Forestry in China

Forestry is not only an important public welfare undertaking, but also an important basic industry. With the rapid social and economic development of the country, China’s forestry is getting more and more crucial with expanding functions and extent.
As problems such as global climate change, desertification, land degradation and frequent occurrence of ecological disasters pose grave challenge to the sustainable development of the whole world, improving the ecosystem and safeguarding ecological security have been the inevitable choice of countries across the world.

China's forestry sector is responsible for the protection, restoration and management of the three natural ecosystems of forest, wetland and desert, which cover nearly two-thirds of China's total land area and play an irreplaceable important role in safeguarding human survival and development. Forest is the lung of the earth, wetland the kidney and biodiversity is the immune system. In this sense, forestry concerns the ecological security and human survival and development.
**Forest Ecosystem**

Due to diversified terrains and complicated climate conditions, there are a magnitude of vegetation species in China, and its forests also diversified with distinct features of different localities. China's forest vegetation falls into the following categories: cold temperate coniferous forest, temperate coniferous forest, temperate mixed broadleaf-conifer forest, warm coniferous forest, deciduous broadleaf forest, evergreen-deciduous broadleaf forest, evergreen broadleaf forest, sclerophyllous evergreen broadleaf forest, monsoon forest and rain forest.

China's forest area and forest stock have both registered growth over the past 20-plus years since the beginning of the 1990s. Into the 21st century in particular, China's forest resources have gained fast growth. China has thus become one of the countries
with the fastest growing forest resources in the world and contributed significantly to global ecological balance, biodiversity, and the global efforts to cope with climate change and promote economic, ecological and social sustainable development.

According to the 8th national survey on forest resources (1999-2013), China’s forest resources have entered into a period marked by steady growth both in terms of size and quality. This indicates the remarkable achievements made by China since its government identified a series of major strategic policy decisions for forestry and ecological development and implemented a host of forestry ecological projects. Forest area
in China now stands at 208 million hectares with a forest coverage of 21.63% and forest stock has reached 15.137 billion cubic meters.

**Forest Area**

The forest area in China now totals 310.46 million hectares, including:

- **Forested land area**: 191.17 million hectares
- **Open forest area**: 4.01 million hectares
- **Shrub forest area**: 55.90 million hectares
- **Immature forest area**: 7.11 million hectares
- **Afforestation-suitable land area**: 39.58 million hectares
- **Other forest land area** (including land area for seedling nursery, non-standing forest area and supplementary forestry production area): 12.69 million hectares

China's forest land is either state-owned or collectively owned, of which

- **State-owned forest land**: 124 million hectares, 40%
- **Collectively owned forest land**: 186 million hectares, 60%

**Forest Stock**

The total standing stock volume is 16.433 billion cubic meters, of which,

- **Forest stock volume**: 15.137 billion cubic meters
- **Open forest stock volume**: 106 million cubic meters
- **Scattered tree stock volume**: 789 million cubic meters
- **Four-side tree stock volume**: 401 million cubic meters

**Forest Quality and Health**

Per capita forest stock is 89.79 cubic meters per hectare, of which natural forest stands at 104.62 cubic meters, plantation 52.76 cubic meters. Forest annual
growth volume per hectare is 4.23 cubic meters, or 953 trees per hectare, with the average canopy density at 0.57 and average diameter at 13.6 centimeters.

Based on comprehensive assessment, China’s forest includes:
- **High quality forest: 19%**
- **Average quality forest: 68%**
- **Low quality forest: 13%**

High quality forest is mainly located at the Great Xin'an Mountain and Changbai Mountain of Inner-Mongolia in northeastern China, western Sichuan forest area and northwestern Yunnan forest area in southwestern China, Nyingchi and Bomi forest area in Tibet, as well as forest areas of Tianshan Mountain and Altai Mountain in Xinjiang, Qinling Mountain in Shaanxi, Wuyi Mountain in Fujian and Wuzhishan Mountain in Hainan.

