

Chinese Optical Fiber Industry and its Development

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&

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Dr. Kayoun, Session chairman

The third speech will deal with another raw material: Silica in a more processed way. We will speak about the Chinese optical fiber industry. The speaker is Dr. Xu from YOFC, which is a joint venture of China Telecom, Yangtze Telecom Group and Draka, based in Wuhan.

Dr. Xu has been with YOFC since 1995.

Now, I kindly ask Dr. Xu to start his presentation.

Dr. Xu Xizhou

Good morning everyone. It is an honor for me to share with you some information regarding the Chinese optical fiber industry and its development. My presentation covers 3 main points:

- I. Environment of Chinese optical fiber industry 1995-2004
 1. Chinese economy 1995-2004
 2. Development of Chinese telecom industry 1995-2004
 3. Chinese optical fiber market 1995-2004
- II. Development of Chinese optical fiber industry
- III. Future of Chinese optical fiber industry

Environment of Chinese Optical Fiber Industry before 1988

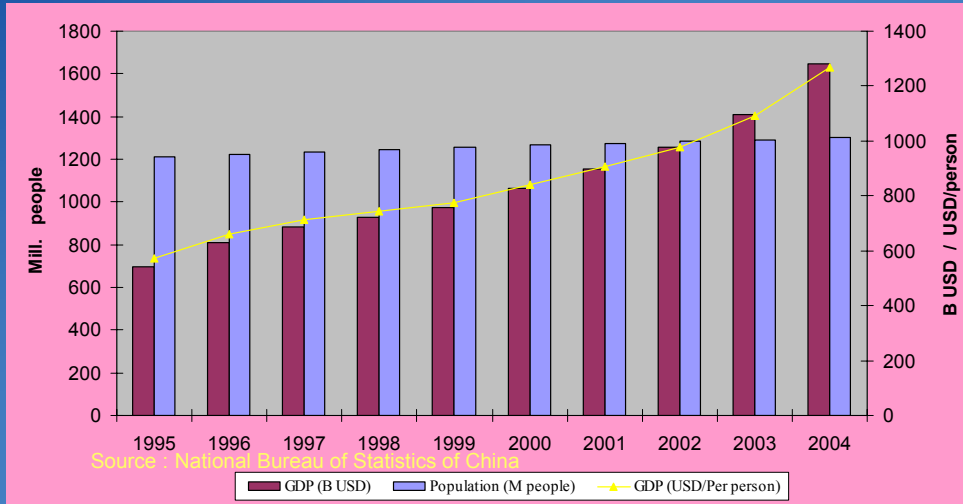


Environment of Chinese Optical Fiber Industry ~2005



I. Environment of Chinese Optical Fiber Industry 1995-2004

1. Chinese economy 1995-2004

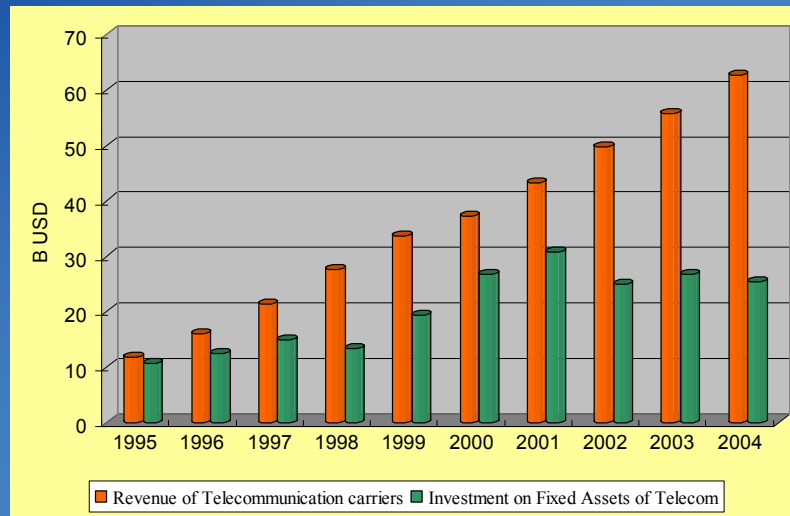


Conclusion: With a continuous increase of China's economy, the average GDP per person has a continuous increase also.

