

The Study of China's Dilemma and Cracking Way of Natural Rubber Industry during Price Slump Period

Yan JIN

Industrial economy and Policy Research Office
Institute of Scientific and Technical Information, CATAS
DanZhou, HaiNan, China
E-mail: lnjinyan@foxmail.com

Abstract-Natural rubber is strategic material, as well as the important income source of the farmers in China's tropical regions. However, in recent years, the price of natural rubber remains low, thus inducing a series of industry problems, such as the lack of young labors, the abuse of pesticides, the oldness of major cultivated varieties, etc. Now, making reference to the experiences at home and abroad, the government, scientific research units, and farmers are beginning to reply to these problems. But some new problems were found, such as the difficulties of automation equipment promotion, the relatively single mode of under forest economy, the problems of government subsidies and agricultural insurance etc. So, in order to maintain the stable and healthy develop of rubber industry in China, many related industries should work together to settle these problems.

Keywords-Natural rubber industry; Dilemma; Cracking way; Price slump; China

I. INTRODUCTION

Rubber tree (*Hevea brasiliensis*), a typical tropical crop, is native to the Amazon. Its economic life could last for 30-40 years. The latex of rubber tree is an important raw industrial material. Currently the use of natural rubber in the world, mostly from the rubber tree production [1]. Natural rubber is an important strategic materials. Rubber tree known as the "green bank", is an important source of economic income of farmers in tropical regions. Natural rubber is an indispensable material for people's daily life and industrial development.

II. CHINA'S NATURAL RUBBER INDUSTRY: DEVELOPMENTS AND TRENDS

A. The Analysis of China's Natural Rubber Plantation Area and Yields

Global natural rubber production mainly concentrated in developing countries in the Asia-Pacific region, production accounts for 90% of the world's total. The acreage top three countries are Indonesia, Thailand and China. In 2015, China's natural rubber area 1.16 million hm², Hainan and Yunnan provinces the main rubber planting area, which makes up 96.17% of China's total acreage. After nearly 60 years of efforts, China has built natural rubber breeding, planting, tapping, acquisition and processing, a set of mature technology system. It keeps in the advanced world

level, make important contributions to the alternative import, reduce external dependence, support national defense, national economic construction and so on.

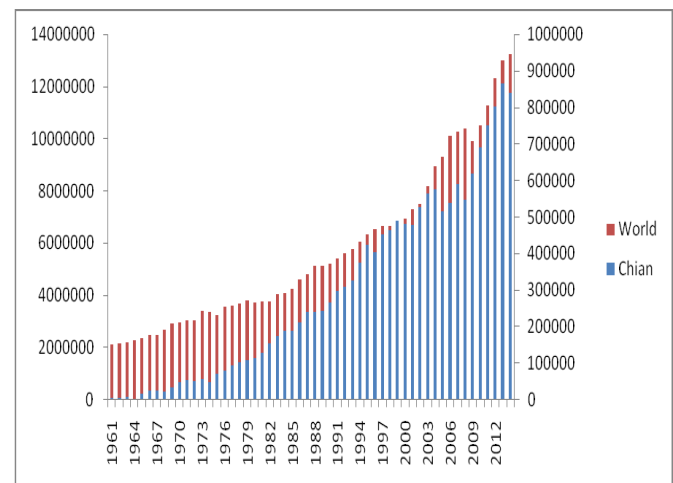


Figure 1: China's natural rubber production in 1961-2014 Data sources: the FAO statistics

Because the rubber tree non-production cycle is long, so the natural rubber market has obvious lag. Such as the Korean War broke out in the early 1950s, the high rubber price led to significant expansion of rubber planting area. In seven years later, the late 50s, new rubber tree cutting, rubber production increased significantly [2]. Rubber prices fell sharply. Similarly, affected by the high adhesive price a few years ago, rubber tree planting area increased year by year. In recent years to open cut years, supply contradiction protruding out.

B. China's Natural Rubber Consumption

Since 2001, China replaced the United States as the world's largest natural rubber imports and consumer. Consumption amounted to 4 million tons per year, about one-third of the world, self-sufficiency rate of natural rubber is less than 20%. Major trading countries are Thailand, Indonesia and Malaysia. According to data released by China Customs, in 2015 China's natural rubber imports 3.74 million tons, down 11.03% compared with 2014. In 2014, China's natural rubber consumption was 451

million tons, accounting for 38.04% of total world consumption. In 2015, the consumption of natural rubber in

about 4.9 million tons.

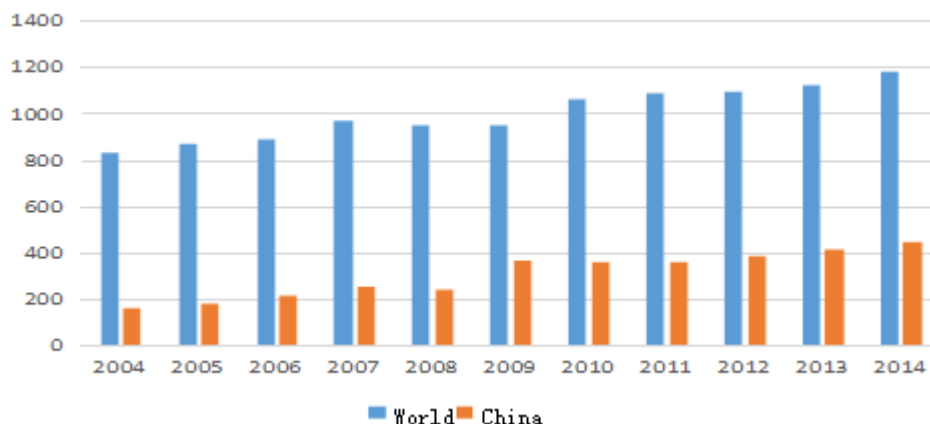


Figure 2: China and the world natural rubber consumption changes IRSG (ten thousand tons) data source

