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RECONSTRUCTION OF FOREST INDUSTRY IN CHINA

[Summary: A forestry rehabilitation and development program that includes afforestation, reforestation, and conservation has been set up in China. Forestry operations are being mechanized rapidly, resulting in increased efficiency and economy.

The national timber supply for the next 30 years will come largely from the Northeast, but after that the southern areas of the country will, it is estimated, be able to supply an annual cut of 198 million cubic meters, which with the timber available from other areas should make China self-sufficient in timber.]

Forestry Program

The government of the People's Republic of China set up a national forestry program in 1950 with two main objectives.

First, to preserve carefully the present forestry resources and promote rapid afforestation on a grand scale, to provide protection from calamities, and to promote agricultural water conservation.

Second, to promote reasonable logging, reasonable utilization of forestry resources, and assurance of ample timber supplies for national construction and industrial uses.

Among the numerous destructive forces that harm forests, fire is at present the most destructive. During the last 3 years, fire has accounted for 97.69 percent of the total forest damage. In 1950, the fire damage was 99.08 percent of the total damage to forests. Of the total area damaged by fire during the last 3 years, 91.54 percent was the Northeast and the Inner Mongolia

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Autonomous Region, and in 1950, 98.75 percent. In these areas the chief fire loss occurs in the spring. Since practically all forest fires are caused by persons, throughout the area prodigious efforts toward the education of the masses in fire prevention and forest-patrol measures are in progress.

In 1952, air patrols made 122 flights amounting to 440 flying hours and covering 400,000 square kilometers of the Greater and Lesser Khingan Ranges and the Mu-tan Chiang forest area. As a result of these measures, there was practically no fire loss in the Inner Mongolia Autonomous Region in the spring of 1952. In the Northeast, the timber loss was only one percent and the area involved was only 4.46 percent of that involved in 1950. For the country as a whole, the spring fire loss was only 5.09 percent of the 1950 loss.

During 1950, there was indiscriminate timber cutting all over the area inside the Great Wall, by the military, by lumbering interests, and by the general population in the name of relief. A general restriction by the Central People's Government of all unauthorized timber cutting by government organs, both military and civilian, did much to reduce indiscriminate cutting.

During 1951, increased requirements of timber for industrial uses resulted in keen competition for timber supplies and a dislocation of the price structure. In August 1951, the Government Administration Council issued a directive on austerity in the use of timber. The result was the virtual cessation of indiscriminate cutting and highly competitive bidding for timber. A beginning was made in national unified timber cutting and distribution control.

Afforestation Activity

In the matter of afforestation, antisand-drift forest protection belts in North China and the Northeast, antityphoon forest belts along the coasts of East China, and augmentation of commercial timber growing south of the Yangtze River have been strongly promoted.

The area afforested in 1950 was over 119,000 hectares, and in 1951 over 440,000 hectares. The goal for 1952 is 832,000 hectares. Mountain areas sealed off for forest nurture amounted to 247,000 hectares in 1950 and 903,000 hectares in 1951. The 1952 goal is 2,464,000 hectares.

During the last 3 years, the afforested area amounts to 1,350,000 hectares and mountain areas sealed off to 3,610,000 hectares. (Both figures include 1952 estimates.) In comparison with the 300 million hectares of barren mountains in the country, these figures are very small, but we have discovered the source of our strength, namely, the aroused and organized masses. Experience has revealed that afforestation cooperatives, like agricultural cooperatives, are the secret of rapid progress. In the matter of sealing off mountains for forest nurture, experience has taught that spontaneous organization for promotion of the program results not from orders from above, but from understanding by the masses of the importance to agriculture of forests on the watersheds.

Increased Efficiency

Last year, the forestry industry, which includes logging, transport, milling, plywood manufacture, and the wood-products chemical industry, was promoted in the timbered areas within the Great Wall, but the industry is still far behind that of the Northeast and the Inner Mongolia Autonomous Region.

In 1953, the Northeast Forestry Industry Control Bureau was organized with an Operations Office in charge of logging and water transport, a Forestry Railway Office in charge of rail transport, and a Materials Office in charge of materials supply.