**Forest Structure and Functions**
- **Young forest area: 53.32 million hectares with stock at 1.63 million cubic meters**
- **Middle-aged forest area: 53.11 million hectares with stock at 4.106 million cubic meters**
- **Nearly mature forest area: 25.83 million hectares with stock at 3.034 million cubic meters**
- **Mature forest area: 21.76 million hectares with stock at 3.564 million cubic meters**
- **Over-mature forest area: 10.58 million hectares with stock at 2.445 million cubic meters**

Young and middle-aged forest accounts for a large proportion of 65%; mature or over-mature forest accounts for 19%, mainly located in Sichuan, Tibet, Inner-Mongolia, Heilongjiang, Yunnan and
Jilin, where forest makes up 70% of the total volume in China.

- Based on leading functions, China’s forests can be divided into protected forest, special-purpose forest, timber forest, fire-wood forest and economic forest:
  - **Protected forest:** 99.67 million hectares with stock at 7.948 billion cubic meters
  - **Special-purpose forest:** 16.31 million hectares with stock at 2.17 billion cubic meters
  - **Timber forest:** 67.24 million hectares with stock at 4.602 billion cubic meters
  - **Fire-wood forest:** 1.77 million hectares with stock at 59 million cubic meters
  - **Economic forest:** 20.56 million hectares
Natural Forest
China's natural forest area is 121.84 million hectares, accounting for 64% of total forest land, and natural forest stock stands at 12.296 billion cubic meters, accounting for 83% of the total volume in the country.

Plantation Forest
The Chinese government attaches great importance to the cultivation of plantation forest resources and has taken a series of policy measures. Thanks to decades of tireless efforts, great progress has been made in cultivating plantation forest.

China's plantation forest area stands at 69.33 million hectares, accounting for 36% of total forest area, and plantation forest stock is 2.483 billion cubic meters, accounting for 17% of total forest stock.

Bamboo Forest
There are more than 500 species of bamboo vegetation from 39 genera in China, and about 50 types of cultivated economic bamboo species, including moso bamboo, Phyllostachys, Ventricousinternode, Phyllostachys parvifolia, Dianthus chinensis, sinocalamus affinis, and Dendrocalamus latiflorus Munro. Jinfo Mountain square bamboo, Bashan Mountain wood bamboo and arrow bamboo are species unique in China and precious bamboo species in the world, mainly located in high mountains with an altitude between 1,000 to 3,500 meters.

China's bamboo forest area is 6.01 million hectares, including:

- Moso bamboo forest: 4.43 million hectares, 74% of total
- Other bamboo forest: 1.58 million hectares, 26% of total

The total number of bamboos is 11.213 billion, of which
- *Moso bamboos in bamboo forest: 9.097 billion, 81% of total*
- *Scattered moso bamboos: 2.116 billion, 19% of total*

Bamboo forest resources are mainly located in Fujian, Jiangxi, Zhejiang, Hunan, Sichuan, Guangdong, Guangxi, and Anhui.

**Shrub Forest**

China's shrub forest comes in various types and plays a unique role in sandification combating and control in northwestern China and vegetation restoration in some special geographical regions.

China's shrub forest area stands at 55.90 million hectares, accounting for 18% of the country's total forest area.

**Wetland Ecosystem**

China's wetland has distinct features like many types, high absolute number, wide distribution, significant regional differences and rich biodiversity. According to the Second National Wetland Resources Inventory released in January 2014, the total area of China's existing wetlands covers 53.6026 million hectares, accounting for 5.58% of China's total territory. Among them, natural wetland covers 46.6747 million hectares, accounting for 87.08% of the country's total wetland.

- *Coastal wetland: 5.7959 million hectares*
- *Riverine wetland: 10.5521 million hectares*
- *Lake wetland: 8.5938 million hectares*
- *Marsh wetland: 21.7329 million hectares*
- *Man-made wetland: 6.7459 million hectares*

There are altogether 577 wetland nature reserves, 468 wetland parks, and 46 internationally important wetlands in China. The protected wetland areas stand at 23.2432 million hectares, and the protection rate is 43.51%.
China's fresh water resources are mainly contained in riverine wetland, marsh wetland and reservoir and pond wetland, which contain a total of about 27,000 tons of fresh water, or 96% of usable fresh water resources in China.