On the preceding page you can see some pictures. The 2 pictures (top) were taken before 1988, because YOFC was the first company in China to produce optical fibers. You can see a construction field. The other picture (bottom) shows YOFC in 2005. So the environment totally changed.

For this environment the Chinese economy grew in a reasonable way. With this push the Chinese telecommunication industry developed. This again pushed the optical fiber cable industry. This slide shows how the GDP grew continuously.

2. Development of Chinese Telecommunications Industry 1995-2004 (1)

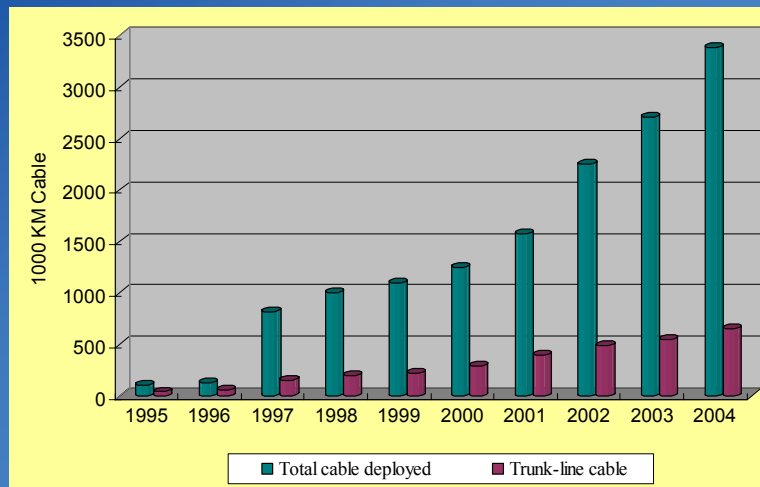


Source : China yearbook

Conclusion: The revenue of Telecommunication carriers increase year by year. The investment on fixed assets of telecom fluctuate. After 2002, it maintains a certain scale.

This slide shows the revenues of the telecommunication carriers together with their investments. For the period of 2002 to 2004 the investments were flat. But if we combine these numbers with the investments for mobile telecommunication then the numbers for investment increase steadily.

2. Development of Chinese Telecommunication Industry 1995-2004 (2)



Source : China yearbook

Conclusion: At 1997, Chinese Telecommunication's construction came to a peak.

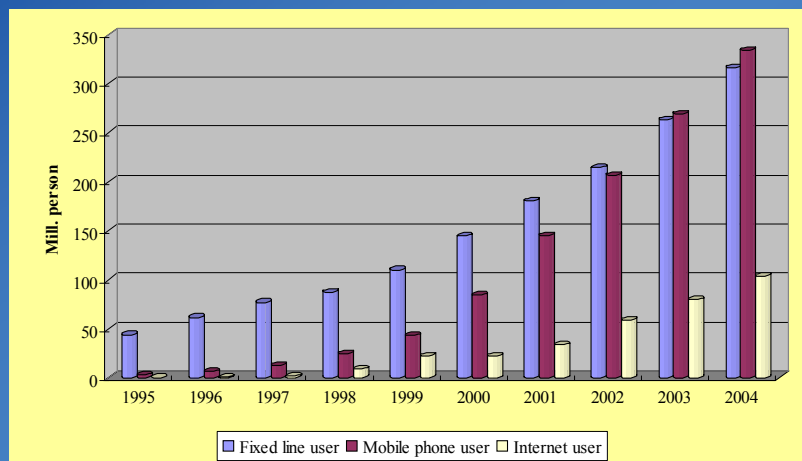
This slide shows the steady growth of total cables deployed and of trunk-line cables.

Development of Chinese Telecommunications Industry - Fix Lines or Mobile Phones?



There is a question about the future of the development of fixed lines versus mobile phones. This is not just a question for China. In the picture you can see the guy with a fixed line communicating with a girl with a mobile phone.

