

THE COLLECTIONS OF THE
THESES FOR THE FOURTH
BEIJING INTERNATIONAL
CONFERENCE
ON MAN-MADE FIBERS

第四届北京国际化纤会议
论文集



ORGANIZING COMMITTEE OF BIMFC
北京国际化纤会议组织委员会

May 19th to 20th, 1992

**The Collections of the Theses
for the Fourth Beijing International
Conference on Man-Made Fibers**

**第四届北京国际化纤会议
论文集**

**Development Trend and Strategy of
World Man-Made Fibres Industry**

世界化纤工业的发展趋势和战略

The Organizing Committee of the Fourth Beijing International Conference on Man-Made Fibres

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Development Trend and Strategy of World Man-Made
Fibres Industry

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PART B

Development Trend of New Technologies in Fibre Production and
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THE OPENING ADDRESS
AT THE 4TH BEIJING INTERNATIONAL CONFERENCE ON MAN-MADE FIBERS

MME. MU WENYING
MINISTER
MINISTRY OF TEXTILE INDUSTRY,
THE PEOPLE'S REPUBLIC OF CHINA
MAY 19TH, 1992.

Ladies and Gentlemen,
Friends and Comrades,

It is my great pleasure today to have gathering here with our friends in man-made fibers circle who are present for the 4th Beijing International Conference on Man-Made Fibers. I would take this opportunity to express, on behalf of Ministry of Textile Industry of the People's Republic of China and in my own name, our warm welcome to all specialists, scholars and entrepreneurs at home and abroad present here and congratulations on the grand opening of the 4th Beijing International Conference on Man-Made Fibers.

Since 1985 when we organized and convened the 1st Beijing International Conference on Man-Made Fibers together with UNIDO, the Beijing International Conference on Man-Made Fibers has become an assembly of Chinese and foreign man-made fibers circles for enhancing mutual understanding, building up friendship and promoting economic and technical cooperation at home and abroad.

Today, there are so many world well-known man-made fiber figurers flocking together to jointly sum up the achievements we have made in man-made fiber industry in the coming ten years, I firmly believe that the present conference will surely make an important contribution to further strengthening the friendly relations and cooperation between us.

As everyone knows, China textile industry, after 40 years' effort, has turned into a system of textile of the integrated sector covering all categories such as man-made fibers, cotton, wool, bast fibers, and silk, spinning, weaving, printing and dyeing, garments, home textiles, textile machinery and accessories. And what is more, after the third plenary session of the 11th Central Committee of the Communist Party of China, textile industry, under the guidance of the general principle of reforming and opening, has been developing in a sustained and stable way. Compared with the past, remarkable changes have taken place in the dressing of the people of our various nationalities either from city to country-side or from coastal area to inland. Garments in vogue is, now, in pursuit of people's strong wishes, people's dressing in open cities and special economic regions in particular is more and more closer to the new fashion of the world.

Prospects for the 1990's, China textile industry just finds itself in an important historic period, a period of new strategy. The coming ten years' development of textile industry has very great prospects, a big domestic market of 1.1 billion people and the realization of strategic target for comparatively well-off living standard, with no doubt, have great potential demand on textile. The further development of adjusting the worldwide economic structure will provide us with an opportunity to export more textiles again. Continuously implementing the policy of opening to the outside world will undoubtedly make demands on textile industry for more foreign currency earning. However, we are clearly aware that there exist key problems in textile sector, i.e. technical equipment in great number of enterprises falls behind; management mechanism is not flexible; textile raw materials, especially man-made fibers, are far from enough regardless of quantity, quality and variety, the needs of internal and external markets cannot be met. For this reason, China's textile industry is facing the severe challenge and going through a new test.

Fiber raw material industry of vigorous expansion is the foundation of development of textile industry in China. While increasing the output of natural fibers, we must devote major efforts to developing man-made fibers. And therefore, the expansion of raw material industry for man-made fibers

and the production of man-made fibers is still a focal point in the next decade. Certainly this development is not the expansion in volume only, but most important thing is to readjust product structure, to improve quality of products and to devote major efforts to developing new products of man-made fiber and high performance fiber so as to meet the requirements of application for clothing, home furnishing and industrial fabric.

