中國人民大學
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Forest Transitions Study in China

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- General Situation of Forest Resource in China
- Change of Forest Resource in China
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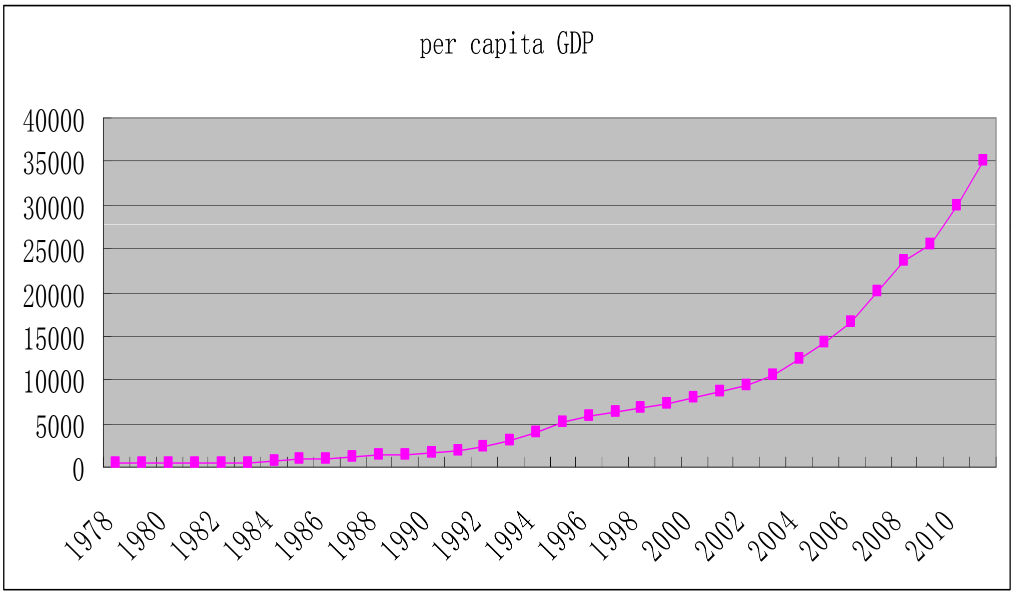
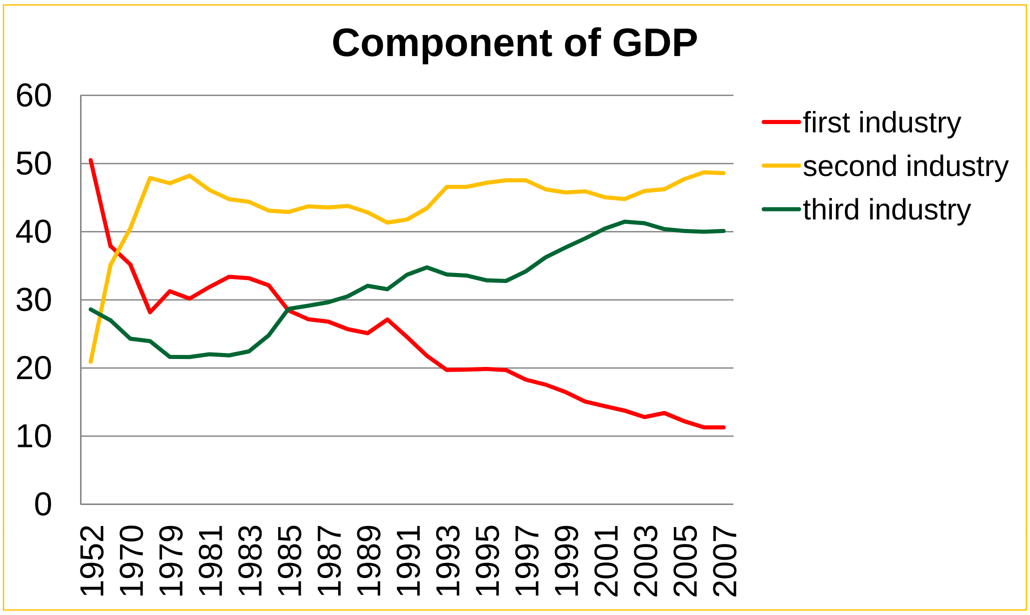
Part 1: Background of Forest Transition in China

- Since 1949, especially in the past 30 years, China has enjoyed an economic development, industrialization and urbanization, which provides an opportunity to assess the path, drivers, and explanation of forest transition, and explore its implications for efforts to achieve sustainable development