2. Development of Chinese Telecommunications Industry 1995-2004 (3)

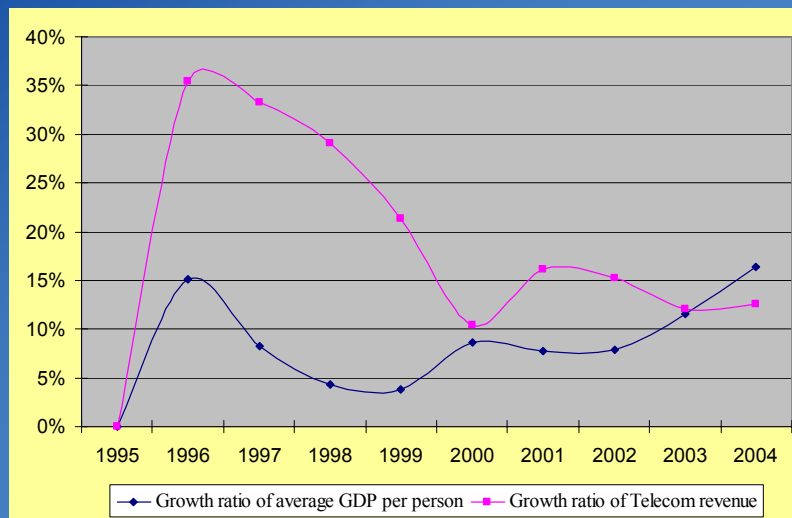


Source : China yearbook

Conclusion: The fixed line users increase steadily. Meanwhile, the mobile phone users and Internet users increase rapidly.

This slide shows the development of fixed lines, mobile phones and Internet. All 3 technologies grow in a good way.

2. Development of Chinese Telecommunications Industry 1995-2004 (4)



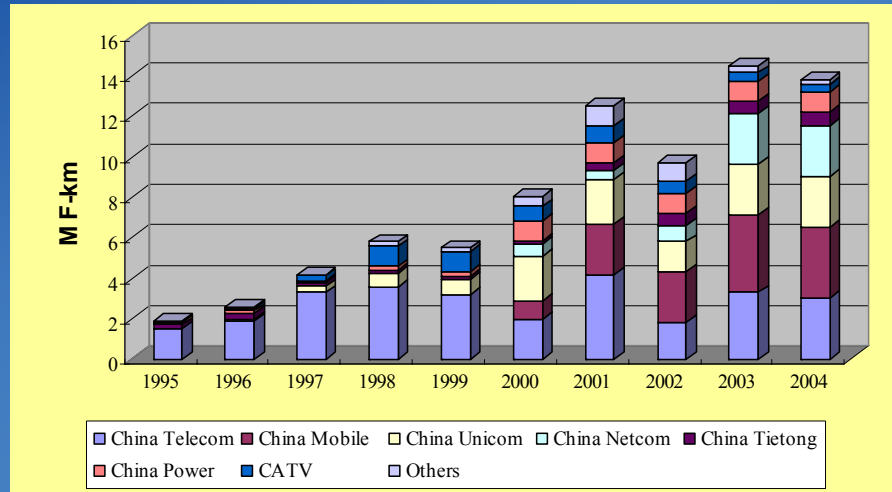
Source : China yearbook

Conclusion: The growth ratio of Telecom revenue is much higher than the growth ratio of average GDP per person before 2003. At 2003, both are nearly equal. At 2004, the former is less than the latter.

This slide shows how the economy (GDP per person) and the revenues of telecommunications developed. In the 1990s the growth rate in telecommunications pulled the growth of the Chinese economy, but then other industries also increased and both rates came closer and matched in 2003.

3. Chinese Optical Fiber Market 1995-2004

3.1 Chinese Optical Fiber Demand 1995-2004 by Operating Companies



Source : China Communication Enterprise Association

Conclusion: China Telecom, China Mobile, China Unicom, China Netcom are four main consumers in China market.

Review of China optical fiber market 1995-2004:

The construction of the Chinese telecom network experienced the following phases:

1990-1997, start-up and developing;

1998-2001, rapid growth pushed;

2002, construction drop down;

2003-2004, Metro and local network speed up.

The main consumer, at first (1995), was only China Telecom.

