification in progress, and forest area within natural reserve and forest park are analyzed as forest area under sustainable management.

Forest area with management plan

Forest area with management plan includes forest area with management scheme, forest area with management plan within natural reserve and forest park, and forest certified or in progress.

Forest	Area of permanent forest estate	Forest area within protected areas	Forest area under sustainable forest management	Forest area with management plan
Timber forest	100%	Forest area within forestry natural reserve and forest park	Forest areas with management scheme, certified forest or in progress, and forest area within natural reserve and forest park	forest area with management scheme, forest area with management plan within natural reserve and forest park, and forest certified or in progress
Protection forest	100%			
Firewood forest	100%			
Special purpose forest	100%			
Economic forest	100%			
Bamboo forest	100%			
Open forest land	100%			
Unestablished afforestation stands	100%			
Nursery land	100%			
Cut-over area	100%			
Fired-over area	100%			

(Note: ¹⁾ Open forest land, unestablished afforestation stands, nursery land, cut-over area and fired-over area classified as “forest” for FRA2010 are covered by the forest management scheme and managed, which should be fallen under the estimate of forest area with management plan and forest area under SFM.)

3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	114102.6	107985.7	85384.1	84303.6
Protection of soil and water	18367.7	32946.8	52931.7	60479.9
Conservation of biodiversity	2977.5	4283.8	7487.0	8904.0
Social services	1600.0	2167.9	3787.2	4451.6
Multiple purpose	20092.9	29616.3	43453.9	48721.5
Other				
No or unknown function				
Total	157140.7	177000.5	193043.9	206860.6

Table 3b – Special designation and management categories

FRA 2010 categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	157140.7	177000.5	193043.9	206860.6
Forest area within protected areas	4675.2	16970.3	23107.3	24670.8
Forest area under SFM ¹	36103.3	61220.4	120659.3	135901.1
Forest area with management plan ^{1,2,3}	33999.5	53583.7	113727.1	128499.8

(Note: ¹) Open forest land, unestablished afforestation stands, nursery land, cut-over area and fired-over area classified as “forest” for FRA2010 are covered by the forest management scheme and managed, which should be fallen under the estimate of forest area with management plan and forest area under SFM. ²) According to the thematic analysis of natural reserve establishment and management, the percent of forest area with management plan within forestry natural reserves has reached 55% in 2000, and 70% for 2005. Applying the study results, the percent of forest area with management plan within forestry natural reserves in 1990 is figured with that in 2000, and that in 2005 for 2010. ³) Because of not available information on forest management plan for forest area within forest park, the forest area with management plan in 1990, 2000, 2005 and 2010 is estimated by referring to the proportion of forest area with management plan in forestry natural reserve at the same period, according to the expert advice.)

3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water		
Conservation of biodiversity		
Social services		
Multiple use		
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas		
Forest area under sustainable forest management	At present, certified forest area only occupies a small proportion of global forest area. Forest management plan is also prepared by the management units. It is difficult to make clear the whole condition at the country level. The C&I for SFM are advised to be perfected by adding some indicators liking growth and consumption in order to increase the maneuverability.	
Forest area with management plan		

Other general comments to the table

Forest by designated functions includes forest for timber, protection, fuel, economical and especial use in China. Only function structure of arbor forest is investigated before the 7th NFI. The function structure of other forestry land is calculated by following that of arbor forest and integration of specific management purpose before the 7th NFI in the Report for FRA2010.

4 Table T4-Forest Characteristics

4.1 Classifications and definitions

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

4.2 National Data

4.2.1 Data sources

Reference	Quality (H/M/L)	Variable	Year	Additional comments
National forest resources statistics (1984-1988)	H	Characteristics	1986	The 3 rd NFI
National forest resources statistics (1989-1993)	H	Characteristics	1991	The 4 th NFI
National forest resources statistics (1994-1998)	H	Characteristics	1996	The 5 th NFI
National forest resources statistics (1999-2003)	H	Characteristics	2001	The 6 th NFI
National Statistics during the 7 th NFI (2004-2008)	H	Characteristics	2006	The 7 th NFI
Mangrove resources report	H	Mangrove	2002	Survey report
Thematic analysis on species structure	H	Plantation	2008	Thematic study
China Forest statistical yearbook	H	Area	2002-2007	Statistical

4.2.2 Categories and definitions

Category	Definition
Natural forest	Forest established through natural regeneration manner.
Plantation	Forest of native species or introduced, established through planting, seeding or assisted natural regeneration.

4.2.3 Original data

4.2.3.1 Natural forest and plantation

Land use/ Characteristics	Area (1000 ha)				
	1986	1991	1996	2001	2006
Natural forest	93219.0	99029.3	111851.4	117441.8	121392.1
Plantation	27723	30327.5	41629.5	47904.6	56600.3
Open forest land	19636.5	18025.7	7195.0	5999.6	4822.2
Unestablished afforestation stands	7288.1	7138.3	4615.1	4893.6	10461.8
Nursery land	184.5	114.9	122.5	270.9	454.0
Cut-over area	3096.0	2756.8	2506.0	1802.3	1914.7
Fired-over area	1334.6	912.8	600.8	807.8	879.6
Total ¹	152481.7	158305.3	168520.3	179120.6	196524.7

(Note: ¹) Excluding fruit forest)

4.2.3.2 Especial categories

Category	Area (1000 ha)				
	1986	1991	1996	2001	2006
Rubber plantations ¹	687.2	804.9	1011.1	1069.5	1031.2
Mangroves ²				82.76	
Bamboo	3660.2	3904.7	4363.1	4994.9	5533.3

(Note: ¹) According to the national statistics during the 7th NFI, area of Rubber is 1.0312 million ha, occupying 5% of economical forest area. Rubber resources aren't investigated before 7th NFI, area of Rubber in 1986, 1991, 1996 and 2001 is estimated by 5% (the 7th NFI). ²) Mangroves resources were investigated in 2001 to obtain the national figures on mangroves area. At present, the new round investigation is still under implementation. Area of mangroves in 2001 and 2006 is estimated based on the thematic survey in 2001.

4.2.3.3 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. Each specie group is composed of several woody species or genus, and may involve native species or introduced species. Especially, woody species biodiversity survey hasn't been carried out in NFIs, there isn't available information on the introduced species composition in natural forest and plantation.

The thematic analysis of afforestation/reforestation species structure is set up to estimate the introduced species composition 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 the 7th NFI. The proportion of introduced species in natural forest and plantation is estimated. The results show the percent of introduced species in plantation reaches 28%, and 5% in natural forest.

4.3 Analysis and Processing of National Data

4.3.1 Calibration

Not necessary

4.3.2 Estimation and forecasting

4.3.2.1 Natural forest and plantation

Estimation (1990, 2000 and 2005)

The area of natural forest and plantation in 1990, 2000 and 2005 is respectively estimated by the

interpolation of two NFIs results. Taken 2005 as an example, the estimate equation as the following shown:

$$Value_{2005} = Value_{2006} - (Value_{2006} - Value_{2001})/5$$

Forecasting (2010)

Plantation

$$Area_{p2010} = Area_{p2006} + Area_{p2007-2010} - Area_c$$

Where, $Area_{p2007-2010}$ the forested area by afforestation from 2007 to 2010, and $Area_c$ the plantation area converting to other land (The annual average converted forest area is estimated based on the converted plantation area during the 7th NFI).

Natural forest

$$Area_{n2010} = Area_{n2006} + Area_i - Area_c$$

Where, $Area_i$ natural regenerated forest area, and $Area_c$ the natural forest area converting to other land. The annual average value of them is estimated based on the converted natural forest during the 7th NFI.

4.3.2.2 Other forestry land area

Estimate and forecasting of other forestry land area can be seen in Chapter 1.3.2 (T1).

4.3.2.3 Results of estimate and forecasting

Land use/ Characteristics	Area (1000 ha)			
	1990	2000	2005	2010
Natural forest	97867.2	116323.7	120602.0	125403.5
Plantation	29806.6	46649.6	54861.2	64545.4
Open forest land	18347.9	6238.7	5057.7	3880.3
Unestablished afforestation stands	7168.3	4837.9	9348.2	9728.7
Nursery land	128.8	241.2	417.4	600.5
Cut-over area	2824.6	1943.0	1892.2	1858.5
Fired-over area	997.2	766.4	865.2	843.7
Total	157140.6	177000.5	193043.9	206860.6

4.3.3 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 after 2000, and 11.9% in 1990s using expert estimate.

FRA categories	Primary ¹	Other naturally regenerated Forest	Other naturally regenerated forest of introduced species (sub-category)	Planted forest	Planted forest of introduced species(sub-category) ⁴	Total
Natural forest	10%	90%	5%			100%
Plantation				100%	28%	100%
Open forest land ²		76%	5%	24%	28%	100%
Unestablished afforestation stands ³				100%	28%	100%
Nursery land ³				100%	28%	100%
Cut-over area ⁴		50%	5%	50%	28%	100%
Fired-over area ⁴		50%	5%	50%	28%	100%

(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%), and that in 2005 comes from the results of 7th NFI (76% and 24%). It is assumed the proportion of natural regenerated/man-made open forest land in 2010 keep consistent of that in 2005. ³) The percent of introduced species in unestablished afforestation stands and nursery land is same as that of plantation. ⁴) The proportion of natural regenerated/man-made cut-over/ fired-over area comes from the results of 7th NFI, respectively about 50%.)

4.4 Data for Table T4

Table 4a - Characteristics

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary	11646.2	11632.4	11632.4	11632.4
Other naturally regenerated forest	103544.1	110974.6	114192.2	118071.2
...of which of introduced species	5177.2	5548.7	5688.2	5858.2
Planted forest	41950.3	54393.5	67219.3	77157.0
...of which of introduced species	11746.1	15230.2	18821.4	21604.0
Total	157140.7	177000.5	193043.9	206860.6

Table 4b – Special categories

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	781.4	1057.8	1038.9	1000.6
Mangroves (Forest)		82.76	82.76	82.76
Bamboo (Forest)	3855.8	4868.5	5425.6	5712.3

4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest		
Planted forest		
Rubber plantations		
Mangroves		
Bamboo		

Other general comments to the table

1. Forest area is divided into natural regeneration and plantation in China by stands origin. Only the stands origin is investigated in previous NFIs.
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.