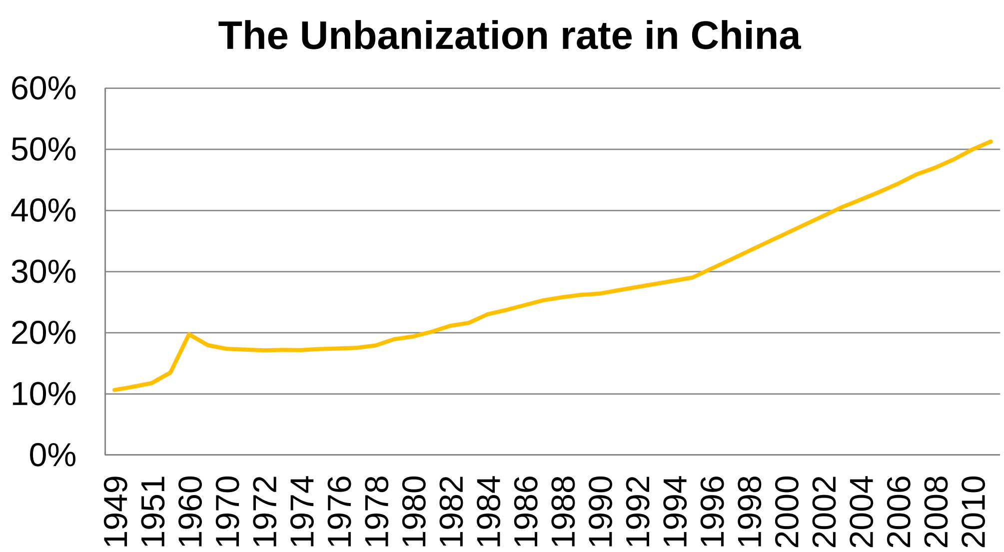
1.1 Over the past thirty years, China has achieved significantly growth in economy, with per capita GDP about 35000 Yuan (4686 USD) in 2010



1.2 The industry structure has dramatically changed, the agriculture has reduced to below 10% in 2011.



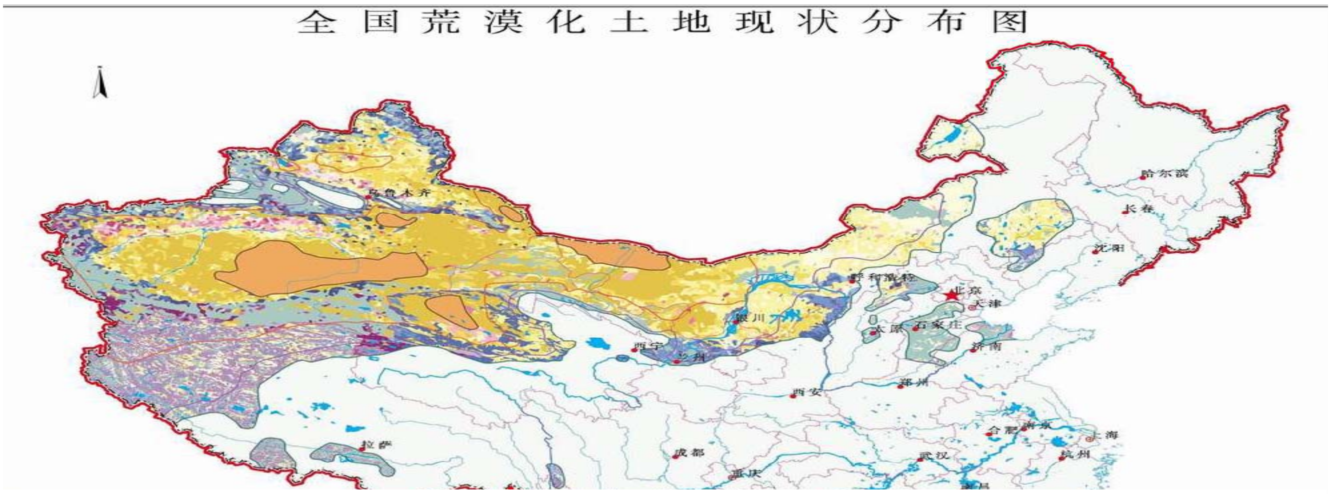
1.3 The past thirty years have witnessed the rapid growth of urbanization rate in China, the urbanization rate has reached to around 51.27% in 2011



1.4 Major environmental concerns

the total erosion area of China is 3.56 million sq km, accounting for 37.1% of the national territory. The annual soil erosion reached 4.5 billion tons with loss of 67 thousand ha. farmland.

Land Desertification Area and Change In China



China’s desertification area is 2,623,700 square kilometers, accounting for 27.33% of total territorial land area;

Sandification land area is 1,731,100 square kilometers, accounting for the 18.03% of territorial land area.