China's wetland plants have 4,220 species from 483 genera, and wetland vertebrates have 2,312 species from 266 genera of 51 families of 5 orders, of which 231 species are wetland birds. Wetland's water purification function is remarkable. Each year, a hectare of wetland can remove over 1,000 kilograms of nitrogen and over 130 kilograms of phosphorus, figuring prominently in reducing ecological pollution. In addition, the peat contained in China's wetland plays an important role in tackling climate change. For instance, the Ruoergai Wetland, covering an area of 800,000 hectares, reserves as much as 1.9 billion tons of peat.

The Chinese government started to establish wetland nature reserves in the 1970s in order to protect the wetland resources. China promulgated the Chinese Wetland Protection Action Plan in 2000. In 2003, the State Council approved the National Wetland Protection Plan (2002-2030). During the 11th Five-Year Period, China invested a total of 9 billion yuan to implement 205 wetland protection projects, contributing significantly to protection and improvement of wetland ecosystem.

During the 12th Five-Year Period, China will complete 738 projects concerning
wetland protection, comprehensive treatment, wetland sustainable use demonstration and capacity building, with planned investment standing at 12.9 billion yuan.

Desert Ecosystem

The desert region is one of unique sub-system of the ecosystem of the planet with many natural species including economic plants, animals and herbal medicines. The terrestrial desert ecosystem, composed of various kinds of living things and environments in desert region, guarantees 41.3% of the world land area and 2 billion people to live and conserves many unique plants, animals and microorganisms. At the same time, it also provides unique peculiar natural landscapes for mankind.

According to the outcomes of the Fourth National Desertification Monitoring, by the end of 2009, the desertification area was 2.6237 million square kilometers, accounting for 27.33% of the total territory, and located in 508 counties (or districts) in 18 provinces (autonomous regions and municipalities). Compared with the last monitoring results in 2004, 12,454 square kilometers of the desertification area has been reduced, with an annual reduction of 2,491 square kilometers. The land desertification and sandification have been initially brought under the control. There are net decrease in land desertification and sandification. However, in some areas, land desertification and sandification are expanding.

First, the desertification area keeps a net reduction. The area of land desertification and sandification is shifted from expansion to a net decrease. China’s desertification area showed a trend of expansion before 2000, and the average annual increase was 10,425 square kilometers. The desertification area achieved a net reduction from 2000 to 2004, and the average annual net reduction was 7,585 square kilometers. The desertification in China remained a net reduction
from 2005 to 2009, and the net reduction was 12,454 square kilometers within five years, the average annual net reduction was 2,491 square kilometers.

Second, degree of desertification and sandification continues to decline. Compared with monitoring in 2004, the moderate desertified land area reduced by 16,900 square kilometers, the severe one reduced by 6,800 square kilometers, and the extremely severe one reduced by 23,400 square kilometers. The moderate sandified land area reduced by 9,906 square kilometers, the severe one reduced by 10,400 square kilometers and the extremely severe one reduced by 15,600 square kilometers. The shifting sandy land and the semi-shifting sandy land reduced by 7,084 square kilometers. The proportion of fixed sandy land in desertification land increased from 15.7% in 2004 to 16.06% in 2009.

Third, vegetation is further improved. The average vegetation coverage in sandification area increased from 17.03% in 2004 to 17.63% in 2009, up by 0.60% in five years. The sandification area with the vegetation coverage of more than 50% increased 10,300 square kilometers. Meanwhile, the sandification area, where the
vegetation coverage is less than 10%, is reduced by 13,600 square kilometers. The plant species in key desertified and sandified treatment areas increased significantly, the stability of vegetation communities raised. In the typical grassland region under the Sandification Control Program for Areas in the Vicinity of Beijing and Tianjin, the diversity index was only 1.8 in untreated areas while the figure was 2.13 in treated areas.

Fourth, the environment is obviously improved in the key treatment areas including Horqin sandy land, Mu Us sandy land, Otingdag sandy land and Hulunbuir sandy land and in the project areas including the Sandification Control Program for Areas in the Vicinity of Beijing and Tianjin. Take the Program on Sandification Control for Areas in the Vicinity of Beijing and Tianjin as an example, compared with 2011, the total reduction of soil wind erosion is 520 million tons, a reduction of 44%. The total reduction of soil water erosion
is 287 million tons, a decrease of 82%. The total reduction of surface
dust release is 13.52 million tons, down by 43.3%. All of these have
effectively mitigated the effects of dusty weather in Beijing and
Tianjin.