In order to realize the sustained increase and better economic performance of China man-made fiber industry, we shall expand cooperation with foreign friends, import advanced technology, up-to-date process, modern equipment and management expertise, increase the production and application of speciality and high performance fibers as well as research and develop the usage and popularization of various kinds of man-made fibers in the downstream textile process. We are actively expanding foreign trade and pursuing preferential policies in respect of importing capital, technology, equipment, talents, etc., so as to ensure our foreign partners their legitimate interests.

The participants of the Beijing International Conference on Man-Made Fibers are well-know Chinese and foreign specialists, scholars and entrepreneurs. With each of you having your own advantages in technology and strong points in economy, it is entirely possible for you to develop mutually complementary exchanges and cooperation on the basis of long-term stability and mutual benefit. We are ready to continue our efforts together with our friends in man-made fiber circles and to explore new fields and avenues of cooperation under the guidance of the principles of equality and the attainment of common progress so that our friendship and cooperation will be developed to a new height.

In conclusion, I wish a complete success of the 4th Beijing International Conference on Man-Made Fibers and our friends and comrades a pleasant stay in Beijing.

Thank you.

The prospects and Strategy for the Development of China's Man-Made Fibres

Mr. Ji Guobiao
Vice Minister
Ministry of Textile Industry
P.R. of China

Ladies and Gentlemen, Friends,

First of all, on behalf of China's man-made fibre circle, I would like to extend my warm welcome to the counterparts from every country to participate the 4th Beijing International Conference on Man-Made Fibers. I would take this opportunity to introduce the prospects and strategy for the development of China's man-made fibres, in a way to enhance the mutual understanding between us and to promote the friendly cooperation in technology, economy and trade.

The Output of China's Man-Made Fibres shall Have a Relatively Large Increase, it is Estimated that the State-Planned Output of 2.6 Million Tons in the Year 2000 will be Met, and the Output may Reach 2.8 Million Tons by that Time.

Our country has a large population, but less per-capita arable land with only 0.086 hectare, among the countries which have the least per-capita arable land in the world. It is not easy for China to use 70% arable land of the world to solve the problem of having enough clothing and food for 22% world population. Our government attaches great importance to the development of man-made fiber industry, and laid out the guideline of developing natural fibres and man-made fibres in parallel at late 50's. During these 30 years, the country has invested approximately RMB28 billion yuan on man-made fiber industry, accounting for 28% of the total investment for textile industry. Both the natural

fibers and man-made fibers develop very rapidly as a result of government support.

Figure 1 -- Since the 80's, man-made fiber output enjoyed a rapid growth. In 1991, man-made fiber output reached 1.86 million tons, there has been an increase of 1.33 million tons during these 10 years.

Figure 2 -- Cotton dominates natural fiber, annual output basically remains about 5 million tons in recent years.

Figure 3 -- Polyester fiber dominates man-made fiber, output in 1991 approached 1.2 million tons. Viscose fiber has stable growth in recent years, output in 1991 exceeded 250,000 tons.

To the end of this decade, on the basis of the existing consumption level, merely as to keep up with the population increase, it is necessary to have a net increase of textile fibres of 700,000 tons every year. The growth of textile fibre depends mainly on man-made fiber's development. In order to satisfy people's living standard from having enough food and clothing to become comparatively well-off, and export demands for textile, the output volume of man-made fiber will be further increased in the 90's.

Table 1 -- During 1990 - 2000, the estimated growth rate of man-made fiber will be 5% per year, being basically synchronous with the development rate of our national economy.

Figure 4 -- Per capita share of fibre in our country is below international average level. In 2000, it is anticipated to reach 6.9 kilogram, gradually approaching world average level of 8 kilogram.

Table 2 -- A recall of the development situation of man-made fiber in different varieties in our country.

--In the 60's, we used our own technology to focus on the development of viscose fiber. In 1970, viscose fiber accounted for 64% in total man-made fiber output.