5 Table T5-Forest establishment and reforestation

5.1 Categories and definitions

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

5.2 National Data

5.2.1 Data sources

Reference	Quality (H/M/L)	Variable	Year	Additional comments
National forest resources statistics (1999-2003)	H	Natural regenerated area	2001	The 6 th NFI
National Statistics during the 7 th NFI (2004-2008)	H	Natural regenerated area	2006	The 7 th NFI
China Forest statistical yearbook	H	Afforestation area	1988-2007	Statistical data

5.2.2 Categories and definitions

Category	Definition
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 the quality is up to grade.
Reforestation	Forest formed in the cut-over area and fired-area by manual regeneration or man-improved natural regeneration.

5.2.3 Original data

5.2.3.1 Annual afforestation and reforestation

Year	Area (1000ha)		Year	Area (1000ha)	
	Afforestation	Reforestation		Afforestation	Reforestation
1988	5533.27	636.90	2001	4953.04	515.29

1989	5023.33	719.10	2002	7770.97	379.00
1990	5208.47	671.50	2003	9118.89	285.99
1991	5594.47	664.10	2004	5598.07	319.31
1992	6030.40	673.60	2005	3637.68	407.55
1998	4811.05	806.30	2006	3838.79	408.24
1999	4900.71	1042.83	2007	3907.71	390.91
2000	5105.14	919.80			

5.2.3.2 Natural regenerated area from shrub land, forest suitable land and other land

According to the specification of national forest inventory and definition of forest in China, natural regenerated forest denotes the forest formed by natural seeding, man-accelerated natural regeneration or spout. The area of natural forest regeneration is forest land area (including arbor, bamboo and economic forest) by natural regeneration from other than forest land including open forest land, cut-over/fired-over land, shrub land, forest suitable land and other land.

Considering that forest area with FRA2010 forest definition is composed of the area of forest land, open forest land, cut-over/fired-over land and nursery land in China, here, natural regenerated forest area excludes the area of forest land by natural regeneration from open forest land, cut-over/fired over land, and only covers that by natural regeneration from other wooded land (include shrub land and forest suitable land) and other land.

Natural regenerated forest area is estimated by plot-on-plot analysis of land use change and forests characteristics, based on all ground-plots survey results during the neighboring two NFIs. It shows the general status of forest natural expansion area from other wooded land and other land within the inventory interval (5 years). The annual natural expansion area with FRA2010's definition in harmony is then calculated by the total natural regenerated forest area during an inventory interval dividing by 5 years. Among them, natural regenerated forest area in 2000 (65.985 million ha) is obtained based on ground-plots survey results during 5th NFI and 6th NFI, and ground-plots survey results during 6th NFI and 7th NFI for that in 2005 (68.394 million ha).

5.3 Analysis and Processing of National Data

5.3.1 Calibration

Not necessary

5.3.2 Estimation of afforestation and reforestation area

Five-year average is used to estimate the afforested and reforested area in 1990, 2000 and

2005. Thereinto, the figure in 1990 is the mean value during 1988-1992, the mean value during 1998-2002 is used for 2000, and 2003-2007 for 2005.

$$Value_{1990} = \sum_{i=1988}^{1992} Value_i / 5$$

$$Value_{2000} = \sum_{i=1998}^{2002} Value_i / 5$$

$$Value_{2005} = \sum_{i=2003}^{2007} Value_i / 5$$

According to the annual comprehensive check of plantation, the proportion of arbor planting area is 93% in 1990, 86% during 1998-2002, and 84% during 2003-2006. Hereby, afforestation and reforestation area in 1990, 2000 and 2005 are estimated as the following table shown:

category (FRA2010)	Area (1000ha)		
	1990	2000	2005
Afforestation	5094.5	4737.1	4385.0
reforestation	625.9	630.0	304.4

5.3.3 Estimation of natural regenerated area 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 natural regenerated area during 6th NFI, and that during 7th NFI for 2005. 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 consistent with 2000.

5.3.4 Reclassification

Category	FRA2010			
	Afforestation	reforestation	Of which on areas previously planted ¹	Natural expansion of forest
Afforestation	100%			
Reforestation		100%	30%	
Natural regenerated area from shrub land, forest suitable land and other land				100%

(Note: ¹) Reforestation area on previously planted cut-over/fired-over area is estimated based on the

proportion (30%) of plantation area during the 6th and 7th NFI.)

5.4 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species ¹ (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	5094500	4737100	4385000	1426500	1326400	1227800
Reforestation	625900	630000	304000	175300	176400	85200
...of which on areas previously planted ²	187800	189000	91300	52600	52600	25600
Natural expansion of forest	1319700	1319700	1367900	66000	66000	68400

(Notes: ¹) 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. ²) Reforestation area on previously planted cut-over/fired-over area is estimated based on the proportion of plantation area within forest during the 6th and 7th NFI.)

5.5 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation		
Natural expansion of forest		

Other general comments to the table

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6 Table T6-Growing Stock

6.1 FRA 2010 Categories and definitions

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

6.2 National Data

6.2.1 Data sources

Reference	Quality (H/M/L)	Variable	Year	Additional comments
National forest resources statistics (1984-1988)	H	Volume	1986	The 3 rd NFI
National forest resources statistics (1989-1993)	H	Volume	1991	The 4 th NFI
National forest resources statistics (1994-1998)	H	Volume	1996	The 5 th NFI
National forest resources statistics (1999-2003)	H	Volume	2001	The 6 th NFI
National statistics during the 7 th NFI (2004-2008)	H	Volume	2006	The 7 th NFI

6.2.2 Classifications 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.
Commercial growing stock	The part of the growing stock of species owning commercial or potentially commercial use under current market conditions, and with a diameter at breast height of 5 cm or more.

6.2.3 Original data

6.2.3.1 Growing stock

Category	Volume (1000 cubic meters)				
	1986	1991	1996	2001	2006

Arbor forest	9141076.4	10136753.0	11267126.0	12456381.0	13721339.0
Open forest land	545852.7	544901.7	136068.7	128163.9	114237.7
Scattered trees	885569.5	1103584.4	1084668.8	1033555.3	1077105.6
Total	10572498.6	11785239.3	12487863.9	13618100.0	14912681.9

6.2.3.2 Growing stock of coniferous and broadleaf forest

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

For FRA2010, the proportion of coniferous and broadleaf stands in arbor forest in 1990, 2000 and 2005 are respectively identical to that during the 4th NFI, 6th NFI and 7th NFI. That in 2010 is same as that in 2005.

6.2.3.3 Commercial growing stock

With analysis based on the NFIs results, the growing stock of commercial forest occupies 67% of arbor forest volume during the 4th NFI, 45% during the 6th NFI, and 31% during the 7th NFI.

For FRA2010, the proportion of commercial forest in arbor forest volume in 1990, 2000 and 2005 are respectively identical to that during the 4th NFI, 6th NFI and 7th NFI. That in 2010 is same as that in 2005.

6.2.3.4 Dominant species (group) growing stock

Unit: 1000 m³

Species	1986	1991	1996	2001	2006
<i>Quercus</i>	1101971.3	1208686.4	1335785.1	1321402.6	1208414.3
<i>Abies</i>	800797.0	1074981.7	1098841.9	1194700.6	1135620.3
<i>Picea</i>	904626.8	1126705.2	1279075.5	1036152.7	1001596.1
<i>Larix</i>	940070.1	871968.1	940885.8	920551.3	955216.9
<i>Betula</i>	600358	672093.7	775519.9	845703.2	799463.1
<i>Cunninghamia lanceolata</i> (Lamb.)	268515.1	342650.2	473573.3	734817	734094.8
<i>Pinus massoniana</i> Lamb.	407192.6	430206.7	558703.9	671675.7	587877.2
<i>Populus</i>	246212.6	281786.0	359298.3	425965.3	549391.4
<i>Pinus yunnanensis</i> Franch	253806	240122.6	279160.8	518233.5	468721.5
<i>Pinus densata</i> Mast.	153606.4	69035.1	197788.5	378175.0	354256.1
Others	4009773.2	4363419.2	4104562.1	4537167.8	6040924.6
Total	9686929.1	10681654.9	11403195.1	12584544.7	13835576.3

6.3 Analysis and Processing of National Data

6.3.1 Calibration

Not necessary

6.3.2 Estimation and Forecasting

6.3.2.1 Growing stock

- **Estimation (1990, 2000 and 2005)**

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

- **Forecasting (2010)**

According to the results of national statistics during the 7th NFI, the difference between annual average growth and consumption of arbor forest is positive 197.6224 million m³. The difference between annual average growth and consumption of arbor forest per ha is estimated (1.25 m³). It is assumed there isn't obvious change of the difference between annual average growth and consumption of arbor forest per ha during 2006-2010. The growing stock of arbor forest in 2010 is 14580.6346 million m³. The forecasting equation is:

Growing stock of arbor forest₂₀₁₀ = 1.25*arbor forest area₂₀₁₀+growing stock arbor forest₂₀₀₆

The volume of open forest land and scattered trees in 2010 is forecasted by the extrapolation method based on the change of volume during the 6th and 7th NFI, namely.

$$Value_{2010} = Value_{2006} + 4 * (Value_{2006} - Value_{2001}) / 5$$

- **Results for estimation and forecasting**

Category	Volume (1000 cubic meters)			
	1990	2000	2005	2010
Arbor forest	9937617.7	12218530.0	13468347.4	14580634.6
Open forest land	545091.9	129744.9	117022.9	103096.7
Scattered trees	1059981.4	1043778.0	1068395.5	1111945.8
Total	11542691.0	13392052.9	14653765.8	15795677.1

6.3.2.2 Growing stock by woody species

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

6.3.3 Reclassification

Category	FRA2010 Category			
	Growing Stock		Commercial Stock	
	Forest	Other Wooded Land	Forest	Other Wooded Land
Arbor forest	100%		100%	
Open forest land	100%		100%	
Scattered trees ¹		100%		100%

(Note: ¹) Volume of scattered trees is estimated as that of other wooded land.)