In accordance with the 12th Five-Year Plan for Forestry
Development, during the 12th Five-Year Period, China plans to
launch and implement the protection zone project on closed sandified
land, key regional sandification control and treatment project, national
sandification control and treatment pilot zones, and make efforts to
restore forest and grassland vegetation, and build a wind-breaking and
sand-fixing system centering on forest while combining the functions
of forest and grassland. More than 10 million hectares of sandified
land is expected be treated.

**Biodiversity**

China, with varied topography and multiplex climates, crossing
the tropical, temperate and frigid zones from the South to the North,
is rich in biodiversity, and covers almost all types of ecosystems in the world. There are about 34 million kinds of higher plants, of which, there are bryophytes of 2541 species from 506 genera (liverwort 144, moss 362) of 117 families (liverwort 52, moss 65), accounting for about 11.25% of the total species around the world; there are ferns of 2275 species from 221 genera of 64 families, accounting for about 19.25% of the world's total. China has the most abundant gymnosperms in the world, with 245 species from 42 genera of 12 families, respectively account for 28.82%, 51.22%, and 80%, of the total species, genera and families of the living gymnosperms. The angiosperms are 29,230 species from 3182 genera of 243 families, account for 12%, 31% and 61% of the total species, genera and families.

China is also one of the countries with the most abundant animal species. There are 6,588 kinds of recorded vertebrates, account for about 14% of the world’s total. There are 607 species of mammals, accounting for 14.1% of the world total, 1,332 species of birds, accounting for 14.6% of the total species in the world, including 271 species of wetland waterfowls, of which, 56 species are under the state protection. This makes China one of the countries with the greatest variety of birds in the world. There are 452 species of reptiles, accounting for 4.6% of the world total. There are 335 species of amphibians, amounting to 6.1% of the world's total. There are 3,862 species of fish, including 1,118 recorded species of inland wetland fish, accounting for about 17.5% of the world total.

It is estimated that China has 15,000 to 18,000 kinds of endemic plants, accounting for about 50% to 60% of the vascular plants which rank China seventh in the world. The special higher vertebrates rank China eighth in the world.
The proportions of endemic genera and species vary drastically in different families. (Table 1)

**Table 1 China’s plant and animal groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Known Specie</th>
<th>Endemic Specie</th>
<th>Percentage of Endemic Specie (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammalia</td>
<td>607</td>
<td>110</td>
<td>18.1</td>
</tr>
<tr>
<td>Bird</td>
<td>1322</td>
<td>98</td>
<td>7.4</td>
</tr>
<tr>
<td>Raptlia</td>
<td>452</td>
<td>25</td>
<td>5.5</td>
</tr>
<tr>
<td>Amphibian</td>
<td>335</td>
<td>30</td>
<td>9.0</td>
</tr>
<tr>
<td>Fish</td>
<td>3862</td>
<td>404</td>
<td>10.5</td>
</tr>
<tr>
<td>Bryophyte</td>
<td>2541</td>
<td>365</td>
<td>14.4</td>
</tr>
<tr>
<td>Fern</td>
<td>2275</td>
<td>1080</td>
<td>47.5</td>
</tr>
<tr>
<td>Gymnosperm</td>
<td>245</td>
<td>89</td>
<td>36.3</td>
</tr>
<tr>
<td>Angiosperm</td>
<td>29230</td>
<td>14964</td>
<td>51.2</td>
</tr>
</tbody>
</table>


The economic forest resources are abundant in China, including over 1000 species of jujube, chestnut, tea plant, and camellia and so on. China has more than 7,000 species of native ornamental plants and many of them are unique in China. For example, there are 82 species of Chinese original roses out of 200 around the world, 530 species of azaleas out of 900, accounting for 60%. China is also the main origin of wild fruit trees and distribution center of cultivated fruit trees and ranks first in the world in the number of fruit tree species. Chinese medicinal plant species includes 11,000 species from 2,309 genera of 383 families,
accounting for more than 40% of the world’s 25,000 species. China has the commonly used herbal medicines of over 700 species.