--In the 70's, as the development of petrochemical industry, under the guideline of self-reliance combined with technology import, we developed acrylic fiber, polyester fiber, polyamide fibre, and built Shanghai Jinshan, Liaoyang, Tianjin and Sichuan four man-made fiber bases. In 1980, synthetic fiber made up 70% of total man-made fiber output, and raw material bases for synthetic fibres were initially established.

--In the 80's, under the guidance of the policy of reform and opening to the outside world, we brought positive factor of the whole country into full play, strengthened international cooperation, imported large amount of foreign advanced technology and equipment. As several raw material bases for synthetic fibers were established and put into production, the output of man-made fibres had rapid increase, esp. the polyester fibre. The polyester fibre accounted for over 60% of man-made fibre total output in 1990.

In the 90's, the focus for the development of man-made fiber industry will be put on expansion and modernization of old enterprises, and development for man-made fiber raw material should be accelerated. We will gradually adjust the industrial structure and consummate enterprise scale. The prospects for various varieties are as follows:

1. Polyester

(Table 3) In order to satisfy the clothing demand of 1.2 billion population, man-made fibre industry will still take the development of polyester fiber as its main task, and the complete supply of raw material should be speeded up. By the end of this century, output is anticipated

to reach 1.6 million tons/year. The proportion of filament and staple should be kept well in accordance with the market demand, and now the proportion of filament and staple is about 45:55. Vigorous development of speciality varieties and industrial yarns should be continued, the proportion of polyester used in non-fiber areas will be added.

2. Acrylic fiber

Because of the atmospheric temperature situation in our country, and as wool output fails to satisfy the demand for wool textiles, special attention should continuously be paid to the development of acrylic fiber. By the end of this century, annual output is expected to reach 400,000 tons, accounting for 17% of spinning and wet spinning will be both adopted in the light of local conditions.

3. Polyamide fibre

(Table 4) The development of polyamide fibre will mainly satisfy silk-like application and industrial application. Nylon products for home and household textiles will be greatly developed, and mainly for the nylon carpet. In accordance with the needs of energy and communication departments, nylon for industrial use must be largely developed to be used in conveyor belt and tyre cord. And the technical process for manufacturing nylon raw material by utilizing coal petrochemistry should be actively explored.

4. Vinylon

The total output of PVA fiber will remain unchanged, industrial application will be continuously developed, and production should be shifted to the PVA series products.

5. Polypropylene fiber

We will make full use of propylene products from the ethylene projects, quicken construction for polypropylene-fibre raw material projects, actively develop PP micro fiber and PP's industrial application. By the end of this century, it will reach an annual production output of 150,000 tons.

6.Viscose fiber

At present, the proportion of viscose fiber output among man-made fibres in our country is below world average level. We will give full play to the advantage of the linter rich resources in our country, actively explore pulp-making technology utilizing fast-growing broad-leaf trees, handle well the pollution treatment, modernize and expand the existing viscose fiber plants. To the end of this decade, the output is anticipated to be over 290,000 tons.

To Accelerate the Development for Man-Made Fiber Varieties, Pay Great Attention to the Improvement of Quality, so as to Fulfil the Requirement for Clothing, Home and Household Textile and Industrial Application.

The percentage of speciality fiber will be raised from the present 13% to over 20% in the year of 2000.

Figure 5 -- The proportion of man-made fiber among textile fibre will be increased year by year, and will be up to 30% in 1990 and 39% in the year 2000.

Figure 6 -- The proportion of fiber consumption in the three areas of garment, home and household textile, and industrial application respectively is now about 75:17:8 in our country, it is strived to adjust the proportion of each to 70:20:10 in 1995 and 60:25:15 in the year 2000. (the proportion of that in Japan nowadays is about 1/3 respectively.)

Table 5 -- Our man-made fiber consumption in home and household and industrial application is comparatively low, it is only about 50% of that of the advanced countries. To the end of this century, man-made fiber consumption in home and household textile will be raised to 60-70%, and man-made fiber consumption in industrial application be raised to 70-80%.