Deforestation for slope land farming led to deterioration of rocky desertification in the Karst area of southwestern China

Part 2: General Situation of Forest Resource in China

Coniferous forest

Broadleaved forest

Coniferous and broadleaved forest

Rain forest

2.1 The results of the 7th NFI (2004-2008) show:

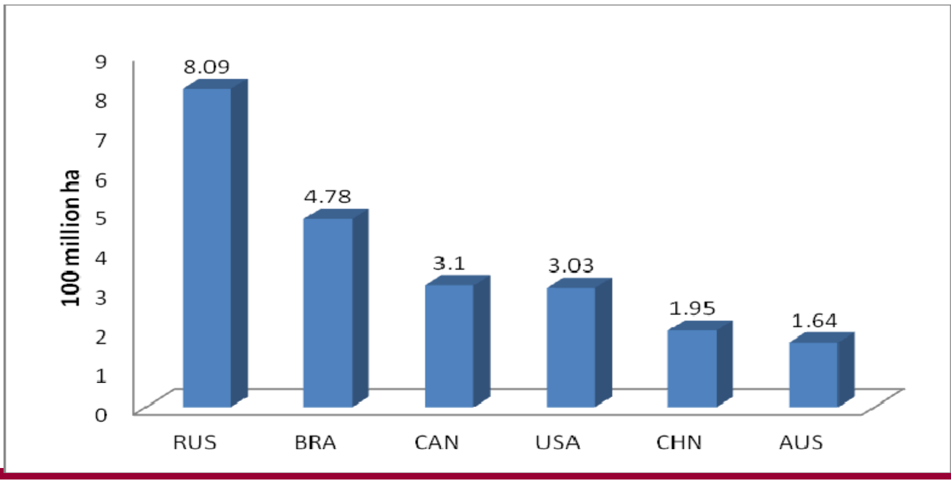
Forest coverage	**20.36%**	
Forest land area	**195**	**million ha**
Forest stocking volume	**13.721**	**billion m^3**
where, plantation area	**62**	**million ha**
stocking volume	**1.961**	**billion m^3**

2.2 According to “Global Forest Resources Assessment 2010” published by FAO , China ranks:

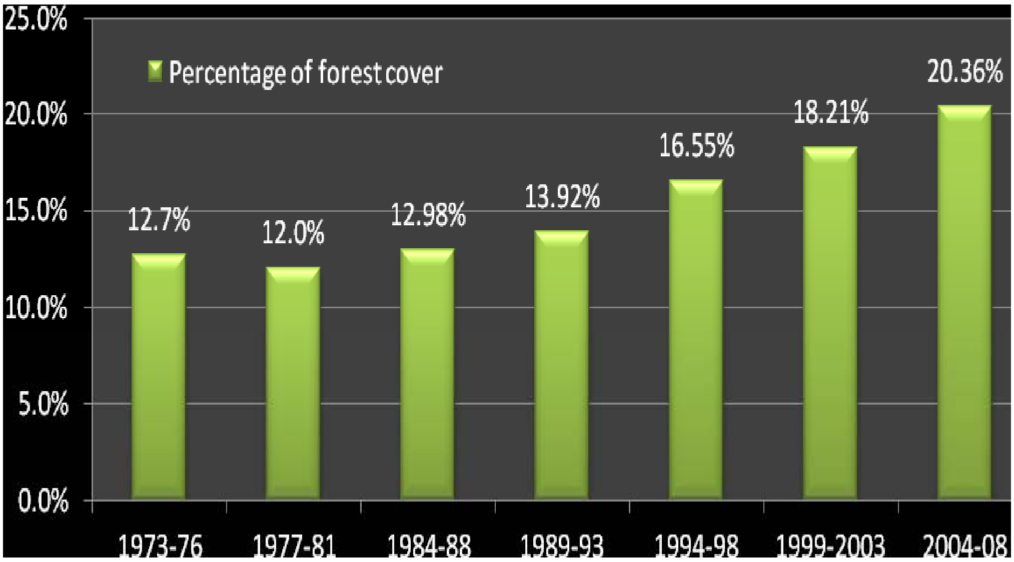
No.5 in terms of forest area;

No.6 in forest stocking volume;

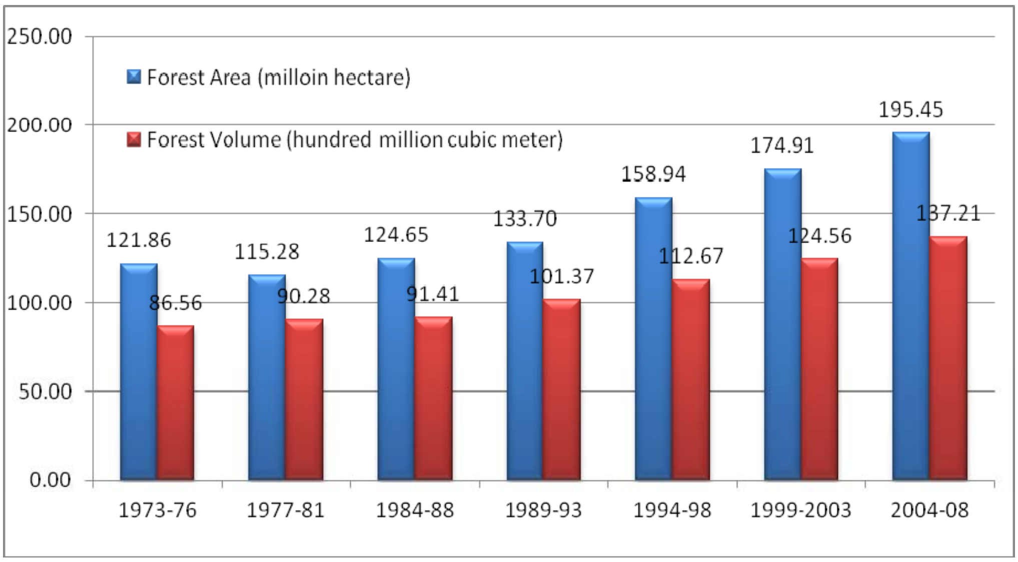
No.1 in plantation forest area.