6.4 Data for Table T6

Table 6a – Growing stock

FRA 2010 categories	Volume (million cubic meters over bark)							
	Forest				Other wooded land ¹			
	1990 ¹	2000 ²	2005 ²	2010	1990	2000	2005	2010
Total growing stock	10482.7	12348.3	13585.4	14683.7	1060.0	1043.8	1068.4	1111.9
of which coniferous	5660.7	6297.6	6385.1	6901.4	572.4	532.3	502.1	522.6
of which broadleaved	4822.0	6050.7	7200.2	7782.4	487.6	511.5	566.2	589.3
Growing stock of commercial species	7023.4	5556.7	4211.5	4552.0	710.2	469.7	331.2	344.7

(Note: ¹) The composition of coniferous and broadleaved in other wooded land is the same as that in forest.)

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

FRA category / Species name			Growing stock in forest (million cubic meters o.b.)		
Rank	Scientific name	Common name	1990	2000	2005
1 st	<i>Quercus</i>	Oak	1187.3	1324.3	1135.9
2 nd	<i>Abies</i>	Fir	1020.1	1175.5	1147.4
3 th	<i>Picea</i>	Spruce	1082.3	1084.7	1008.5
4 th	<i>Larix</i>	Larch	885.6	924.6	948.3
5 th	<i>Betula</i>	Birch	657.7	831.7	808.7
6 th	<i>Cunninghamia lanceolata</i> (Lamb.)		327.8	682.6	734.2
7 th	<i>Pinus massoniana</i> Lamb.		425.6	649.1	604.6
8 th	<i>Pinus yunnanensis</i> Franch		274.7	412.6	524.7
9 th	<i>Populus</i>	Poplar	242.9	470.4	478.6
10 th	<i>Pinus densata</i> Mast.		85.9	342.1	359.0
Remaining			4292.8	4450.7	5835.5
TOTAL			10482.7	12348.3	13585.4

Table 6c – Specification of threshold values

Item	Value	Complementary information
Minimum diameter (cm) at breast height ¹ of trees included in growing stock (X)	5	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	ID	
Minimum diameter (cm) of branches included in growing stock (W)	No	
Volume refers to “above ground” (AG) or “above stump” (AS)	AG	

6.5 Comments to table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock		
Growing stock of broadleaved / coniferous	Growing stock of mixed forest is fallen under that of broadleaf forest for FRA2010. It is suggested to add the indicator “growing stock of mixed forest” in next FRA.	
Growing stock of commercial species		
Growing stock composition		

Other general comments to the table

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.

7 Table T7-Biomass stock

7.1 Categories and Definitions

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

7.2 National Data

7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year	Additional comments
National forest resources statistics (1984-1988)	H	Volume	1986	The 3 rd NFI
National forest resources statistics (1989-1993)	H	Volume	1991	The 4 th NFI
National forest resources statistics (1994-1998)	H	Volume	1996	The 5 th NFI
National forest resources statistics (1999-2003)	H	Volume	2001	The 6 th NFI
National statistics during 7 th NFI (2004-2008)	H	Volume	2006	The 7 th NFI
The change of land utilization and the list for green house gas letting in 1994	H	WD, BEF, etc.	2004	Research Report

7.2.2 Classifications and definitions

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

7.2.3 Original data

The table uses growing stock figures in Table 6.

(a) Calculation of woody biomass of 1986

Species (group)	Growing stock (1000 m ³)	Wood Density ¹ (ton/m ³)	Stem biomass (1000 ton)	Biomass Exp.fact ¹	Above ground biomass (1000 ton)	Root-Shoot Ratio ¹	Blow ground Biomass (1000 ton)
<i>Quercus</i>	1101971.3	0.58	639143	1.4	894800	0.46	411608
<i>Abies</i>	800797	0.4	320319	1.3	416415	0.32	133253
<i>Picea</i>	904626.8	0.4	361851	1.3	470406	0.32	150530
<i>Larix</i>	940070.1	0.46	432432	1.3	562162	0.32	179892
<i>Betula</i>	600358.0	0.51	306183	1.4	428656	0.46	197182
<i>Cunninghamia lanceolata</i> (Lamb.)	268515.1	0.4	107406	1.3	139628	0.46	64229
<i>Pinus massoniana</i> Lamb.	407192.6	0.42	171021	1.3	222327	0.46	102270
<i>Pinus yunnanensis</i> Franch	253806.0	0.42	106599	1.3	138579	0.46	63746
<i>Populus</i>	246212.6	0.4	98485	1.4	137879	0.46	63424
<i>Pinus densata</i> Mast.	153606.4	0.42	64515	1.3	83870	0.32	26838
Remainder of species ²	4895342.7		1974029		2640765		897427
Total	10572498.6		4581983		6135487		2290399

(Notes: ¹) Wood density, biomass expansion factor and root-shoot ratio come from FAO. ²) Biomass calculations for remainder of species are based on weighted average conversion factors.)

(b) Calculation of woody biomass of 1991

Species (group)	Growing stock (1000 m ³)	Wood Density ¹ (ton/m ³)	Stem biomass (1000 ton)	Biomass Exp.fact ¹	Above ground biomass (1000 ton)	Root-Shoot Ratio ¹	Blow ground Biomass (1000 ton)
<i>Quercus</i>	1208686.4	0.58	701038	1.4	981453	0.46	451468
<i>Abies</i>	1074981.7	0.4	429993	1.3	558991	0.32	178877
<i>Picea</i>	1126705.2	0.4	450682	1.3	585887	0.32	187484
<i>Larix</i>	871968.1	0.46	401105	1.3	521437	0.32	166860
<i>Betula</i>	672093.7	0.51	342768	1.4	479875	0.46	220743
<i>Cunninghamia lanceolata</i> (Lamb.)	342650.2	0.4	137060	1.3	178178	0.46	81962
<i>Pinus massoniana</i> Lamb.	430206.7	0.42	180687	1.3	234893	0.46	108051
<i>Pinus yunnanensis</i> Franch	240122.6	0.42	100851	1.3	131106	0.46	60309
<i>Populus</i>	281786.0	0.4	112714	1.4	157800	0.46	72588
<i>Pinus densata</i> Mast.	69035.1	0.42	28995	1.3	37694	0.32	12062
Remainder of species ²	5467003.6		2207001		2950868		1030122
Total	11785239.3		5092894		6818182		2570526

(Notes: ¹⁾ Wood density, biomass expansion factor and root-shoot ratio come from FAO. ²⁾ Biomass calculations for remainder of species are based on weighted average conversion factors.)

(c) Calculation of woody biomass of 1996

Species (group)	Growing stock (1000 m ³)	Wood Density ¹ (ton/m ³)	Stem biomass (1000 ton)	Biomass Exp.fact ¹	Above ground biomass (1000 ton)	Root-Shoot Ratio ¹	Blow ground Biomass (1000 ton)
<i>Quercus</i>	1335785.1	0.58	774755	1.4	1084657	0.46	498942
<i>Abies</i>	1098841.9	0.4	439537	1.3	571398	0.23	131422
<i>Picea</i>	1279075.5	0.4	511630	1.3	665119	0.32	212838
<i>Larix</i>	940885.8	0.46	432807	1.3	562649	0.32	180048
<i>Betula</i>	775519.9	0.51	395515	1.4	553721	0.46	254712
<i>Cunninghamia lanceolata</i> (Lamb.)	473573.3	0.4	189429	1.3	246258	0.46	113279
<i>Pinus massoniana</i> Lamb.	558703.9	0.42	234656	1.3	305053	0.46	140324
<i>Pinus yunnanensis</i> Franch	279160.8	0.42	117248	1.3	152422	0.46	70114
<i>Populus</i>	359298.3	0.4	143719	1.4	201207	0.46	92555
<i>Pinus densata</i> Mast.	197788.5	0.42	83071	1.3	107992	0.32	34557
Remainder of species ²	5189230.8		2095232		2811600		1049555
Total	12487863.8		5417599		7262076		2778346

(Notes: ¹⁾ Wood density, biomass expansion factor and root-shoot ratio come from FAO. ²⁾ Biomass calculations for remainder of species are based on weighted average conversion factors.)

(d) Calculation of woody biomass of 2001

Species (group)	Growing stock (1000 m ³)	Wood Density ¹ (ton/m ³)	Stem biomass (1000 ton)	Biomass Exp.fact ¹	Above ground biomass (1000 ton)	Root-Shoot Ratio ¹	Blow ground Biomass (1000 ton)
<i>Quercus</i>	1321402.6	0.58	766414	1.4	1072980	0.46	493571
<i>Abies</i>	1194700.6	0.40	477880	1.3	621244	0.23	142886
<i>Picea</i>	1036152.7	0.40	414461	1.3	538799	0.32	172416
<i>Larix</i>	920551.3	0.46	423454	1.3	550490	0.32	176157
<i>Betula</i>	845703.2	0.51	431309	1.4	603833	0.46	277763
<i>Cunninghamia lanceolata</i> (Lamb.)	734817.0	0.40	293927	1.3	382105	0.46	175768
<i>Pinus massoniana</i> Lamb.	671675.7	0.42	282104	1.3	366735	0.46	168698
<i>Pinus yunnanensis</i> Franch	518233.5	0.42	217658	1.3	282955	0.32	90546
<i>Populus</i>	425965.3	0.40	170386	1.4	238540	0.46	109728
<i>Pinus densata</i> Mast.	378175.0	0.42	158834	1.3	206484	0.32	66075
Remainder of species ²	5570723.1		2249018		3057475		1126727
Total	13618100		5885445		7921640		3000335

(Notes: ¹⁾ Wood density, biomass expansion factor and root-shoot ratio come from FAO. ²⁾ Biomass calculations for remainder of species are based on weighted average conversion factors.)