But mainly influenced by three factors, in recent years, China's natural rubber prices continue to decline. 2015 domestic natural rubber prices continued to decline. Natural rubber price has dropped from 12,140 yuan/ton to 9,643.33 yuan/ton, down 20.57%, compared to January 2011, priced at 42,460 yuan/ton, down 71.41% [3]. First, domestic overcapacity. In addition to the rubber tree cut open area increased, import trade volume soared, another manifestation of inventory growth. The latest statistics show that as of December 31, 2015, Qingdao Bonded total rubber stock rose 4.7% in mid-January, to around 0.26 million tons, of which natural rubber inventories increased to 0.22 million tons, an increase of about 2.9%. Second, the downstream demand downturn. Downstream industry, such as tires, footwear, automotive production and marketing situation is not improved obviously. Third, the futures. Financial properties of natural rubber, often by investors as a macro hedge risk tool. According to experts predict that the natural rubber price downturn will continue for a long time.

III. NATURAL RUBBER INDUSTRY IN CHINA

Although China is the production, import and consumption of major countries of natural rubber, but there are multiple factors in the process of industrial development, such as the planting area limitation, low level of processing, disorder market competition, etc. And influenced by prices remain low, certain contradictions gradually during this period.

A. The Loss of Young Skilled Labor

As the natural rubber prices continued downturn in recent years, the farmer's income tapping sharply reduced. Working environment is very hard and working intensity big, they need to sunrise in the morning to the garden work, has long been a large number of mosquito bites. If there is no family upbringing, or other business, most of the young farmers choose to migrant workers. According to the

responsible person said that Hainan rubber group rubber tappers gap has more than 2000 people, some private plant gum companies reflect rubber tappers gap even reached 50%.

B. It is Difficult to Promote the Level of Automatic Tapping Promotion

Tapping labor costs is an important part of the cost of the rubber industry. Machinery automation applications of tapping technique is an effective way to solve the shortage of rubber workers and labor costs rising. The latest production automatic tapping machine not only has the function of rubber cutting, but also has a big data systems. It efficiently tapping, and statistical data analysis rubber production, quality, soil testing, humidity, etc., to achieve natural rubber tapping automation and information technology. To 800 rubber trees as a unit, a rubber workers cut a tree an average of 1 minute, but with automatic tapping machine, you can tap 800 trees in the same time, takes only 30 seconds. In addition, high precision machine will not harm the rubber tree, Hevea tapping by the life of the past eight years to extend the 10 - 11 years, production will increase by 30% -40% [4].

But in rubber prices downturn, benefit from the situation, each machine several thousand yuan price, makes the rubber plantation real hard to bear. Its application feasibility is still questioned by the various aspects. In addition, the difficulty of the operation of the automatic machine, battery life, portable performance is also very concern.

C. Rubber Plantation Intercropped of Full Cycle Still to be Developed

Rubber non-production period is 6-7 years. In non-production period rubber garden, especially in the period of seedlings, intercropping on the one hand, can increase the land utilization. On the other hand, also can effectively increase farmer's income, such as rubber - banana interplanting mode. Qiongzong County Limu Town in recent years, farmers in rubber plantation

intercropped Zhong ye, and then sold through the Internet, to obtain high income. During the downturn in prices, the government guided farmers to carry out the full cycle intercropping, can effectively alleviate the pressure of the economy.

Although farmers of intercropping enthusiasm high, non-production period plantations interplanting mode is common, but the production period of rubber plantation intercropping mode is less, and our country about more than 60% of the rubber garden are in production period. Forests intercropping more focused on small plantations rather than large-scale plantations [5]. Farmers in selecting intercropping mode is very confused. There is herd mentality, easily lead to a surplus of products, prices falling. It reduce the enthusiasm of forests economy development. Therefore, it is recommended that the rubber plantation intercropping technology research should be guided by market demand, focus on broadening the whole cycle interplanting mode.

D. Industrial Subsidies and Insurance

Low rubber prices make the rubber plantation companies in varying degrees of loss. Farmers want the government to give subsidies to the rubber industry. However, due to various factors, the project could not be performed or mediocre results. Because planting rubber in the tropics, it is vulnerable to natural disasters and disease attacks. The insurance company is unable to avoid risk from the technology, and the premium is not enough to maintain compensation. China's agricultural insurance combined ratio as high as 121.3%, excluding necessary cost, it is losing money for a long time. In addition, farmer's hope that has a variety of insurance, but these types of insurance cannot be standardized operation, management cost is high. Peasants urgently need to agricultural insurance, but it is not popular with the insurance company [6].

IV. DISCUSSION

Although the natural rubber industry in China has some constraints, but it still can be optimized from the following aspects. First, when the price is too low, the farmers can choose appropriate stop tapping. According to observation, stop cutting rubber girth growth is greater than the tapping 2-4 times a year, it can increase the rubber production potential. Second, Rubber industry structure adjustment. On the one hand, it take this time to optimize rubber planting varieties. On the other hand, it promote the implementation of rubber forest tourism, forest planting and other projects. Third, to enhance the quality and natural rubber processing capacity, it guide the rubber industry supply-side reforms. China's natural rubber self-sufficiency rate is only about 20%, a lot of need to rely on imports, especially high-end military aviation tires and other rubber. Fourth, the international market for natural rubber pricing. China's rubber industry by increasing the required production capacity, improving the consumption of industrial concentration, from various efforts to play the futures market functions, to promote the healthy and stable development of China's rubber industry.

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