**Afforestation**

China pays high attention to ecological development, and has continued to carry out afforestation and greening endeavors. Since the start of the new century in particular, the annual average afforestation area is over 5 million hectares by tree planting, aerial seeding and mountain closure. In 2013, the afforestation area was 6.1039 million hectares. China has called on all its citizens to participate in the activities of afforestation and greening. In 1981, the fifth session of the fourth meeting of the National People's Congress passed the Initiative on the Implementation of National Compulsory Tree-
planting Campaign. The State Council formulated the Implementation Measures for the National Compulsory Tree-planting Campaign in 1982, stipulating in the form of national laws that tree-planting and forest protection are the duty of citizens. By the end of 2013, the number of working-age citizens to participate in tree planting had accumulated up to 14.43 billion, and 66.52 billion trees had been planted.

In 2010, The Global Forest Resources Assessment released by FAO showed that against the background of 7 million hectares of global annual average reduction in forest area, China’s annual average increase of forest area was more than 400 million hectares, and the annual average increment accounted for 53.2% of the world.

**Forest Management**

To tackle climate change, increase forest resources and improve the ecological service function of forest, China has put emphasis on strengthening forest management and identified strategies and objectives for sustainable forest management for the near future. The principles of strict protection, proactive development, scientific management and sustainable utilization will be followed to increase the aggregate volume, quality and layout of forest resources, and build a stable forest ecological system. China intends to deepen reform, innovate mechanism to achieve sustainable forest management and upgrade the quality and profits of forest resources. The goal is to ensure that China’s forest area increases by 40 million hectares and forest stock increases by 1.3 billion cubic meters by 2020 over the 2005 levels.

When it comes to choices and layout of trees and seedlings used for afforestation, priority should be given to indigenous and rare species and mixed forest, so as to improve ecological function and the capacity to resist disasters. In the meantime, forest cultivation will be strengthened. Since 2009, the central budget has provided funds for 11 provinces (autonomous regions) to carry out pilot projects on forest cultivation subsidies. By the end of 2013, an accumulated 19.107 billion yuan has been invested in this regard and 11.6873 million hectares of forest has been cultivated.
Key Forestry Programs

China has implemented the Natural Forest Protection Program (NFPP), the Conversion of Cropland into Forest Program (CCFP), and the Three-North Shelterbelt Development Program (SDP) since the 1980s, all of which have greatly promoted the protection and increase of forest resources.

Natural Forest Protection Program

In order to curb deterioration of its ecosystem, China implemented the Natural Forest Protection Program in 2000, stopped commercial logging along the upper reaches of the Yangtze River, the upper and middle reaches of the Yellow River, reduced the timber output of the key state-owned forest areas in northeast China and Inner Mongolia etc. The forestry development strategy has been changed from timber production primarily to mainly ecological development, in an effort to recuperate the natural forest and bring it onto the track of sound development. Since the implementation of the program more than 10 years ago, the accumulative total net increase of forest area is 10 million hectares, the net increase of forest stock volume is 725 million cubic meters. 680,000 surplus workers have been reemployed, and 276,000 people have turned from timber harvesters into "Forest Guards".

In 2011, China launched the second phase of the Natural Forest Protection Program (2011-2020), with a goal of increasing forest area by 78 million mu, forest stock by 1.1 billion cubic meters and forest carbon sink by 416 million tons by 2020. As a result of the program, water and soil erosion in program areas has reduced significantly, and biodiversity increased markedly. The program has created 648,500 jobs for the forest area, and employed nearly all the resettled workers, contributing to social harmony and stability in the forest areas.

By the end of 2013, investment in the Natural Forest Protection Program has accumulated to 154.099 billion yuan, with afforestation area, aerial seeding area and mountain closure area reaching 3.2217 million hectares, 3.48 million hectares and 8.3561 million hectares respectively.
In order to deal with water and soil erosion and improve its ecological condition, China began to implement the Conversion of Cropland into Forest Program in 1999. The Program was carried out in 25 provinces across the country in 2002.

As a key project aimed to protect and improve the ecological system, CCFP is designed to address the problems of slope cropland and sandified cropland that either suffer from serious water and soil erosion, are seriously sandified, salinized or stony desertified, are ecologically significant or have low and unsteady grain output. The method is to take planned and phased steps to stop grain planting in such areas, convert them into forest or grassland and restore vegetation in light of local conditions.