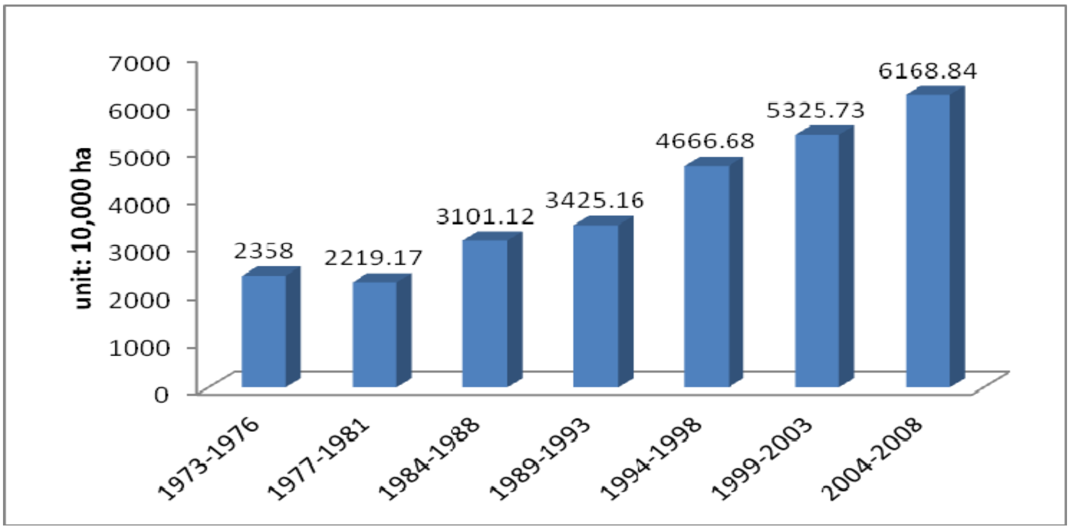
3.1 Forest coverage has firstly decreased from 12.7% in 1976 to 12.0% in 1981, and then gradually increased to 20.36% in 2008.



3.2 Since the 80's of the last century, China has achieved growth in both forest land area and stocking volume



3.3 The plantation forest area increased by 3810.84 million hectares from 1973 to 2008, ranking No1 in the world



Drivers to forest deforestation and degradation

- Logging in state forest farms
- Logging in collective forest regions
- Fuelwood
- Forest fire
- Damage from forest insect and diseases
- Natural calamities

4.1 Logging in state forest farms

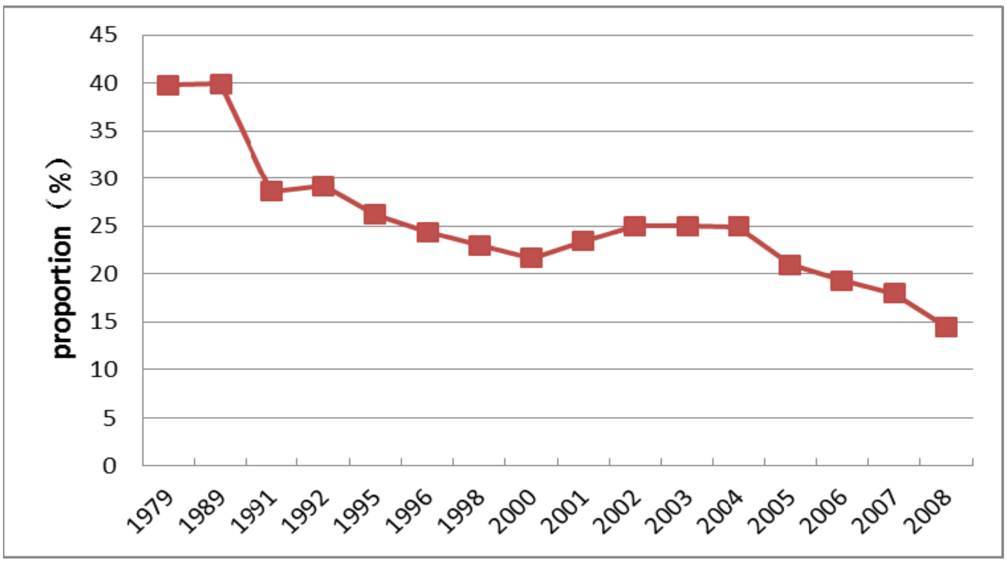
- Logging in state-owned forest farms and forest industry enterprises was the major suppliers of timber in the period of 1950s-1980s, and the timber production begin to reduce since National Forest Protection Project was initiated in 1998
- The timber production of state-owned forest in northeast and Inner Mongolia zone reduced 7.515 million cubic meters in the years 2000-2010 after the implementation of the natural forest resource protection project