(e) Calculation of woody biomass of 2006

Species (group)	Growing stock (1000 m ³)	Wood Density ¹ (ton/m ³)	Stem biomass (1000 ton)	Biomass Exp.fact ¹	Above ground biomass (1000 ton)	Root-Shoot Ratio ¹	Blow ground Biomass (1000 ton)
<i>Quercus</i>	1208414.3	0.58	700880	1.4	981232	0.46	451367
<i>Abies</i>	1135620.3	0.4	454248	1.3	590522	0.23	135820
<i>Picea</i>	1001596.1	0.4	400638	1.3	520829	0.32	166665
<i>Larix</i>	955216.9	0.46	439400	1.3	571220	0.32	182790
<i>Betula</i>	799463.1	0.51	407726	1.4	570816	0.46	262575
<i>Cunninghamia lanceolata</i> (Lamb.)	734094.8	0.4	293638	1.3	381729	0.46	175595
<i>Pinus massoniana</i> Lamb.	587877.2	0.42	246908	1.3	320980	0.46	147651
<i>Pinus yunnanensis</i> Franch	549391.4	0.4	219757	1.4	307660	0.46	141524
<i>Populus</i>	468721.5	0.42	196863	1.3	255922	0.32	81895
<i>Pinus densata</i> Mast.	354256.1	0.42	148788	1.3	193424	0.32	61896
Remainder of species ²	7118030.2		2913878		4001412		1486607
Total	14912681.9		6422724		8695746		3294385

(Notes: ¹⁾ Wood density, biomass expansion factor and root-shoot ratio come from FAO. ²⁾ Biomass calculations for remainder of species are based on weighted average conversion factors.)

(f) The total of woody biomass excluding economic forest and bamboo forest

Year	Volume (1000 m ³)	Stem Biomass (1000 ton)	Above-Ground Biomass (1000 ton)	Below-Ground Biomass (1000 ton)
1986	10572498.6	4581983	6135487	2290399
1991	11785239.3	5092894	6818182	2570526
1996	12487863.8	5417599	7262076	2778346
2001	13618100.0	5885445	7921640	3000335
2005	14912681.9	6422724	8695746	3294385

7.3 Analysis and Processing of National Data

7.3.1 Calibration

Not necessary

7.3.2 Estimation and Forecasting

7.3.2.1 Arbor forest

Biomass of arbor forest in 1990, 2000 and 2005 is respectively estimated by the linear interpolation. Wood density, biomass exp.fact and root-shoot ratio in 2010 are the weighted average value by species in 2006, as the following table shown:

Growing stock (1000 m ³)	Wood Density (ton/m ³)	Stem biomass (1000 ton)	Biomass Exp.fact	Above ground biomass (1000 ton)	Root- Shoot Ratio	Blow ground Biomass (1000 ton)
15795677.1	0.4307	6803020.1	1.3539	9210630.1	0.3789	3489448.9

The results of estimation and forecasting biomass

Reference years	Volume (1000 m ³)	Stem Biomass (1000 ton)	Above-ground biomass (1000 ton)	Below-ground biomass (1000 ton)
1990	11542691.2	4990711.8	6681643.0	2514500.6
2000	13392052.8	5791875.8	7789727.2	2955937.2
2005	14653765.5	6315268.2	8540924.8	3235575.0
2010	15795677.1	6803020.1	9210630.1	3489448.9

7.3.2.2 Bamboo forest

Bamboo biomass 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”*. For *P. heterocycla* cv. *Pubescens* forest, average biomass per hectare is 166.67 ton, and 119.35 ton/ha for other bamboo forest.

Reference years	Area (1000 ha)	Above-ground biomass (1000 ton)	Blow-ground Biomass (1000 ton)	Total Biomass (1000 ton)
1990	3855.8	n.a.	n.a.	585446
2000	4868.5	n.a.	n.a.	741467
2005	5425.6	n.a.	n.a.	826313
2010	5712.3	n.a.	n.a.	876086

7.3.2.3 Economic forest

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

Reference years	Area ¹ (1000 ha)	Above-ground biomass (1000 ton)	Below-ground Biomass (1000 ton)	Total ² Biomass (1000 ton)
1990	11408.3	n.a.	n.a.	455191
2000	15444.2	n.a.	n.a.	616224
2005	15042.4	n.a.	n.a.	600192
2010	12377.4	n.a.	n.a.	493858

7.3.2.4 Biomass including Economic and Bamboo Forests

Reference years	Biomass (million tonnes)			
	1990	2000	2005	2010
Above ground ¹	7722.3	9147.4	9967.4	10580.7
Below ground	2514.5	2956.0	3235.6	3489.4
Total	10236.8	12103.4	13203.0	14070.1

(Notes: ¹) Biomass of economic forest and bamboo forest is analyzed as the above ground biomass.)

7.3.2.5 Dead Wood biomass

Following GPG, a dead to live ration 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.

FRA 2010 Categories	Biomass (million tonnes)			
	1990	2000	2005	2010
Dead wood biomass	1588.2	1855.8	2033.8	2193.3

7.3.3 Reclassification

Not necessary.

7.4 Data for Table T7

FRA 2010 Categories	Biomass (oven-dry weight) (million tonnes)							
	Forest				Other wooded land ²			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass ¹	7108.7	8540.3	9344.8	9947.9	613.6	607.1	622.6	632.8
Below-ground biomass	2283.6	2725.6	2999.7	3249.7	230.9	230.4	235.9	239.7
Total of living biomass	9392.3	11265.9	12344.5	13197.6	844.5	837.5	858.5	872.5
Dead wood biomass	1442.4	1711.2	1885.5	2042.6	145.8	144.6	148.3	150.7
TOTAL	10834.7	12977.1	14230	15240.2	990.3	982.1	1006.8	1023.2

(Notes: ¹) Biomass of economic forest and bamboo forest is classified as the above ground biomass.

²) The proportion of biomass in forest and other wooded land is same as that of volume in forest and other wooded land.)

7.5 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass		
Below-ground biomass		
Dead wood		

Other general comments to the table

- (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 ha 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).

8 Table T8-Carbon Stock

8.1 Categories and definitions

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

8.2 National data

8.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Table 7	H	Biomass	1990, 2000, 2005, 2010	

8.2.2 Classifications and definitions

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

8.2.3 Original Data

The basic information comes from Table T7.

8.3 Analysis and Processing of National Data

The default carbon conversion factor (0.47) supplied by FAO is used to estimate forest carbon stock with biomass figures in Table T7.

8.4 Data for Table T8

FRA 2010 Categories	Carbon (Million metric tonnes)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Carbon in above-ground biomass	3341.1	4013.9	4392.1	4675.5	288.4	285.3	292.6	297.4
Carbon in below-ground biomass	1073.3	1281	1409.9	1527.4	108.5	108.3	110.9	112.7
Sub-total: Carbon in living biomass	4414.4	5295	5801.9	6202.9	396.9	393.6	403.5	410.1
Carbon in dead wood	677.9	804.3	886.2	960	68.5	68	69.7	70.8
Carbon in litter	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sub-total: Carbon in dead wood and litter	677.9	804.3	886.2	960	68.5	68	69.7	70.8
Soil carbon	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL	5092.3	6099.3	6688.1	7162.9	465.4	461.6	473.2	480.9

(Notes: ¹⁾ The default value for carbon content of biomass is 0.47, ²⁾ No available figures about soil carbon and litter layers carbon)

Soil depth (cm) used for soil carbon estimates	n.a.
------------------------------------------------	------

8.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		
Carbon in below-ground biomass		
Carbon in dead wood		
Carbon in litter		
Soil carbon		

Other general comments to the table

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.

9 Table T9 - Forest Fire

9.1 FRA 2010 Categories and definitions

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

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
China Forestry Statistical Yearbook	H	Forest fire	1988-2007	Annual statistics
Thematic investigation of planned fire at sub-national level	H	Planned fire	1990, 2000, 2005	Thematic investigation

9.2.2 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

9.2.3 Original data

China government attaches great importance to control forest fire. A series of national laws and forestry act or codes including *Forest law*, *Grassland law and regulation of forest fire prevention* are promulgated since the founding of the People's Republic of China in 1949. Several key policies are made to strengthen the work of forest fire control aiming at decrease of forest fire damage, including implementation of the responsibility system of the administrative Chiefs at sub-national levels, establishment of forest fire control headquarters at State Council and local government, setup of forest fire control agencies, the Armed Police Force and local forest fire brigades. Particularly, forest fire monitoring system

is gradually strengthened to warn and monitor forest fire, prevent and tread out forest fire disasters, and perform loss survey. The statistics & reporting system of forest fire is carried into execution. The reporting system is implemented by forest fire control agencies from the local level to national level every month, according to the identical format & criteria. The bureau of Forest Policy, SFA collects the figures on nationwide forest fire by month/year. Important statistical indicators include the number of forest fire, total area of fired region, loss of forest area, damaged trees, burned person, other loss converted to financial cost, fire fighters, cars and planes, and financial support for fire fighting etc. Among them, the annual statistics on forest fire including the number of forest fire and loss caused by forest fire are collected in the *national forestry statistics yearbook*.

According to *the regulation of forest fire Control*, the figures on planned fire aren't summed at national and sub-national levels. In order to obtain the information on planned forest fire for FRA2010, the Bureau of Forest Policy launches the thematic investigation, and dispatch the special official file to request that the local forest fire agencies collect the information on area of planned fire in 1990, 2000 and 2005 as listed in the following table.

Indicator	1990	2000	2005
Area of planned fire (ha)	2131176	2351927	1801197

Furthermore, there isn't available information on countrywide grassland fire.

9.3 Analysis and Processing

9.3.1 Calibration

Not necessary

9.3.2 Estimate

Considering the paroxysm of forest fire due to comprehensive effect of several factors including climate, obvious difference of forest fire area happens in different years. In order to accurate make clear the trend of forest fire in recent 20 years and objective reflect the effect of forest fire control, five-year average is adopted to estimate the damaged forest area by fire in 1990, 2000 and 2005. Thereinto, the figure on the damaged forest area by fire in 1990 is the mean value during 1988-1992, the mean value during 1998-2002 for 2000, and 2003-2007 for 2005.

9.4 Data for Table T9

T9a

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire						
... of which on forest ¹	44.2	9660	50.7	5939	220.9	10580
... of which on other wooded land ²						
... of which on other land ²						

(Note: ¹ *of which on forest* refer to the forest area damaged by forest fire (wild fire) in China. ²)

There isn't available information on the area of other wooded land and other land affected by vegetation fires.)