In comparison with the best year of the Manchukuo regime (1943), in 1952 timber production was increased by 38 percent, required manpower was only 42.5 percent (including both temporary and permanent), and required animal power was only 50 percent.

Self-controlled labor unions have displaced the old labor contractor system, and a multitude of comforts and social and educational benefits are being supplied in the logging areas.

During the Manchukuo regime, the timber resources on 2 million hectares were spoiled and 100 million cubic meters of timber lost by wasteful logging practices. The efficiency of timber utilization has been increased under the people's government from 55 percent in 1949 to 70 percent, or an increased utilization of 15 cubic meters for each 100 cubic meters of timber worked.

In the Northeast, mechanization of lumbering is proceeding rapidly. While cutting is still largely done by hand, handling from woods to stream or railway is done largely by tractor. Power hoists are used for loading trains and for pulling logs out of streams after rafting. Loaded log cars are drifted down inclined rail lines out of the hills without need for locomotive power.

Logging and transport labor gangs have been systematized and operations standardized with a 50 percent increase in efficiency. Rafting operations on streams have been organized into divisions [as on a railway], with a well-defined division of labor among the crews of each division to ensure that the timber keeps moving with a minimum dely or damage. Loss has been reduced to 1.4 percent, as compared with 10 percent during the Manchukuo regime.

Forest Surveys

During the past 3 years, surveys have been made of 4.5 million hectares of timberland (including the estimates for 1952) and 2,420,000 hectares of land easy to afforest. From 1950 through July 1952, 299 students were graduated from regular university schools of forestry and 901 from special courses. With the addition of middle-school and short-course forestry students, those with some degree of forestry training may total 10,000 persons. The problem of training forestry cadres fast enough to keep up the national program presents a real challenge

A basic requirement for the development of a comprehensive forestry plan is surveying of forestry areas in existence and of areas available and suitable for afforestation.

During the past 3 years, the following survey work has been done.

In 1950, 952,642 hectares of timberland was surveyed (plus a cursory survey of 5,851,942 hectares). Areas surveyed and found suitable for afforestation amounted to 369,281 hectares (plus a cursory survey of 6,928,767 hectares).

In 1951, 1,279,704 hectares of timberland was surveyed (plus a cursory survey of 5,347,606 hectares). Land surveyed and found suitable for afforestation amounted to 408,353 hectares (plus a cursory survey of 7,660,600 hectares).

In 1952, 1,923,794 hectares of land suitable for afforestation was surveyed.

The total forested area surveyed during the 3 years was 4,156,138 hectares, and area of land surveyed and found suitable for afforestation was 2,422,428 hectares.

During 1951, a forestry management survey was made of 336,400 hectares and in 1952, 1,060,363 hectares. Management surveying is a Soviet method of dividing up a forest area into areas of one square kilometer with a view to future exploitation of the resources. Along the dividing lines a careful survey is made of the timber reserves, growth possibilities, and nature of the soil, to set up a program for operations. The Soviet methods save time, labor, instruments, and skill. By these methods the time necessary to survey the Northeast forests can be reduced from 20 years to 5 years. Higher primary school graduates with 2 months special survey training can do the job with the simplest of instruments.

There has been great progress in the amount of land devoted to seedling nurseries. With 1950 as [illegible] seedling area index in 1951 was 237.4 and in 1952 it was 621.4. The total area devoted to seedling nurseries by 1953 was 19,053 hectares. A particularly noteworthy feature of this increase is the part played by the masses. In Shantung, three fourths of the nurseries are cared for by the masses.

In the matter of progressive afforestation in 1950-1952, figures for three administrative areas will illustrate the progress.

Administrative Area	Area Afforested (ha)		
	1950	1951	1952
East China	6,050	8,290	190,076
Central-South	21,272	109,042	398,805
Southwest	2,206	53,624	95,667

In 1953, there were 250 afforestation stations and 368 seedling nurseries in the Northeast.

Timber Production and By-Products

In 1952, the timber cut in the Northeast was 64 percent of the total national cut. When timber is shipped raw, a railway car can carry only 25 cubic meters of it, whereas if the timber cut up the same car can carry 40 cubic meters. Hence revival of the timber milling industry in the Northeast has been given high priority by the people's government.