4.2 Logging in collective forest regions

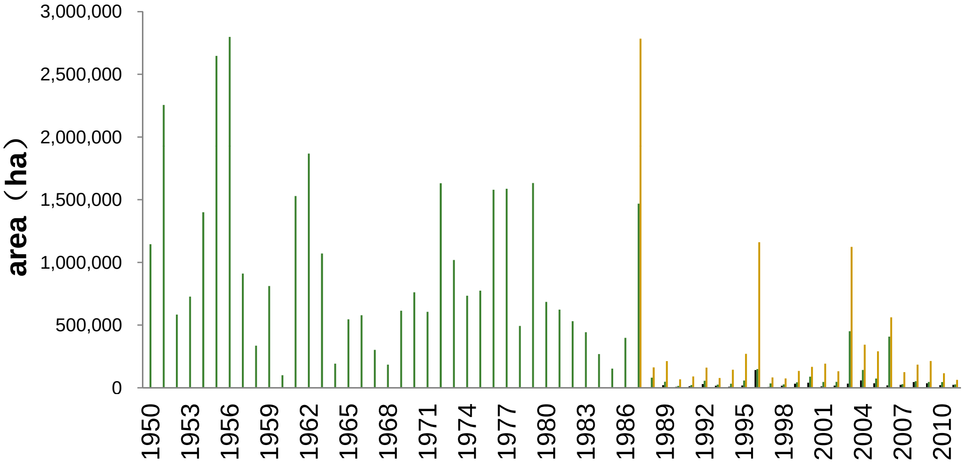
Collective forest in China was mainly destroyed in two periods:

- **The period of the Great Steel Making movement from 1958 to 1960.**
- **The period of the "Three Fix" Policy from 1984 to 1988**

4.3 The proportion of firewood consumption of rural household energy consumption is declining, down from 39.8% in 1979 to 14.53% in 2008

