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China's Forestry Resource Inventory

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Solid Wood Products

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Report Highlights:

In late November 2009, China's State Forestry Administration (SFA) released the Seventh National Forest Resource Inventory Report. The report concluded that China's forested area covers 195 million hectares with the forest stocking volume at 13,721 million cubic meters. The forest coverage increased to 20.36 percent of the country's total land area from 18.21 percent in 2003.

General Information:

Summary of China's Forest Resource Inventory Report

China releases its National Forest Resource Inventory Report every five years. In late November 2009, China's State Forestry Administration (SFA) released the Seventh National Forest Resource Inventory Report. The Report covers the period 2004 through 2008.

The report concluded that China's forested area covers 195 million hectares (175 million hectares in 2003) with the forest stocking volume at 13,721 million cubic meters (12,456 million cubic meters in 2003). The forest coverage increased to 20.36 percent of the country's total land area from 18.21 percent in 2003. Natural forest covers 119.69 [1] million hectares with the forest stocking volume at 11,402 million cubic meters and plantation forest covers 61.69 million hectares with forest stocking volume at 1,961 million cubic meters. Please refer to [CH5027](#) for comparison with the Sixth National Forest Resource Inventory Report (1998-2003).

China's forest land totals 303.78 million hectares (arable land totals 122 million hectares), with forested land at 181.38 million hectares. The forested land includes 155.59 million hectares of arbor forest, 20.41 million hectares of economic forest and 5.38 million hectares of bamboo forest. Tables below describe the components of forested land and definition of China's forest classification.

Forest class	Forest type	Area (million ha.)
Public welfare forest	Protective forest	83.08
	Special-purpose forest	11.98
Commercial forest	Timber forest	64.16
	Economic forest	20.41
	Fuel-wood forest	1.75

First class	Second Class	Third Class	Forest Function
Public beneficial forest	Protective Forest	Soil and water conservation forest	Reducing flow of ground and rainfall, prevent soil and fertility loss.
		Water conservation forest	Protecting river and drinking water resource, adjust river water flowing
		Road protecting forest	Protect infrastructure such as roads, dykes and dams
		Windbreak and sand fixation forest	Reduce wind speed; restrain deserts
		Farmland and pasture protecting forest	Improving the natural environment of farmland and pasture, protecting the productive condition of agriculture and pasture
		Fireproofing forest	Prevent and restrain forest fire
	Special purpose forest	Scientific and education forest	Provide area for scientific research, educating and stationary observation
		Natural preservation forest	Protecting typical ecological system, Zone climate community, rare plants, animals and forests with special value
		Seed resource forest	Protecting seed resource and hereditary gene, good seed and cultivating new variety
		Cultural and memorial forest	Protecting nature, human cultural heritage, history, and human memory
		Tourism forest	Preserving natural scenic and

Commercial forest			entertainment area
		Environment protection forest	Purify air, prevent pollution, reducing dust and noise
		National deference forest	Protecting country line, screening and protecting military installations
	Timber forest	General timber forest	Producing timber in different sizes and types for industry
		Industrial fiber forest	Producing fiber for paper production and the wood-based panel industry
	Fuel forest	Firewood forest	Producing fuel for heat and life
	Economic forest	Fruit forest	Producing dried and fresh fruits
		Oil crops forest	Producing oil materials for industry
		Chemical materials forest	Producing forest chemicals, such as turpentine, rubber, and white wax
		Medicinal forest	Producing Chinese medicine
		Flavor seasoning forest	Producing seasoning

The report revealed that China's forest quality has improved. The average arbor (refers to multi-year woody plants with only one bole, different from shrub, not including bamboo) forest stock volume is 85.88m³/ha, of which, the natural forest stock volume is 98.64m³/ha and plantation is 49.01m³/ha. During the Year of 2004-2008, the average annual growth of arbor forest stands amounts to 3.85m³/ha, the average degree of closure (the ratio between the vertical projection area of the forest canopy and the area of the forest land) is 0.56; the average diameter is 13.3 cm; and the average density of the trees is 916/ha. The table below describes the age structure of China's arbor forest.

Arbor Age Class	Area (Million hectares)	Stocking Volume (Million cubic meters)
Young forest	52.62	1,488
Middle-aged forest	52.02	3,861
Near-mature forest	23.05	2,650
Mature forest	18.71	3,017
Over-mature forest	9.19	2,205
Total	155.59	13,363

According to the report, the top ten species in China are oak, Masson pine, Chinese fir, birch, larch, poplar, Yunnan pine, spruce, cypress, and fir. The ten species total 86.21 million hectares with the total sock volume at 7,603 million cubic meters.

Species	Area (million ha.)	Stock volume (million m3)
Oak	16.10	1,208
Masson pine	12.04	588
Chinese fir	11.27	731
Birch	10.80	799
Larch	10.63	955
Poplar	10.10	549
Yunnan pine	4.61	469
Spruce	4.31	1,002

Cypress	3.24	163
Fir	3.11	1,136

China has five major forest belts, accounting for about 85 percent of China's total forested land.