With 1949 milling production as 100, the 1950 index was 253; 1951, 231; and 1952, 335. The 1949 daily output per sawing unit was 30 cubic meters; in 1950, 77 cubic meters; in 1951, 91 cubic meters. The percentage of commercial lumber obtained from the raw timber was as follows (in percent): in 1949, 70; 1950, 80.8; 1951, 91.3; and 1952, 93.7. These figures include lath and box wood, formerly largely wasted.

The chemical products of the forestry industry are highly important. In China, pitch is produced in Kwangtung, Kwangsi, Chekiang, Fukien, Anhwei, Kiangsi, and Szechwan provinces. The most productive provinces yield up to 10,000 tons a year.

In preliberation days, the methods of production of turpentine and rosin were very backward. The pitch-producing life of a pine tree was only 3-5 years, representing a great waste of pine timber. The product was inferior. The preliberation annual import of good-grade turpentine at Shanghai alone was 5,000 tons.

After the liberation, domestic turpentine production increased. The estimated production for 1953 is 320 percent of the 1950 production and will be more than ample for national needs. The quality, however, still is below Grade N (third grade). With the assistance of Soviet advisers, the quality is being greatly improved in a new factory. Soviet advisers have taught the use of concrete vats instead of metal ones, resulting in appreciable savings.

For the production of tannin China has, in addition to galls (Wu-pei-tzu) a dozen or more types of trees that yield an appreciable amount of tannin. Nevertheless, before the liberation China imported most of its supply from capitalist countries. Since the liberation, a new program of production has been started which will soon lead to self-sufficiency.

China has a large potential in raw materials for the production of chemicals from forest products. Proper exploitation will promote the welfare of the nation's industry and of the masses.

Customs figures for 1951 revealed that imports of forestry chemical products were five times the exports. The chief import items in order of importance were raw rubber, tannin, and dry distillates. The need for these things will certainly increase. Development of domestic production is therefore a matter of highest priority.

Future Prospects

China has 300 million hectares of land suitable for afforestation, but according to Kuomintang statistics only 5 percent of the national area is afforested. Surveys now reveal that, even of this, a great deal has been lost by fire and wasteful exploitation.

China is valiantly striving to correct this situation and on the basis of what has been accomplished in the first 3 years, a 30-year projection of the program should result in afforestation of 158 million hectares. Of this, protective forest belts and special types of economic forests cannot be used to meet the needs of industry, mining, communications, and construction. Our chief reliance for the next 30 years will be the natural reserves of the Northeast. By the end of that period these reserves will be largely depleted. Because of the slow growth of red and deciduous pines, which are the chief timber trees of the Northeast, 70-100 years will be needed to reforest the area. Hence, after 30 years it will be necessary to shift to Central-South China, the Southwest, and East China for the main timber supply.

Can these three areas prepare to meet this demand? Because of the rapid growth rate of timber in these areas, a good afforestation program should produce 317 cubic meters per hectare in 30 years. Taking off 20 percent for poor survival and 15 percent for other adverse factors, there should be a reliable yield of 165 cubic meters per hectare available in 30 years.

We should plan on an annual increase of afforested area of 2 million hectares. If this is done, after 31 years a cutting program of 1,200,000 hectares a year should be feasible in the Central-South China, Southwest, and East China administrative areas. On the basis of an average yield of 165 cubic meters per hectare, an annual cut of 198 million cubic meters should be possible in these areas. This should be 70 percent of the estimated requirement at that time (equivalent of the present Soviet requirement). Add to this the production of the other great timber-producing areas and self-sufficiency should be possible.

After 30 years all sawmills will be in the production areas. Plywood, furniture, door and window frames, and flooring will all be manufactured near the forests. Wood will be used for glucose and, particularly in the Northeast, modern alcohol factories will be built. Wood will be substituted for cotton, silk, and wool in the manufacture of rayon, synthetic wools, "sai-lu-ko," cellophane, electric-line poles, photographic film, and plywood insulators. Wood will also be used to make materials as hard as iron and steel for weaving shuttles, gear wheels, airplane rivets, and starch. Wood will also be used as a substitute for iron and concrete for the piping in the great locks on the Yangtze and Yellow rivers.

This is the future of the timber industry in China and the goal of China's forestry workers.

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