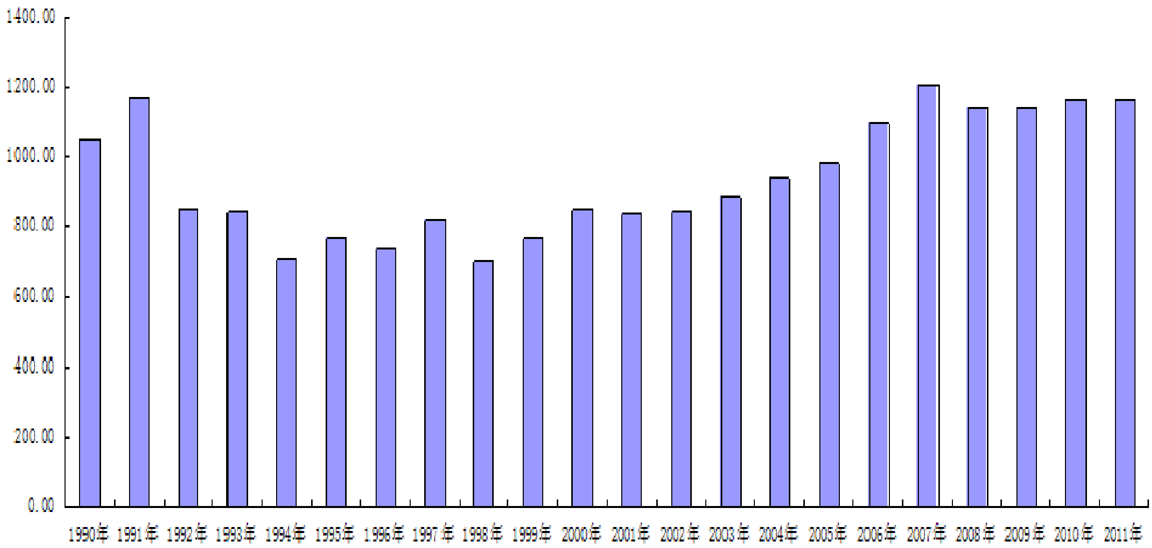


4.4 China's annual average amount of forest fire is 12810, with annual affected forest area of 613645 hectares



The forest area affected by forest fire

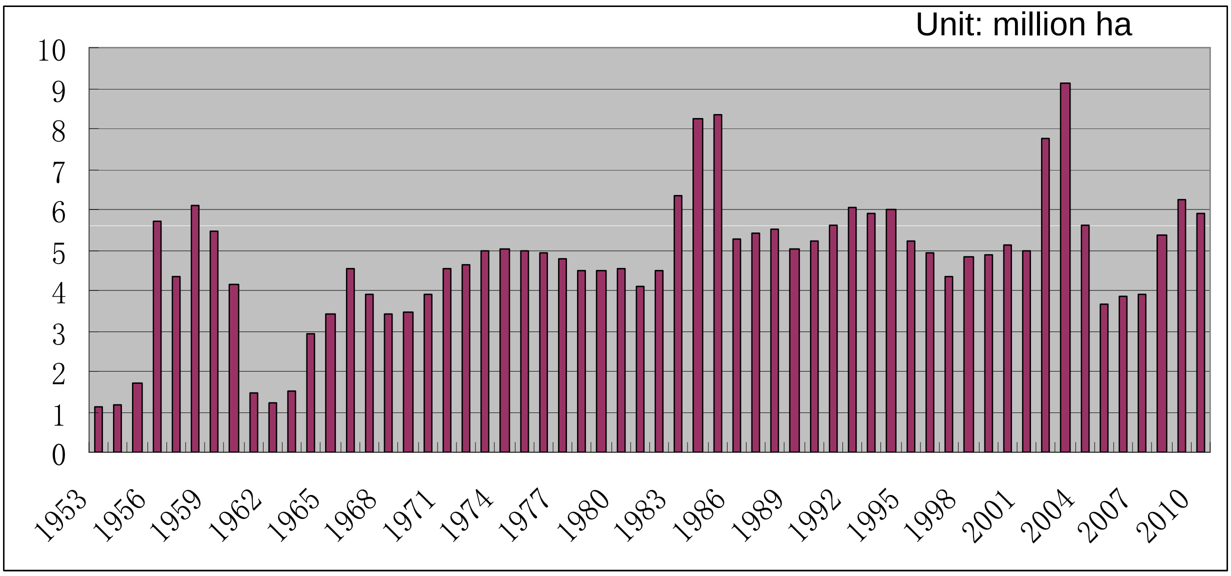
4.5 The forest area that damaged from forest insect and diseases has increased , from 0.8510 million hectares in 1950s to about 100 million hectares in 2011



Divers to afforestation and forest rehabilitation

- **Plantation**
- **Farm forests**
- **Increased area of protected forests**
- **Timber-saving technique**
- **Urban Forests**

4.1 Area of afforestation has been increased rapidly, It was 0.267 billion ha from 1949 to 2010,



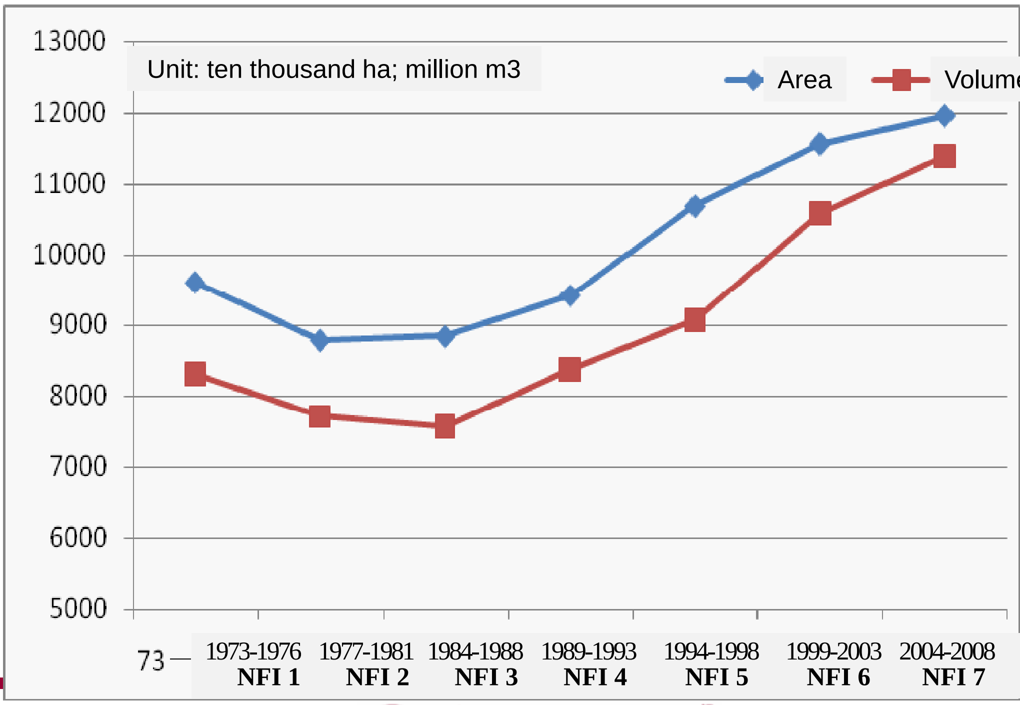
Afforestation
Site preparation

Inspection of afforestation result

Operation preparation for aerial seeding

Result of aerial seeding

4.2 The natural forest area increased to 119.96 million hectares and the stocking volume to 11.4 billion cubic meters



Natural forest areas and volumes from the seven NFIs

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Theoretical Perspective on Forest Transition in China

- **Economical development perspective**
- **land use pattern perspective**
- **Forest governance**
- **Traditional forest knowledge and Culture**

5.1Economical development perspective

- economic development has created enough non-farm jobs to pull farmers off of the land, thereby inducing the spontaneous regeneration of forests in old fields.
- a scarcity of forest products has prompted governments and landowners to plant trees in some fields.