T9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire	2.0%	2.1%	10.9%
Planned fire	98.0%	97.9%	89.1%
Total (1000 ha) ¹	2175.4	2402.6	2022.1

(Note: ¹ "Total" covers the forest area damaged by forest fire and the area of planned fire)

9.5 Comments to T9

Variable/ category	Comments
Area affected by fire / Number of fires	Forest fires and planned fire bring converse effect to forest resources. It is difficult only for the estimate of <i>total land area (foreat area, other woody land and other land) affected by forest fire and planned fire</i> together to sufficient figure out the destructive impact of forest fire and the positive effect of planned fire in terms of prevention of serious fires disaster and trees healthy growing in next year. As a result, the figures on forest fires and planned fires are advised to be separately listed in T9a.
Wildfire/ planned fire	Area of planned fires in table 9b is obtained by thematic investigation and collection of local planned fire area in 1990, 2000 and 2005.

10 Table T10 - Other disturbances affecting forest health and vitality

10.1 FRA 2010 Categories and definitions

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

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
China Forestry Statistical Yearbook	H	Forestry biotic agents	1990, 1998-2003	Annual statistics
Annual statistical form on happen, prevention and cure of forestry biotic agents in “forestry biotic agents information system, SFA”	H	Forestry biotic agents	2003-2007	Annual monitoring results

10.2.2 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.
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
Rats disaster	The disaster caused by rats or rabbit through loss of trees
The harmful exotic plant disaster	The disaster caused by the harmful exotic plant or occupation of forestry land through loss of trees
Area of Occurrence	Area caused by forest insect – pest and rats disasters when their species density, including population density, infection index, capture rate, reaches high level.

10.2.3 Original data

China government attaches great important to prevention and cure of forest biotic agents. After the founding of the People's Republic of China in 1949, the stations of forest diseases are gradually established in the key forest regions to monitor and control forest biotic agents, in view of the occurrence of biological disasters. Especially, the prevention and cure of forest biotic agents is further consolidated after 1980s. With the decades of efforts, the total of 3067 monitoring & warning agencies covering national, provincial, city and county levels have been established, 1593 national/provincial monitoring sites and 22365 common monitoring sites are established, and a monitoring & reporting teams of more than 50 thousand professionals is formed. The forest biotic agents monitoring include real-time investigation of local forestry biotic agents and periodical sample measurement of important objects. The occurrence area of nationwide /provincial forest biotic agents is annually summed. The monitoring results have provided decisive support not only for making clear the trends of main forestry biotic agents, but for prevention and cure of main forestry biotic agents.

According to *the Criteria of Forestry Biotic Agents Occurrence & Disaster* (2006), the occurrence area of main forest insect & pest is investigated by three grades namely light, medium and heavy. Considering the definition of forest disturbance for FRA2010, national statistics on the occurrence area of forest biotic agents above medium levels in 1998-2007 are used to estimate/forecast the disturbed forest area by forest biotic agents. As for these figures before 1998, because only total occurrence area of main forest disturbance in 1990 is available, the area of above medium level is estimated by the multiple of the total occurrence area in 1990 and the average proportion of the occurrence area above medium levels during 1998-2002.

Unit: 1000 ha

Year	Occurance area above medium levels	Of pest	Insect	Rat
1990	526.3	89.0	402.0	35.3
1998	3757.6	441.6	2819.1	496.9
1999	4153.3	486.2	3148.3	518.8
2000	4662.4	450.1	3671.6	540.7
2001	4175.2	366.6	3202.2	606.4

2002	3987.0	327.4	3121.4	538.2
2003	3806.0	268.8	3055.7	481.5
2004	4063.4	289.5	3069.7	704.2
2005	4103.7	395.3	3014.8	693.6
2006	4280.3	402.4	3089.3	788.6
2007	4994.3	384.3	3531.0	1079.0

Furthermore, national figures on the damaged forest area by air pollution, rain-snow, drought and other abiotic factors are absent. The national occurrence area of invasive woody species isn't also available, however, that of exotic grass species is available and listed in the following table.

Scientific name of invasive plant species	Forest area affected in 2005 (1000 hectares)
Eupatorium Adenophorum Spreng	186.7
Eupatorium odoratum Linn.	155.0
Solidago decurens Lour.	1.3
Mikaniamicran tha	3.7
Merremiaboisiana (Gagnep.) Oostr.	0.2
Total	346.9

10.3 Analysis and Processing

10.3.1 Calibration

Not necessary

10.3.2 Estimate

Fiver-year average is adopted to estimate the occurrence area of forest biotic agents above medium levels in 2000 and 2005. That in 2000 is the mean value during a 5 years period of 1998-2002, and 2003-2007 is for 2005.

The occurrence area of forest biotic agents above medium levels in 1990 is the annual figure showed in the above table.

10.3.3 Reclassification

Reclassification	FRA2010				Total
	Insect	Diseases	Other biotic agents	Abiotic factors	
Insect disaster	100%				100%
Diseases		100%			100%
Rats disaster ¹			100%		100%
Abiotic factors				100%	100%

(Note: ¹Other biotic agents mainly refer to the rat disaster.)

10.4 Data for Table T10

Table 10a - Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	402.0	3192.5	3152.1
Disturbance by diseases	89.0	414.4	348.1
Disturbance by other biotic agents ¹	35.3	540.2	749.4
Disturbance caused by abiotic factors	n.a.	n.a.	n.a.
Total area affected by disturbances	526.3	4147.1	4249.5

(Note: ¹Other biotic agents mainly refer to the rat disaster.)

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

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
Bursaphelenchus xylophilus (SteineretBuhner) Nickle	Pinus massoniana, etc.	1982	78.0	
Anoplophoraglabripennis (Motsoh)	Populus	1995	49.3	
Dendrolimus spp.	Pinus	2000	271.3	8-10
Hyphantria cunea (Drury)	Plant	2004	30.0	
Dendroctonus valens LeConte	Pinus tabulaeformis Carr., etc.	2000	37.4	
Tomicus piniperda Linnaeus	Pinus	1998	99.3	
Apocheima cinerarius Erschoff	Populus	1995	114.7	
Hylobitelus xiaoi Zhang	Pinus elliottii., etc.	1999	110.7	
Hemiberlesia pitysophila Takagi	Pinus massoniana, etc.	1995	262.0	

Table 10c Area of forest affected by woody invasive species

Scientific name of invasive plant species	Forest area affected (1000 hectares)
Sp. 1	
Sp. 2	
Sp. 3	
Sp. 4	
Sp. 5	

Total forest area affected by woody invasive species	
------------------------------------------------------	--

(Note: there aren't available national figures on forest area affected by woody invasive species.)

10.5 Comments to Table T10

Variable / category	Comments
Disturbance by insects	Forest area disturbed by other biotic agents in table 10a refers to the occurrence area of rats above medium levels.
Disturbance by diseases	
Disturbance by other biotic agents	
Disturbance caused by abiotic factors	The national figures on disturbed forest area by abiotic factors are absent.
Major outbreaks	
Invasive species	There aren't available figures on forest affected by woody invasive species.

11 Table T11 - Wood removals and value of removals

11.1 FRA 2010 Categories and definitions

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

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
China Forestry Statistical Yearbook	H	Wood removal	1988-2007	Annual statistics
Nationwide forest cutting quota ("8.5", "9.5", "10.5" 5-year plan of national economic development)	H	Fuel wood	1991-2005	
Provincial interim report and market sample-survey	H	price	1990, 2000, 2005	Thematic investigation

11.2.2 Classification and definitions

National class	Definition
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 plots 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.

11.2.3 Original data

Commercial timber removal

Year	Removal (10000m ³)	Year	Removal (10000m ³)
1988	6217.55	1998	5966.20
1989	5801.77	1999	5236.80

1990	5571.00	2000	4723.97
1991	5807.33	2001	4552.03
1992	6173.57	2002	4436.07
1993	6392.23	2003	4758.87
1994	6615.14	2004	5197.33
1995	6766.86	2005	5560.31
1996	6710.27	2006	6611.78
1997	6394.79	2007	6976.65

Wood harvest for farmer household use

According to explanation about the statistical coverage of industrial roundwood from FAO team for FRA2010, industrial roundwood also includes the wood harvest for household use. The annual wood harvest for farmer household use has been summed since 2003 at national level, as showed in the following tables.

Year	Wood harvest for farmer household use (1000 m ³)	Removal for farmer household use (1000 m ³)
2003	8595.7	5148.8
2004	12852.4	7698.6
2005	8558.0	5126.2
2006	8758.9	5246.6
2007	8578.6	5138.6

The commercial timber-produced rate 59.9% during the 10th 5-years national economic development plan is used to estimate the annual removal for farmer household use since 2003.

Fuel wood harvest

Large gap of definition of fuel wood between FAO and China is existed, there isn't available national information on fuel wood removal according to the FAO's definition. Based on the thematic research on this issue at the support of relevant experts, the research result shows that the annual harvest quota of fuel wood during the 8th, 9th and 10th 5-year national economic development plans is reasonable to estimate the fuel wood removal in 1990, 2000 and 2005 respectively.

Year	Fuel wood harvest(10000m ³)
1990	6360.0
2000	7594.8
2005	6367.6

Prices of industrial roundwood and fuel wood

Prices of industrial roundwood are the weighted average of provincial interim reporting prices and market sample-survey results using expert estimate.

Year	The mean price of industrial roundwood (RMB/m ³)
1990	285
2000	392
2005	531

Price of fuel wood fluctuates largely at different sites due to the regional difference of standard and property. It is difficult to estimate national price of fuel wood.

11.3 Analysis and Processing

10.3.1 Calibration

Not necessary

10.3.2 Estimate of industrial wood removal

Five-year average is respectively used to estimate commercial timber removal in 1990, 2000 and 2005. Among them, industrial removal in 1990 is the mean value during a 5 years period of 1988-1992, 1998-2002 is used for 2000, and 2003-2007 for 2005.

Fiver-year average is used to estimate the removal for farmer household use in 2005 with the annual statistics during 2003-2007. Considering the start year (2003) of national statistics on wood harvest for farmer household use, it is assumed that the removal doesn't fluctuate obvious in 1990, 2000 and 2005.