During the implementation, the State provides appropriate subsidies of food, seedlings and cash for afforestation within a
certain period, i.e. 150 kg of grain subsidy each year for the Yangtze River basin and the south of China and 100 kg rain subsidy each year for the Yellow River basin and northern of China, and 20 yuan of annual living allowance for all farming households involved in the program.

By the end of 2013, the total conversion area was 28.1987 million hectares, of which 9.063 million hectares of croplands were converted to forest, 16.98 million hectares of barren land and mountains were turned into plantation and 2.8808 million hectares of mountains closed up for forest rehabilitation. An accumulated investment of 276.847 billion yuan was made, of which 243.116 billion was made by the state.

The 12th Five-Year Plan requires continued implementation of CCFP in fragile and key ecological regions, especially those with a steeper slope of over 25 degrees. At the same time, the achievements of the conversion program should be solidified and more efforts will be taken to benefit the areas and farming households with difficulties.

The Three-North Shelterbelt Development Program

China made the decision to launch the Three-North (Northwest, North China and Northeast) Shelterbelt Development Program in November 1978 to curb drought, sand hazard and water and soil erosion in its northwestern, northern, and northeastern regions. The program is designed to cover 551 counties in 13 provinces, autonomous regions or municipalities including Beijing, Tianjin, Hebei, Shanxi, Inner-Mongolia, Liaoning, Jilin, Heilongjiang, Shaanxi, Gansu, Ningxia, Qinghai, and Xinjiang, accounting for 42.4% of China’s land territory. The goal is to increase forest coverage of the Three-North region from 5.05% to 14.95% and increase the forest stock volume to 4.27 billion cubic meters by 2050.

So far, the total afforestation preserved area is over 26.47 million hectares, the forest coverage reaches 12.4% from 5.05%
in 1977 and the stock volume has increased from 720 million cubic meters in 1977 to 1.39 billion cubic meters. The program has become a signature project of China's ecological development, resulting in continued increase of forest area under the program, optimized layout of trees and seedlings, strengthened capacity against disasters, and significantly reduced sand hazard and water and soil erosion.
The Program on Sandification Control for Areas in the Vicinity of Beijing and Tianjin

For the purpose of curbing the frequent sand attack, pilot projects of the program were carried out in Beijing, Tianjin, Shanxi and Inner-Mongolia in 2000. This program aims at restoring the vegetation around Beijing and solving the problem of sand hazards through existing vegetation conservation, forest cultivation by closing sandy areas, afforestation by aerial seeding, tree planting, conversion of cropland to forest, grassland treatment, watershed management and some other biological measures.

Through 13 years of continuous treatment, development pattern has taken shape in the program areas where the grass and bushes grow well, mountains and hillsides are covered with trees and grass and livestock are kept in pen. By the end of 2013, 3.9828 million hectares of trees were planted, 1.0179 million hectares of forest planted through aerial seeding, 2.8471 million hectares of barren mountains or mountains with scattered trees were closed up for afforestation, 2.3977 million hectares of grassland treated, and 1.0666 million hectares of watershed treated. Resulting in markedly increased forest area and reduced sandy climate and sandified land, the program has contributed to 24.7%-28.3% of economic growth in the regions concerned with increasing ecological, economic and social benefits.

The Program for Protection of Wild Fauna and Flora and Development of Nature Reserves

The program was started in 2001 for the main purpose of genetic preservation, biodiversity conservation, and nature protection. The program covers typical and representative natural ecosystems, natural habitats of rare and endangered species of wild fauna and flora and ecologically fragile areas.
The implementation of this program has greatly promoted the ability of China's wildlife protection and the management level of nature reserves. At present, China's endangered species have been effectively rescued and the protection framework of wild plants has formed. By the end of 2013, China has established 2,163 nature reserves including forests, wetlands, deserts, and wildlife, among others. Its total area reached 125 million hectares, accounting for 13% of the country's total land. 90% of the terrestrial ecosystem, 85% of the wild animal populations, 65% of the higher plant community, 20% of the natural forest and 50.3% of the natural wetlands have been effectively protected. Established were more than 250 wildlife rescue, reproduction and cultivation bases, 400 breeding and cultivation or genetic protection centers for wildlife species. The program developed stable community for over 200 rare or endangered species of wildlife through artificial breeding, provided protection for about a thousand rare and endangered species, and carried out field petrol, habitat maintenance and upgrading, rescue and breeding for more than 100 major protected species, and successfully expanded the program to return red ibis to nature and launched the program to return red-crowned crane to nature.