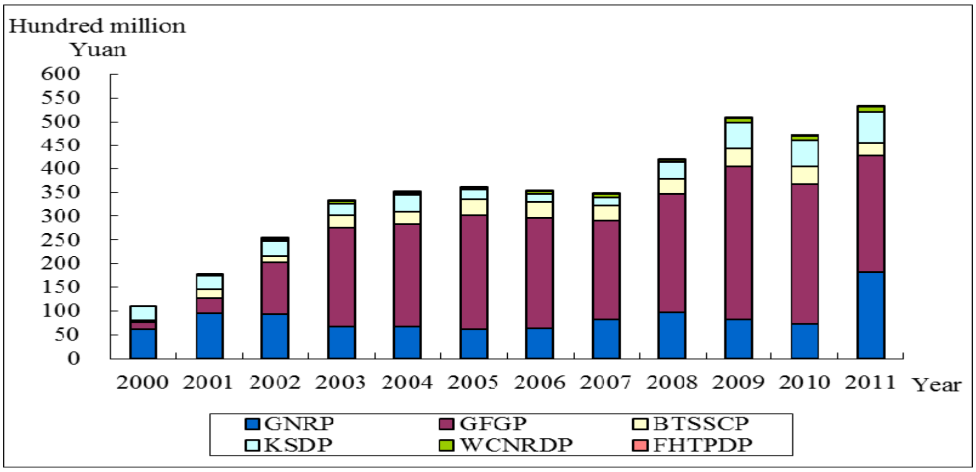
5.2 land use pattern perspective

- harvest natural forests for industry purpose and cash crop plantations
- Chinese government banned to convert forest land for other purpose with few exeptions.

5.3Forest governance

- Greening the state
- Forest tenure reform
- State supported Afforestation programmes
- Forestry Compensation Fund
- Forest harvest quota system

By the end of 20th century, Chinese government has initiated Six key forestry programs, which was a turning point of the development of Chinese forestry and marked its transition from unitary timber producing to ecological protection and sustainable forest resource using



The contrast before(2001) and after(2004) the conversion in YA YOU Village, HUA YUAN county, Xiang Xi district, HU NAN province

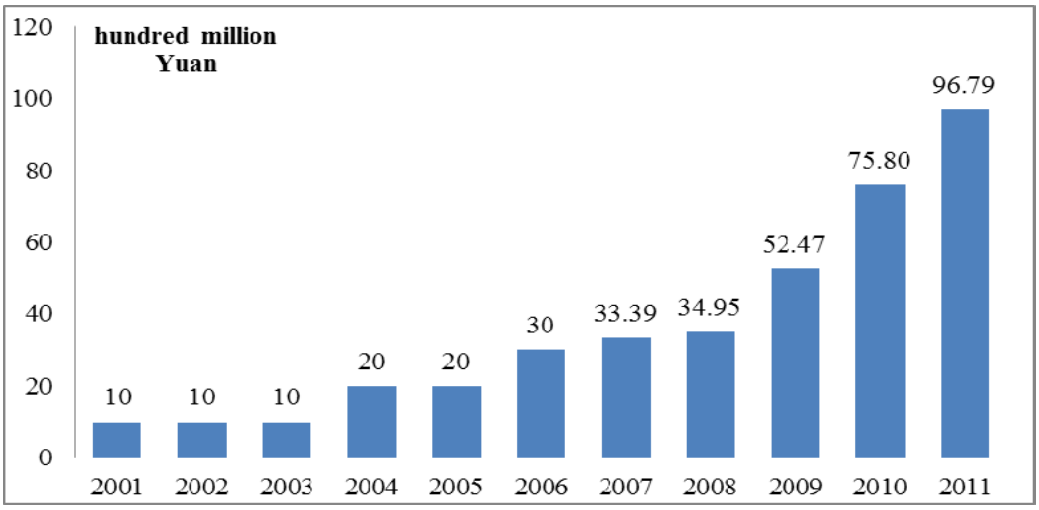
Natural Forest Protection Programme: different models of closing-off forest land for tree growing

Forest harvest quota system

Control of illegal logging

A log transportation check point

Forest Ecological Benefits Compensation System was initiated in 2001, Compensation area increased from 13.33 million ha in 2001 to 83.95 million ha in 2011 by 529.64%, and compensation fund was increased from 1 billion Yuan to 9.679 billion Yuan