10.3.3 Estimate of fuel wood removal

Removals of fuel wood in 1990, 2000 and 2005 are figured out by the annual harvest quoata of fuel wood during the 8th, 9th and 10th 5-years national economic development plans.

10.3.4 Reclassification

Categories	Industrial wood removal	Woodfuel removal	Total
Industrial wood removal	100%		100%
Fuel Wood removal		100%	100%

11.4 Data for Table T11

FRA 2010 Category	Industrial roundwood removals			Woodfuel removals ³		
	1990	2000	2005	1990	2000	2005
Total volume (1000m ³ o.b.) ¹	64814	55502	63882	63600	75948	63676
... of which from forest	64814	55502	63882	63600	75948	63676
Unit value (RMB/ m ³ o.b.) ²	285	392	531			
Total value (1000 RMB)	18471990	21756784	33921342			

(Note: ¹⁾ Both of industrial roundwood and fuel wood come from forest. ²⁾ Prices of industrial roundwood are the weighted average of provincial interim reporting price and market sample-survey results using expert knowledge. ³⁾ Woodfuel removal is the amount of harvest not the actual products removal, and the price isn't available.)

11.5 Comments to Table T11

Variable / category	Comments
Total volume of industrial roundwood removals	Wood harvest of farmer household use in 2005 is the average figure during 2003-2007 from the <i>China Forestry Statistical Yearbook</i> , and multiplies the commercial timber-produced rate (59.9%) to obtain the removal of farmer household use in 2005. The removals of farmer household use in 1990 and 2000 are assumed to keep the same level of which in 2005. The figure is different with that in country report for FRA2005 due to different estimate methods. During FRA2005, wood removal for farmer household use was estimated by establishment of wood consumption model based on the thematic investigation of forest resources consumption structure during 1987-1996. As a result, the total volume of industrial roundwood removals in corresponding years is also different than which in country report for FRA2005.
Total volume of woodfuel removals	Removals of fuel wood in 1990, 2000 and 2005 are figured out by the annual harvest quota of fuel wood during the 8 th , 9 th and 10 th 5-years national economic development plans which is different from that in country report for FRA2005.
Unit value	Prices of industrial roundwood are the weighted average of provincial interim reporting price and market sample-survey results using expert knowledge
Total value	

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

12.1 FRA 2010 Categories and definitions

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

NWFP categories

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

12.2 National data

12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	comments
China Forestry Statistical Yearbook	H	Removal	2005	Annual statistics
Provincial interim report and market sample-survey	H	Value	2005	Thematic investigation

12.2.2 Classification and definitions

National class	Definition
Other forest products	<p>The forest products obtained not via bamboo/trees cutting.</p> <p>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 (Gingkgo), Pinus seeds, Cashew, Eucommia seeds, and branches or leaves (for example, skin of Eucommia, vitex branch, wicker and leaves of Livistona chinensis).</p> <p>2. Excluding mulberry leaves, tea and fruit.</p>

12.2.3 Original data

According to the exploitation of non-wood forest products and development of forestry industry, the removals of 11 kinds of main forest products are collected in *China Forestry Statistical Yearbook*, however, the price and value are not estimated. Here, value of each product is the weighted average of provincial interim reporting value and market sample-survey results based on the expert estimate.

	Forest products	Unit	Removal	Value (1000 RMB)
1	Bamboo timber	1000 culms	1151740	9437430
2	Raw Lacquer	Ton	14316	1431600
3	Tong oil tree seed	Ton	368688	925761
4	Camellia oil seed	Ton	875022	3173792
5	Tallow Tree seed	Ton	30466	129042
6	Chinese gallnut	Ton	20308	253832
7	Palm tree bark	Ton	60617	164642
8	Pine seeds	Ton	767134	3401395
9	Dried Bamboo shoots	Ton	463154	7842702
10	Walnut	Ton	499074	5222006
11	Chestnut	Ton	1031857	6780814
12	Scraped Lac	Ton	1897	35662

12.3 Analysis and Processing

12.3.1 Calibration

Not necessary

12.3.2 Estimation and forecasting

Not necessary

12.3.3 Reclassification

National Class	Plant products/raw material (FRA2010)								
	Food	Fodder	Raw material for medicine and aromatic products	Raw material for colorants and dyes	Raw material for utensils, handicrafts & construction	Ornamental plants	Exudates	Other plant products	Total
Bamboo timber								100%	100%
Raw Lacquer							100%		100%
Tong oil tree seed	100%								100%
Camellia oil seed	100%								100%
Tallow Tree seed	100%								100%
Chinese gallnut			100%						100%
Palm tree bark								100%	100%
Pine seeds							100%		100%
Dried Bamboo shoots	100%								100%
Walnut	100%								100%
Chestnut	100%								100%
Scraped Lac							100%		100%

12.4 Data for Table T12

Rank	Name of product	Unit	NWFP removals 2005		NWFP category
			Quantity	Value (1000RMB)	
1 st	Bamboo timber	1000 culms	1151740	9437430	8
2 nd	Chestnut	Ton	1031857	6780814	1
3 rd	Camellia oil seed	Ton	875022	3173792	1
4 th	Pine seeds	Ton	767134	3401395	7
5 th	Walnut	Ton	499074	5222006	1
6 th	Dried Bamboo shoots	Ton	463154	7842702	1
7 th	Tong oil tree seed	Ton	368688	925761	1
8 th	Palm tree bark	Ton	60617	164642	8
9 th	Tallow Tree seed	Ton	30466	129042	1
10 th	Chinese gallnut	Ton	20308	253832	3
All other plant products ¹	Raw Lacquer	Ton	14316	1431600	7
	Scraped Lac	Ton	1897	35662	
All other animal products ²					
TOTAL			4132533	38798679	

(Note: ¹) Other plant products include Raw Lacquer and Scraped Lac. ²) The wildlife animal products in China are forbidden or restrictly limited to be produced for commercial purpose. ³) The products are ranked by the removal.)

	2005
Local currency	RMB (Chinese yuan)

12.5 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	
Other plant products	Other plant product is Scraped Lac.
Other animal products	The wildlife animal products in China are forbidden or restrictly limited to be produced for commercial purpose.
Value by product	
Total value	Value of each forest product is the weighted average of provincial interim reporting value and market sample-survey results using expert estimate

13 Table T13 - Employment

13.1 FRA 2010 Categories and definitions

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

13.2 National data

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Comments
China Forestry Statistical Yearbook	H	Employment	1990, 2000, 2005	
Thematic analysis on natural reserve construction and management	H	Forest management of natural reserves	1990, 2000, 2005	
Thematic analysis on national forest park construction and management	H	Forest management of forest parks	1990, 2000, 2005	

13.2.2 Classification and definitions

National class	Definition
Agriculture, forestry, stockbreeding, fishery	Employment in activities related to primary production of 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.
Natural reserves management	Employment involved of natural reserve management and wildlife protection.
Forest parks management	Employment engaged in forest park management and forest tourism

13.2.3 Original data

Unit: person

Year	Agriculture, forestry, stockbreeding and fishery	Natural reserves management	Forest parks management
1990	1854549	7203	
2000	1462100	11894	46700
2005	1202498	16413	103400

(Note: ¹⁾ Employment excludes self-employment such as forest farmer. ²⁾ According to IUCN I-IV, employment in forestry natural reserves and forest park management are estimated as the category “Employment in management of protected areas”. ³⁾ Employment in forest parks management in 2000 and 2005 come from the thematic investigation for FRA2010, and there aren’t available national figures on that in 1990.)

13.3 Analysis and Processing

12.3.1 Calibration

Not necessary

13.3.2 Estimation and forecasting

Employment (FTE) for FRA2010 in 1990, 2000 and 2005 is respectively estimated based on the annual national statistics on employment in terms of primary industry (agriculture, forestry, stockbreeding and fishery), natural reserves and forest parks management in the same year.

13.3.3 Reclassification into FRA 2010 categories

National class	Employment (FRA2010)		
	Primary production of goods	Management of protected areas	Total
Agriculture, forestry, stockbreeding and fishery	100%		100%
Natural reserve management		100%	100%
Forest park management		100%	100%

13.4 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods ¹	1863.14	1462.10	1202.50
...of which paid employment	1863.14	1462.10	1202.50
...of which self-employment			
Employment in management of protected areas	7.203	58.59	119.81

(Note: ¹⁾ FTE excludes self-employment such as farmers depending on forestry)

13.5 Comments to Table T13

Variable / category	Comments on the reported trend
Employment in primary production of goods	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.
Paid employment / self-employment	
Employment in management of protected areas	

Other general comments to the table

14 Table T14 – Policy and legal framework

14.1 FRA 2010 Categories and definitions

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

14.2 National data

14.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Comments
Department of Forestry Policy and Regulation	H	Law / act	1949-2008	Thematic report

14.2.2 Development of forestry policy

China government attaches great importance to forestry. A series of grand decision about forestry development have been made by the central government since 1949, brilliant achievements in forestry have been scored that made the important contribution to national economy and social development. The item “*state-owned forest designated by the law belongs to the civil*” was written into the *People’s Republic of China Constitution* in 1954, providing policies support for the exploitation of key forest regions and forest management in 1950s. The decision about “*The issues on protection of forest and forestry development*” was promulgated by the central government in 1981 that strongly promote the protection of forest resources and forestry development. *The system of forest cutting quota management* was started to be implemented after 1987 to take control of the total forest resources consumption and its structure, forest resources management are gradually driven in a reasonable protection and sustained utilization way. *The system of classified forestry*

management was initiated at the end of 20th century, and the compensation system of welfare forest was also founded. Forestry is divided into welfare forestry and commercial forestry abiding by the dominant functions of forest, the corresponding management system & mechanism and policy-measures for welfare forest and commercial forest are taken. The ordered exploitation of commercial forest and effective protection of welfare forest promote the improvement of regional ecological environment.