Forestry Industry

In recent years, China’s forestry industry develops rapidly, providing a large number of material products and intangible services including timber and non-timber forest products, like bamboo, wood-based panel, wood pulp, chemical products, woody grain and oil, edible fungus, flowers, mulberry, medicinal herbs and forest tourism services to facilitate national economic development and people's living. It creates many employment opportunities and has made important contributions to safeguarding national economic development, improving people's livelihood, promoting rural economic development and lifting farmers out of poverty. In 2013, the national total output value of forestry industry reached 4.46 trillion yuan. The output of main forest products rank first in the world, including economic
Forest products, bamboo and bamboo products, wood-based panels, paper and paper board and rosin. Trade of forest products reached 126 billion US dollars.

**Forest Tourism**

In recent years, eco-tourism, featuring green consumption patterns, has become a trend and the main body of tourism. By the end of 2013, China established 779 national forest parks, which received more than 740 million tourists, with direct revenue exceeding 67.9 billion yuan and overall output value at more than 530 billion yuan. Forest tourism has become the most dynamic and promising
emerging industry, which vigorously promotes the adjustment of forestry industrial structure, expands employment opportunity, and promotes the social and economic prosperity of the forest areas.

**The Under-forest Economy**

Developing the under-forest economy is an important way to help forest farmers get rid of poverty. The flourishing of a variety of green non-timber products under forest, including herbal medicines, vegetables, mushrooms, black fungus, flowers, frogs, bees raising, poultry, livestock and wild animals, has greatly expanded the space of rural economic development. By the end of 2013, the output of under-forest economy had reached 600 billion yuan, accounting for over 50% of farmers' per capita income in key forestry counties, thus effectively promoted the employment and income increase of farmers.

**Collective Forest Tenure Reform**

In 2008, the collective forest tenure reform was carried out nationwide on the basis of the pilot project in Fujian province. The main methods are to clarify property right and provide farmers with equal contractual management rights of the collective forestland. The forestland management/use right is contracted to farmers under the premise of maintaining the collective forestland ownership unchanged so that the farmers not only enjoy the principal status in forest management, but also are entitled to the ownership, disposition right and profit right of the trees. Meanwhile, the government has provided the farmers with supporting policies in finance and insurance, convenient technology and information, the woodland contractual management and circulation rights and other services. The reform aims at establishing a vibrant collective forestry development mechanism, and realizing the goal of resource growth, farmers' income increase, sound ecosystem and harmonious society in forest regions.

After years of innovation and continuous improvement of the supporting policies, farmers' enthusiasm for forestry development was inspired and the rural productive forces were effectively
unleashed. By the end of 2012, the property right of 2.7 billion hectares of collective forests nationwide had been contracted to the farmers, representing 99.05% of the total collective forestland area. At the same time, through forest insurance, forestry property mortgage and compensation for protected public-benefit forest, more than 400 million farmers were directly involved in the forest cultivation and benefited from it. The objectives of protecting ecology and providing benefits to the farmers have been realized.

Through forest tenure reform, the potential of forest land has been fully released and output significantly increased. According to statistics, in 2013, farmers in counties involved in forest tenure reform generated an average annual income of 8,724.88 yuan, of which 1,607.51 yuan, or 18.42% of their total annual income came from forestry. The collective forest tenure reform has promoted income increase for farmers, expanded employment channels for farmers who can have jobs without leaving their home and get rich without cutting trees.

**Improve the Forestry Legal System Gradually**

The Chinese government has paid great attention to forest management in accordance with law to safeguard forest resources. For decades, the Chinese government has improved its forestry legal system, enacted and amended laws, rules and regulations such as the Forest Law, the Wildlife Protection Law, the Law of Preventing and Combating Desertification and Sandification and, the Seeds Law, the Regulation on the Implementation of the Forestry Law, the Regulations for the Implementation on the
Protection of Terrestrial Wildlife, the Regulations on the Protection of Wild Plants, the Regulations on Nature Reserves, the Regulations on Forest Fire Prevention, the Regulations on Wetland Protection, and the rules and regulation on forest land protection and management, forest property right circulation and timber logging management. Through these measures, the legal system relating to forestry development and ecosystem protection and restoration has been improved.