We will strengthen international cooperation, and continuously focus

on the development of the complete product range from fiber to textiles. We will make full use of the existing production capacity, upgrade our products' level with more added value, improve enterprises' economic efficiency and profit, gradually shorten the distance with advanced countries.

To Pay Great Attention to the Development of Special Fiber, Promote the Transfer of Scientific Achievements into Productive Forces, and Realize its Industrialization.

In order to meet the high and new tech's requirements for the material, remarkable progress has been made in research and development for special fibers, such as high tenacity, high modulus and heat-resistance fibers. At present, the annual growth rate of the developed countries is as high as 12-15%.

Our country pays close attention to the development of special fibers. In the 60's, research and manufacturing work for carbon fiber was started, aramid fibre was developed in the 70's. In the 80's, we imported spandex manufacturing technology and formed industrial production capacity. For other varieties, pilot plant or industrial production lines of certain scale are also built. However, generally speaking, our country is still in the preliminaryly developing period with an annual production of special fiber of only more than 600 tons, in the future it will be further developed at a faster speed.

Table 6 -- At present, China market's demand for special fibre is approximatedly over 5000 tons, and mainly for heat-resistance fiber and flame-retardent fiber. If fire-control law and textile flame-retardent law are implemented, the needs will be further increased.

We will continue to rely mainly on our own forces, speed up the research and development of special fibres. We will industrialize its production, especially carbon fiber, flame-retardent fiber, high tenacity fiber, heat-resistance fiber, and they should be put into mass production

as early as possible. At the same time, we will actively enhance international cooperation and import advanced technology and equipment.

To Explore the Cooperation of Deep Degree With Foreign Countries, Strengthen Our Ability of Engineering Design and Project Undertaking, and Further Uplevel Our Technical Equipment.

The start and development of China's man-made fiber industry is always based on the combination of self-reliance and opening to the outside world. Especially since the 70's, we imported, from Germany, Japan, USA, Italy, France, Switzerland and other countries, a large amount of production technology and equipment from raw material to spinning for polyester, acrylic, nylon, polypropylene, spandex and viscose fibers.

Table 7 -- Though the output of man-made fiber increases at an dramatic rate, it still fails to meet with the requirement of textile industry. We import considerable amount of man-made fibers and raw material for man-made fibres every year from abroad. In the 90's, certain import will remain.

In the days to come, we will continue to carry out the policy of reform and opening to the outside world, further strengthen international cooperation, and optimize the cooperation method and depth.

1. For high and new technology projects of man-made fibers, high-grade speciality fibres such as wool-like, super-micro fibre and carbon fibre, high tenacity fibre and others, we will actively import manufacturing technology and equipment.

2. On the basis of continuing co-design and equipment co-production, focusing on the key projects for man-made fibers in the Eighth Five Year Plan and the Ninth Five Year Plan, we will have the engineering construction cooperation, build up the complete line service system for engineering design, equipment purchase, installation and test-run. We will strengthen the combination between man-made fiber equipment manu-

facturing and process technology development, increase our ability of research, development, engineering design and undertaking for man-made fibers, and speed up technical progress.

3.To actively utilize foreign capital to build the joint-venture enterprise, co-operation enterprise and foreign wholly-owned enterprise. For example, we have signed the contract with Chemtex Inc. of USA and Marubeni Co. of Japan, having a joint-venture of setting up a 60,000-ton polyester project in Guangzhou. We welcome foreign companies to invest in China and participate project construction for man-made fibers.

4.To further strengthen the communication with international man-made fiber circle, conduct technical seminar, conference, exhibition and other activities which are beneficial for promoting mutual understanding and cooperation. To organize the visit and investigation of foreign advanced technology and management expertise, and take part in international man-made fiber activities. Meanwhile, we welcome international man-made fiber circle to come to China for visit, investigation, business discussion and cooperation.

Last but not the least, I hope that this meeting will become another new starting point of our cooperation. I would like to give my gratitude to the support and cooperation given by our friends in every country to China's man-made fibre industry. I wish the conference a great success.

Thank you.