Entering 21st century, the total of more than RMB 700 billion yuan are being invested to initiate several forestry key programmes in terms of natural forest resources protection, conversion of cropland to forest, Beijing - Tianjin sand source control, shelterbelt construction in three-North and middle & lower of Yangtze river, wildlife protection and natural reserve establishment, and development of fast-growing and high-yielding plantation. The implementation of forestry key programmes promotes the improvement of ecological conditions, maintenance of land ecological security, and accelerates agricultural and rural economic development in China. *The decision about "acceleration of forestry development"* was promulgated by the central government in 2003. The forestry development strategy focused on ecological improvement is radicalized, and the guiding ideology, basic principles and main tasks of the future development of forestry are identified. *The opinion on "Comprehensive Promotion of of Collective Forest Rights System Reform"* was put out by the central government in 2008. The reform of collective forest rights system is fully pushed to enhance the forestry productivity in collective forest area. It will strongly promote the increase of forest resources and forestry farmer income, and achievement of good ecology and social harmony in forestry area.

14.2.3 The development of forestry laws

The development of Forestry laws

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 *Forest law* was discussed and adopted by the 7th meeting of 6th NPC standing Committee in 1984, and put into force on January 1, 1985, and indicated that forestry management is embarked on a track of laws. The *Forest law* was amended, and adopted by the 2nd meeting of the 9th NPC Standing Committee in April, 1998. Following the promulgation of the *Forest Law*, the *Wild Animal Protection Law* was examined and adopted by the 4th meeting of 7th NPC Standing Committee in 1988, and amended by the 11th meeting of 10th NPC Standing Committee in August, 2004. The *Seedling Law* was examined and approved by the 16th meeting of 9th NPC Standing Committee in 2000, and amended by the 11th meeting of 10th NPC Standing Committee in August, 2004. The *Combating Sandification Law* was examined and approved by the 23rd meeting of 9th NPC Standing Committee in 2001. Furthermore, the laws closely related to forestry in terms of the Rural Land Contract, Land Management, Agriculture, Agricultural Technical

Extension, Farmer Professional Cooperation and Criminal have been formulated and approved.

At present, forestry legislation covers the main areas of forestry, and provides a sound legal safeguard in terms of stabilization of basic forestry management systems, 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.

The formulation of administrative codes

A series of important forestry administrative codes are formulated and promulgated by the State Council step by step, according to the relevant forestry laws. For example, the implementation means of *the Civil Voluntary Planting* (State Council) in 1982, the regulation for the *implementation of forest law* in 2000, the management measures on *forest harvesting & update* in 1987, the regulation for the *control of forest fire* in 1988 and mended in 2008, the *regulation on plant quarantine* in 1983, the regulation on *prevention and cure of forest insect-pests* in 1989, the regulation on *conversion of cropland to forest* in 2003. Furthermore, several regulations on wildlife breeding cultivation, protection and management and wise-use are formulated by the State Council, including terricolous wild-animal and wild plants protection, import/export management of endangered wildlife, emergent response on animal great & important epidemics, natural reserve, natural reserve management of forest and wildlife and protection of new plant species, etc.

The formulation of forestry agency regulations

The total of 80 nationwide agency regulations are formulated by the forestry authoritative agency of the State Council, for example management rule on forest park, controversial disposal rule on trees and forestry land ownership, management regulation for occupied forestry land auditing, combating sandification, tree seeds quality and forest resources supervision. The total of 400 sub-national regulations is formulated by the local People Congress or government.

Benefitting from the forestry legislation, a relatively perfect forestry legal system is established, the relevant laws including Forest Law, Wild Animal Protection Law and Combating Sandification Law as the mainbodies, relevant administrative codes, regulations and regulatory files as supporting. Forestry legislation make forestry development on the laws-basis, and playing an important role in the promotion of modern forestry development, forestry administration in accordance with the law, and harmony between man and nature.

14.3 Data for Table T14

Indicate the existence of the following (2008)			
Forest policy statement with national scope		√	Yes
			No
If Yes above, provide:	Year of endorsement	1981: The decision “ <i>The issues on protection of forest and forestry development</i> ” 2003: <i>The decision “acceleration of forestry development”</i> 2008: <i>The opinion “Comprehensive Promotion of Collective Forest Rights System Reform”</i>	
	Reference to document	Department of Forestry Policy and Regulation, SFA	
National forest programme (nfp)		√	Yes
			No
If Yes above, provide:	Name of nfp in country	the 11 th 5-year plan and mid&long term plan of forestry development	
	Starting year	2006	
	Current status		In formulation
		√	In implementation
			Under revision
			Process temporarily suspended
Reference to document or web site	Department of of Forestry Development planning and Financial Management		
Law (Act or Code) on forest with national scope		√	Yes, specific forest law exists
			Yes, but rules on forests are incorpo-rated in other (broader) legislation
			No, forest issues are not regulated by national legislation
If Yes above, provide:	Year of enactment	1979: Forest Law (trial), 1984: Forest Law	
	Year of latest amendment	1998	
	Reference to document	Department of Forestry Policy and Regulation, SFA	

(Note: The information in above table refers to chapter 14.2.2 and 14.2.3.)

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements		Yes
	√	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest	√	Yes
		No
If Yes above, indicate the number of regions/states/provinces with Laws on forests	All provinces, autonomous regions and municipalities	

(Note: The number of local codes by provincial People's Congress and regulations by provincial governments reaches about 400.)

14.4 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	
National forest programme (NFP)	
Law (Act or Code) on forest with national scope	
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

15 Table T15 –Institutional framework

15.1 FRA 2010 Categories and definitions

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

15.2 National data

15.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Comments
Personnel Department	H	Institutional	2000, 2005, 2008	Statistics

15.2.2 Classification and definitions

National class	Definition
Employee on the job	Employee working at the enterprise and paid by the enterprise, or have position in the above unit, however, not yet work because of study, sickness or injury etc., and paid by the work unit.
Employee at state-owned enterprises	Employee working at the state-owned economic units or its subsidiary bodies and paid by the work units.

15.2.3 Establishment of forestry agencies

State Forestry Administration

Since the founding of the People's Republic of China, especially since reform and opening up in 1978, the central government has taken a series of policies and measures to gradually establish and strengthen forestry institution in accordance with the objective requirements from national forestry situation, and effectively promoted the forestry development. Ministry of Agriculture and Forestry was repealed according to the decision of the 6th meeting of the 5th NPC Standing Committee in 1979, and Ministry of Forestry was established for nationwide afforestation and forest industry in

charge. Ministry of Forestry was restructured as the State Forestry Administration in May, 1998 directly under the State Council in charge of the function of forestry ecological restoration. In particular, its administrative functions have been considerably strengthened during a new round of institutional reform of the State Council in 2008.

(1) Main administrative functions, including,

- ◆ Supervision and management of national forestry development and ecological restoration.
- ◆ Development of policies, strategies, mid-long term plan related to forestry ecological restoration, and Drafting relevant laws and supervision of their implementation.
- ◆ Supervision and management of protection and development of forest resources.
- ◆ Organization, coordination, guidance and supervision of national afforestation, wetland protection, combating sandification, protection of terraneous wildlife resources and control of forest fire.
- ◆ Supervision and management of forestry natural reserve.
- ◆ Promotion of forestry reform and safeguard of farmers' legitimate rights in terms of forest management.
- ◆ Supervision and check of other industry's exploitation of forest, wetland, derstified area and terraneous wildlife resources.
- ◆ Organization and direction of forestry science and technology, education and foreign affairs.
- ◆ Guiding national forestry institution construction.
- ◆ Relevant functions about forestry ecological civilization construction.

(2) The departments of SFA, covering 11 departments or agencies, including the office of SFA, Department of Forestry Policies and Regulations, Department of Afforestation (the Office of National Afforestation Committe), Department of Forest Resources Management (the Office of wood industry management), Department of Wildlife Protection and Natural Reserve Management, Department of the Rural Forestry Reform, Bureau of Forest Police (the Office of national forest fire prevention headquarters), Department of Forestry Development planning and Financial Management, Department of Science and Technologies, Department of International Cooperation and Personnel Department.

(3) Institution directly under SFA. Now, there are over 100 institutions are set up directly under SFA to take on the specific functions. For example, there are a total of over 30 public service units in Beijing such as the Service Center of SFA, the General Station of State-owned Forest Farm and Trees Seedlings, the General Forestry Management Workstation. There are a total of 14 Special Agencies of Provincial Forest Resources Supervision nominated by SFA, and the total of 22 local agencies under the Import/Export Management Center of Endanger Wildlife Species, SFA, and other entities in terms of forest insects and pests, forest fire prevention, inventory and planning.

Employee of forestry state-owned economic units

In accordance with FAO's definition that human resources in this table excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers, the

national statistics on employee on the job working at forestry institution and the departments of SFA are identified as the basic information sources, the reference documents are China Forestry Statistical Yearbook in 2000, 2005 and 2008 listed in the following table.

Units: person, %

Year	Public service units		Government agencies		Of Scientific research and technical service ¹		Education ²	
	employee	female	employee	Female	employee	Female	Employee	Female
2000	763576	229519	84652	17725	23203	7677	7426	n.a.
2005	682585	193443	76527	15591	26912	8659	14683	n.a.
2008	673936	192629	83196	16717	26359	8145	10965	n.a.

(Note: ¹) The employee working at government agencies and public service units cover who are engaged in the scientific research, technical service and education. 2) There isn't available information on female employee working for education.)

15.3 Analysis and Processing

15.3.1 Calibration

Not necessary

15.3.2 Estimation and forecasting

The total of employee on the job in forestry State-owned economic units and the percentage of female employee in 2000, 2005 and 2008 are respectively estimated based on the annual national figures in China Forestry Statistical Yearbook.

15.3.4 Reclassification

National class	FRA2010 categories	
	Human resources within public forest institutions	Total
Employee on the job in public service	100%	100%
Employee on the job in the government agencies	100%	100%

(Note: according to FAO's definition, the on-job employee and female employee in the departments and public service units exclude these working at education & research institutes. Because of not available national figures on the employee working at forestry research institution and not available expert knowledge supporting, the statistics on employee of scientific research, technical service and education as a whole are deducted from the employee including female in the department of SFA and public service units.)