5.3 China's rich traditional knowledge and culture do have a special meaning in forest transition

A fengshui forest in a Dong minority village

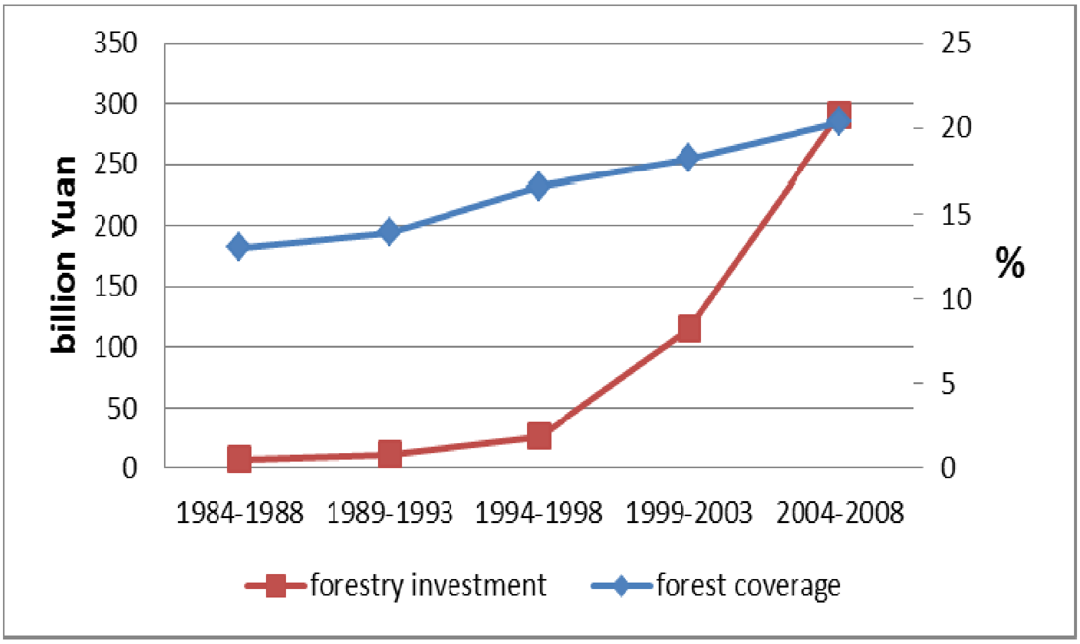
Major factors to drive forests in the future

- Chinese government will pay more attention to eco-environment construction, In order to improve the development quality and achieve sustainable development
- Dependence on forestry resources to develop is decreasing due to urbanization and industrialization in China
- Globalization has already affected forest transition in China and will continue functioning in the future.

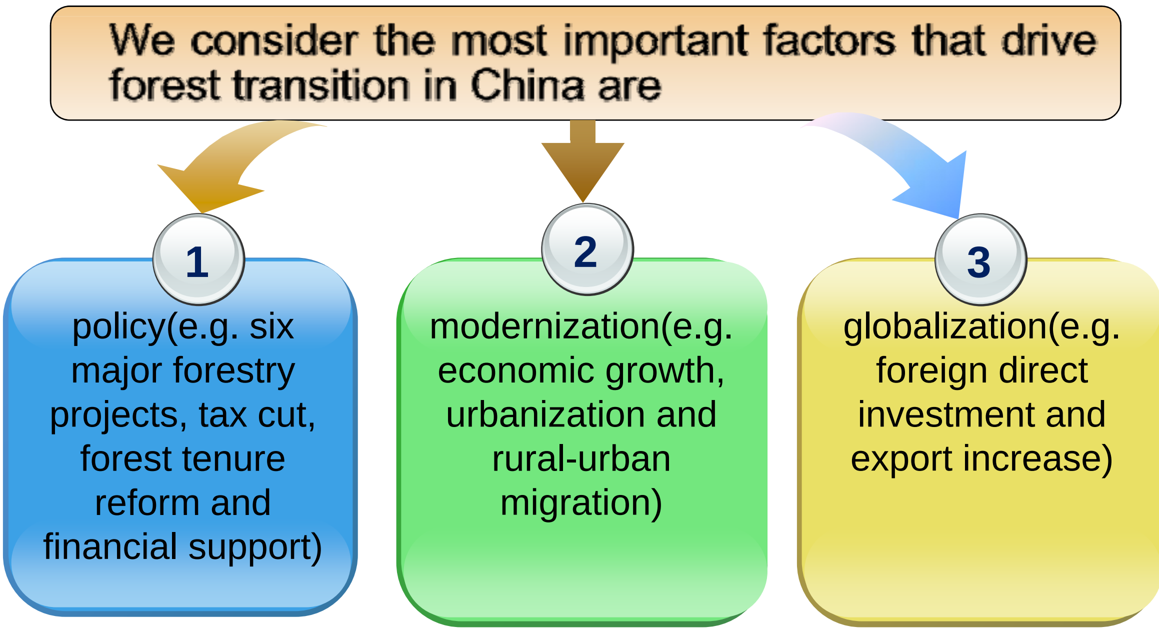
Some unfavorable factors

- the pressure for forest land conservation is increasing. Between 2003 and 2008, 8.31 million ha of forest land are conversed to non-forest land
- Difficulty of afforestation increases. Land suitable for forest of good quality only accounts for 13 percent of the total, while poor quality land accounts for 52 percent of the total land suitable for forest

Forest coverage rate increases by one percent, the cost rises dramatically



Reflection



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Thanks !