In terms of forestry law enforcement, China continues to strengthen supervision and law enforcement, crack down on crimes like excessive logging and killing of wild animals, and consolidate the achievements of forestry development.

**Fulfill International Obligations**

The Chinese government has carried out a series of practice and exploration regarding sustainable forest management (SFM), and the sustainable forest management system with Chinese characteristics has initially formed. China has formulated the National Planning Outline for Forest protection and utilization (2010-2020) and put forward a sustainable management strategy and target for the next period. Efforts has be made in working out some methods relating to forest zoning, forest operation, logging management, implementing the forest cultivation projects, and nationwide SFM pilot projects. At the state level, the Non-Legally Binding Instrument on All Types of Forests (NLBI) has been implemented, the national pilot activities for SFM have been conducted. The cooperation and exchanges with foreign countries have been actively carried out.

The Chinese government has actively implemented conventions such as CITES, UNCCD, RAMSAR and UNFCCC. It has sent delegations to attend relevant conferences and conduct cooperation, and exchange views with participants from other member states on relevant topics under the principle of common but differentiated responsibilities.

China has set up channels of cooperation with more than 20 international organizations such as UN FAO, UNDP, EU, GEF, ITTO, WB, ADB, WWF, TNC and WI, carried out cooperation projects in wetland conservation, natural reserve construction and personnel training, and actively fulfilled its international obligations. China has signed over 70 forestry cooperative agreements with the United States,
Canada, Finland, Russia, Australia, New Zealand, Japan, ROK, Vietnam, Indonesia, Brazil and South Africa, etc, and has had positive dialogues and negotiations with relevant countries and organizations in cracking down on illegal logging and associated trade, tiger protection and giant panda cooperation, international trade on endangered species and other hotspot issues. Meanwhile, China has formulated the Guidelines on Sustainable Overseas Forest Cultivation and the Guidelines on Sustainable Overseas Forest Management and Utilization to regulate overseas forest management and utilization by Chinese companies.

As states parties to the United Nations Convention to combat desertification, China promulgated the Law on Preventing and Combating Desertification in 2002, which is the first specialized law in China, and even the world dedicated to desertification prevention and control. At the same time, China formulated the National Program of Action on Prevention and Control of Desertification, and has worked actively to promote the establishment of a review mechanism for implementation of the Convention and formulation of a ten-year strategy for the Convention. China has actively participated in the making of global desertification evaluation index system and the demonstration projects on assessment index for implementation of the Convention, and promoted the Convention process.

Since its accession to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat in 1992, China has strengthened its protection and management of wetlands. During the 11th Five-Year Period alone, the central and local governments of China invested 3.1 billion yuan and completed 205 wetland protection and recuperation projects, recuperated nearly 80,000 hectares of wetlands, addressed the pollution for over 2,100 hectares of wetlands, and put the sources and wetland upper reaches of major rivers under
strict protection. China has actively implemented the resolutions related to the Convention, and has been twice elected executive member state of the Convention. China has also won international awards such as Special Award for Protection of the Earth, Global Achievements Award for Wetland Protection and Reasonable Utilization, Science Award for Wetland Protection, Outstanding Leader Award for Protection of the Nature.

The Chinese government places great emphasis on the unique role of forest in tackling climate change. It formulated the National Program for Combating Climate Change, and the forestry system also formulated the Plan of Action for Combating Climate Change, and identified 22 actions to be taken to mitigate and adapt to climate change. The goal is to breed and cultivate over 5 million hectares of forest per year and upgrade China’s forest coverage to 23% by 2020, and by 2050, achieve a net increase of forest areas of 47 million hectares over 2020 level, stabilize forest coverage at over 26%, and sustain the capacity for forest carbon sink.

The Chinese government will vigorously cultivate and protect forest resources, develop forestry industry, lay the foundation for poverty elimination, development of green economy and sustainable development, make efforts to fulfill the commitment by the Chinese leaders in the United Nations Conference on Climate Change, namely, to vigorously increase forest carbon sink, try to increase forest areas by 40 million hectares and increase stock volume by 1.3 billion cubic meters by 2020 from the 2005 levels.