Region	Provinces	Forest coverage rate	Area (Million ha)	Stocking Volume (Million m3)
Northeast Inner Mongolia Forest Region	Heilongjiang, Jilin, Inner Mongolia	67.1%	35.9	3,213
Southwest Mountainous Forest Region	Parts of Yunnan, Sichuan and Tibet	23%	43.48	5,090
Southeast Low Mountain and Hilly Forest Region	Jiangxi, Fujian, Zhejiang, Anhui, Hubei, Hunan, Guangdong, Guangxi, Guizhou, Sichuan, Chongqing, Shaanxi	51.97%	57.81	2,565
Northwest Mountainous Forest Region	Parts of Xinjiang, Gansu, and Shaanxi	39.14%	5.09	531
Tropics Forest Region	Parts of Yunnan, Guangxi, Guangdong, Hainan and Tibet	44.57	11.8	863

China's forestry goals

- By the year of 2020, forest coverage will increase to over 23 percent, and the country's ecological condition will be improved;
- By the year of 2050, the forest coverage will reach and stabilize at over 26 percent; the ecological condition will enter a sound cycle; the conflict between timber supply and demand will be alleviated.

New developments - China's forest resources

SFA officials identified six developments relating to China's forest resources during the period from 2004-2009 at the press conference announcing the inventory report.

- Both forested area and stocking volume continued to increase. China's forested area increased 20.54 million hectares, and stocking volume increased 1,123 million cubic meters from the previous period.
- Natural forest area and stocking volume increased. Natural forest area increased 3.93 million hectares and stocking volume increased 676 million cubic meters, both of which were much higher than the previous period.
- Plantation forest increased rapidly. Plantation area increased 8.43 million hectares, and stocking volume increased 447 million hectares.
- Forest quality improved. The arbor stocking volume increased 1.15m³/ha; mixed (coniferous and deciduous) forest increased nine percentage points to 23 percent; the public welfare forest accounts to 52 percent of total forested land, a 16 percentage points increase; and the age and species structure have also changed positively.
- Forest logging is moving to plantation forest. During the period 2004-2008, plantation logging accounted to 39

percent of total logging, up from 27 percent compared to the previous period.

- Private forest expanded as a result of China's collective forest right reform. Private forests accounted to 32 percent of China's total forested land, up from 21 percent compared to the previous period. In addition, private plantation forests amounted to 59 percent of China's total plantation area. Farmers have been one of the major players in China's forest sector.

Challenges remain

SFA officials also admitted that there were still severe challenges to China's forestry development:

- Total forest resources are inadequate: per capita forest area is less than ¼ of world average and per capita forest stocking volume is only 1/7 of the world average;
- Forest quality is poor, although it has improved; arbor stocking volume per hectare is only 78 percent of the world average;
- The pressure is increasing in protecting forest land, especially in the background of China's severe land conflicts among agriculture, forestry, and construction – 8.32 million hectares of forest land was converted to non-forest land during the year of 2004-2008;
- Forestation is becoming more and more difficult: the 44 million hectares land suitable for forest, only 13 percent is good quality, while poor quality accounts for 52 percent; and 60 percent of the land suitable for forest locates in Inner Mongolia and Northwest area.

Measures to increase domestic timber supply

China is one of the largest wood importers in the world due to its deficit between wood supply and demand. How to increase domestic wood supply and decrease wood imports have been one of the major issues for China's forestry. SFA officials concluded three measures to increase domestic wood supply:

- Improve forest management. China's traditional forest management system was copied from Soviet Union, which only focused on planting and logging, while the management was very weak. SFA has realized the potential to increase timber production through forest management improvement. The ongoing forest right reform was considered one of the best ways to improve forest management. SFA indicated that China's stocking volume will increase five billion cubic meters if China's per hectare stocking volume can reach the world average.
- China's timber production should move southward, where the climate is more favorable and water is in greater supply has more heat and water resources. For many years, northern state-own forest farms have been the major timber suppliers; however, timber production is moving to south collective forest farms.
- The development and improvement of plain forest should be emphasized because plain forests grow very fast as a result of their good air and light penetration.

Post Comments

Forestry is attracting more attention because climate change and carbon sequestration are increasingly more important global issues. In a related measure, the Chinese government recently released the Forestry Industry Development Plan and Forestry Action Plan on Addressing Climate Change. The first National Forest Right Exchange was established in

November 2009, which was expected to facilitate China's forest rights transfer. China's forest rights reform began three years ago and is designed to increase forest productivity through intensive management.

While Post believes China's timber production will increase incrementally in coming years, China's timber imports are expected to continue because: 1) the forest increase is limited since land is limited and food security is the government's top priority; 2) the demand for timber will increase consistent with the economic development; and, 3) China's timber supply has a structural shortage. Structural shortage means that China's timber supply for low-end uses has increased significantly due to the rapid expansion of fast-growing-high-yielding forests, though domestic timber production for high-end uses, such as furniture and flooring processing and face layer of wood panels, and is limited because of China's natural forest protection policy and geography.

^[1] The figures hereafter in the report do not include Hong Kong, Macao and Taiwan. This can explain why the sum of the sub-categories is not consistent with the total acreage of 195 million hectares.