15.5 National reporting tables

Table 15a – Institutions

FRA2010 category	2008
Minister responsible for forest policy formulation : please provide full title	Mr. Jia Zhibang (Ministerial level) Administrator of the State Forestry Administration
Level of subordination of Head of Forestry within the Ministry	State Forestry Administration is separately set up directly under the State Council at the vice-ministerial level
Other public forest agencies at national level	The total of 11 departments, and 101 public service units directly under the State Forestry Administration (Refer to chapter 15.2.3. (2) and 15.2.3. (3))
Institution(s) responsible for forest law enforcement	the State Forestry Administration

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	817599	29.5%	717517	27.9%	719808	28.0%
...of which with university degree or equivalent ¹	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

(Note: ¹ There isn't available information on the human resources with university degree or equivalent in other years except 2003 when the figure (93699) comes from the thematic investigation.)

15.6 Comments to Table T15

Variable / category	Comments on the reported trend
Minister responsible for forest policy formulation	
Level of subordination of Head of Forestry within the Ministry	
Other public forest agencies at national level	
Institution(s) responsible for forest law enforcement	
Human resources within public forest institutions	

16 Table T16 – Education and research

16.1 FRA 2010 Categories and definitions

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

16.2 National data

16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Comments
China Forestry Statistical Yearbook	H	Education	2000, 2005, 2008	Annual statsites
National Forestry Science & Technoliges Statistics	H	Research	2000, 2005, 2008	Annual statsites

16.2.2 Classification and definitions

National class	Definition
Colleges and Universities	Full-time universities, independent college, Acad. Graduate school implementing graduate education, which are established in accordance with the builtup standard and approval procedures made by the central government, and the main recruiting object is high school graduate through national unified entrance examination.
PhD	The post graduate students of the Colleges, Universities and research Institutes, or equivalent education, entitled PhD by the above institutions authorized by the State Council, when pass the relevant curriculum and desertation examination of doctor degrees and reach the required academic level. The general study duration is about 3-4 years.

Master	The post graduate students of the Colleges, Universities and research Institutes, or equivalent education, entitled master degree by the above institutions authorized by the State Council, when pass the relevant curriculum and desertation examination of master degrees and reach the required academic level. The general study duration is about 2-3 years.
Bachelor	The graduate students of the Colleges and Universities, entitled bachelor degree by the above institutions authorized by the State Council, when pass the relevant curriculum and reach the required academic level. The general study duration is about 4-5 years.
Acad. graduate	The academic graduate students in the Colleges, Universities, and higher Vocational College. The general study duration is about 2-3 years.
Independent research & developing institutes	The insititutions mainly engaged in scientific research and technical development with specific tasks and research direction, independent in terms of administrative organization and finanacial accounting profit / loss. These units possessing a certain number of the academic backbone and researchers meet the basic requirements about research, development and taking on adademic activities, and have the rights to sign contracts with other institutions and set the separate account at the bank. In forestry, including Chinese Academy of Forestry Science and State-owned scientific research and technology development organzations directly under the forestry agencies at the provincial and city levels.

16.2.3 Original data

China's forestry education and scientific research are developing rapidly in recent years. In the area of forestry education, the recruitment number of high school graduate is expanded year by year, the annual bachelor and post graduate are increasing in a high rate, and the educational diathesis of population improved significantly. In the area of forestry research, the construction of talented person troop in forestry research insititues are being vigorously strengthened, personnel structure of scientific research teams are continuous improved through active talent training and introduction.

Table 1 The annual statistics on national forestry education

Unit: person

Year	PhD	MSc	BSc	Acad. graduate
2000	97	371	5826	2365
2005	264	1521	23767	13187
2008	589	3926	31850	18563

(Note: not available figures on the female graduate.)

Table 2 National forestry science & technology personnel

Unit: person

Year ¹	PhD	MSc	BSc	Acad. Graduate	%female ²
2000	131	388	3406	5239	3008
2005	273	675	3511	4793	3380
2008	494	1020	3909	4090	3461

(Note: ¹) According to the international / internal common definition and statistical standard on

“Scientific research personnel”, forestry science & technology personnel include science & technology managers, and the staff for subject activity and technology services. ²⁾ %female is the percentage of all female staff in the whole of forestry science & technology personnel. ³⁾ The figures in the table limit to the forestry science & technology personnel working at public scientific research institutes with independent legal rights at above city levels.)

16.3 Analysis and Processing

16.3.1 Calibration

Not necessary

16.3.2 Estimate

The total of forestry high-education graduate and personnel structure of forestry research institutes in 2000, 2005 and 2008 are respectively estimated based on the annual national figures in China Forestry Statistical Yearbook.

16.3.4 Reclassification

Forestry education

National class	FRA2010 category				
	PhD	MSc	BSc	Technician certificate or diploma	total
MSc		100%			100%
BSc			100%		100%
Acad. Graduate				100%	100%

16.4 Data for Table T16

FRA 2010 Category	Graduation of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
MSc	371	n.a.	1521	n.a.	3926	n.a.
BSc	5826	n.a.	23767	n.a.	31850	n.a.
Technician certificate or diploma	2365	n.a.	13187	n.a.	18563	n.a.
FRA 2010 Category	Professionals working in publicly funded forest research centres ³					
	2000		2005		2008	
	Number	%Female ¹	Number	%Female	Number	%Female
Doctor's degree (PhD)	131	32.8	273	36.5	494	36.4
Master's degree (MSc) or equivalent	388		675		1020	

Bachelor's degree (BSc) or equivalent	3406		3511		3909	
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(Note: ¹⁾ %female is the percentage of all female staff in the whole of forestry science & technology personnel, covering PhD, MSc, BSc, Acad. Graduate.)

16.5 Comments to table T16

Variable / category	Comments on the reported trend
Graduation of students in forest-related education/ Professionals working in publicly funded forest research centres	

17 Table T17 –Public revenue collection and expenditure

17.1 FRA 2010 Categories and definitions

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

17.2 National data

17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Comments
Department of Forestry Development planning and Financial Management	H	Public revenue and expenditure	2000, 2005	Annual statistics

17.2.2 Classification and definitions

National class	Definition
Financial revenue	The revenue in terms of the participation of national capital in social products distribution. Forestry financial revenue mainly covers the silviculture fund collected by the local forestry agencies and turned in the financial agencies, as well as the taxes paid by the state-owned forestry enterprises, forest farms and nurseries.
Financial expenditure	The collected national financial capital is re-distributed to meet the needs of economic development and other relevant works. Forestry financial expenditure mainly covers the investment of central government for forestry basic construction, financial funds and agricultural comprehensive development funds, as well as forestry input from local government.
Foreign capital utilization in Forestry	Foreign capital received during the reporting period for forestry programmes construction.

17.2.3 Original data

Table 1 National forestry financial revenue and expenditure

Year	Revenue (10000 RMB)		Expenditure (10000 RMB) ^{2,3}			
	Silviculture fund	The taxes paid by the state-owned forestry enterprises, forest farms and nurseries ¹	Central government input			
			Basic construction investment	Financial funds excluding that for the public institutions in terms of forestry, education and science	Financial funds for the public institutions in terms of forestry, education and science	Agricultural comprehensive development funds
2000	103839	211874	474145	912871	97796	12100
2005	186258	68639	655993	3241429	117104	17000

(Note: ¹) The taxes paid by the state-owned forestry enterprises, forest farms and nurseries are less than that in 2000, because of the rescissory agricultural special products tax. ²) There aren't available figures on the forestry investment of local government. ³) Entering 21st century, the forestry development strategies focused on ecosystem restoration are full implemented, forestry key programmes including natural forest resources protection and conversion of cropland to forest are initiated step by step. The state has increased the financial support to forestry development, and financial investments from the central government are increased significantly.)

17.3 Analysis and Processing

17.3.1 Calibration

Not necessary

17.3.2 Estimate

The forestry financial revenue and expenditure in 2000 and 2005 are respectively estimated based on the publicized annual figures from national statistical administrative agencies.

17.3.4 Reclassification

National forestry finance revenue and expenditure

National class		FRA2010 category			
		Forest revenue	Expenditure		
			Domestic funding	External funding	Total
Financial revenue	Silviculture fund	100%			100%
	The taxes paid by the state-owned forestry enterprises, forest farms and nurseries	100%			100%
Central government input	Basic construction investment		100%		100%
	Financial funds		100%		100%
	Agricultural comprehensive development funds		100%		100%

The approach of national financial expenditure in forestry

National class		FRA2010 category		
		Operational expenditure	Transfer payments	Total
Central government input	Basic construction investment		100%	100%
	Financial funds for the public institutions in terms of forestry, education and sciences	100%		100%
	Financial funds excluding that for the public institutions in terms of forestry, education and science		100%	100%
	Agricultural comprehensive development funds		100%	100%

17.4 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 RMB)	
	2000	2005
Forest revenue	3157130	2548970

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

FRA 2010 Categories	Domestic funding (1000 RMB) ¹		External funding (1000 USD) ²		Total	
	2000	2005	2000	2005	2000	2005
Operational expenditure	977960	1171040	n.a.	n.a.	n.a.	n.a.
Transfer payments	13991160	39144220	n.a.	n.a.	n.a.	n.a.
Total public expenditure	14969120	40315260	n.a.	n.a.		
If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.	<input checked="" type="checkbox"/>	Reforestation				
	<input checked="" type="checkbox"/>	Afforestation				
	<input checked="" type="checkbox"/>	Forest inventory and/or planning				
	<input checked="" type="checkbox"/>	Conservation of forest biodiversity				
	<input checked="" type="checkbox"/>	Protection of soil and water				
	<input checked="" type="checkbox"/>	Forest stand improvement				
	<input checked="" type="checkbox"/>	Establishment or maintenance of protected areas				
	<input checked="" type="checkbox"/>	Other, specify below				
Including operational expenditure of forestry management in terms of resources management, control of forest fire and insect & pests, et al.						

(Note: ¹) excludes the financial input from the local government in 2000 and 2005. ²) Not available figures on external funding.)

17.5 Comments to Table T17

Variable/Category	Comments on the reported trend
Forestry financial revenue	
Operational expenditure	
Transfer payments	

Other general comments to the table