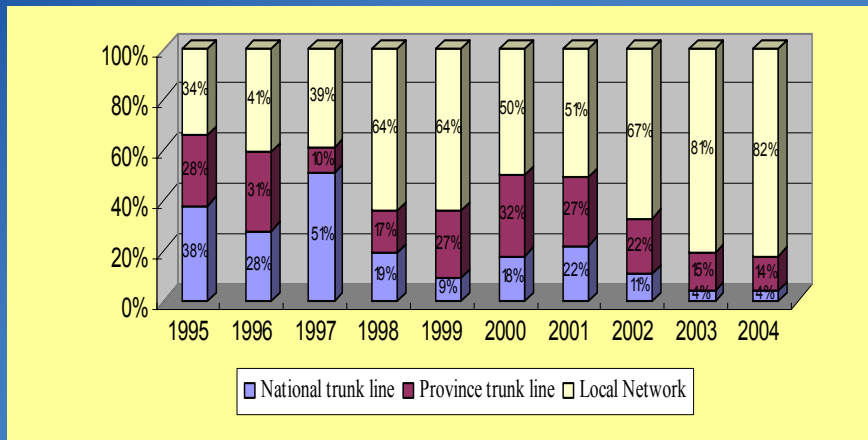
Then came in addition China Unicom (1997), China Mobile (2000), China Netcom (2000) and China Power (2000).

The price of optical fiber and cable declines by year, except for 2001.

For the Chinese optical fiber market I can say that it is a growing market.

This slide shows the demand by the different operating companies. In the nineties China Telecom played a very important role. Step by step China Unicom, China Mobile, China Netcom also became major players.

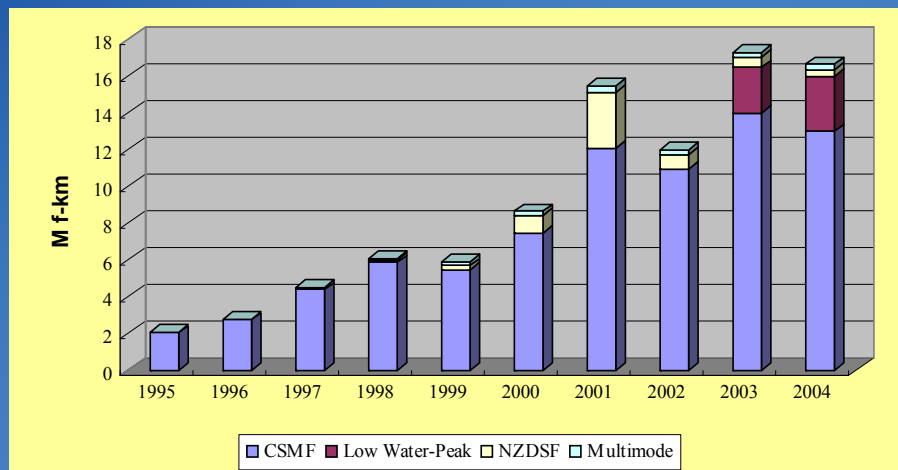
Proportion of Chinese Optical Cable Demand by the Type of Network 1995-2004



Source : China Communication Enterprise Association

For years the main contribution in fiber optic cable demand was coming from trunk lines. Now the local network plays a very important role for fiber consumption.

Chinese Optical Fiber Demand by Fiber Type 1995-2004

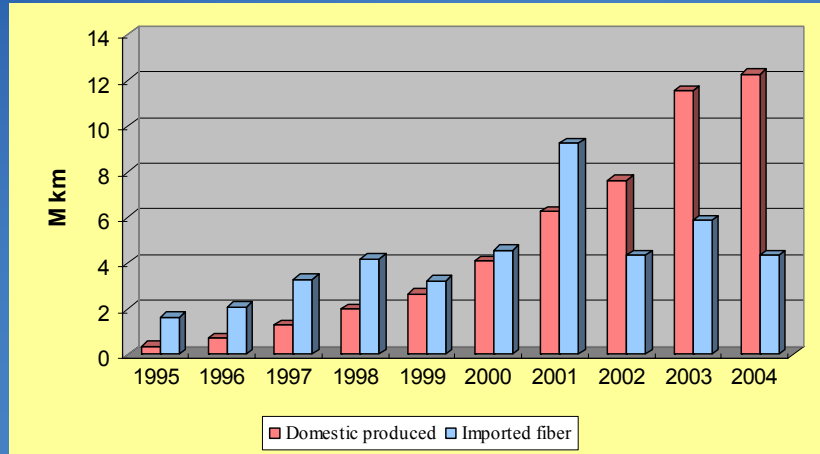


Source : China Communication Enterprise Association

The optical fiber demand by fiber type is a little bit different in the Chinese market compared to the European or North American market. Before 2002 most of the fibers are standard single mode fibers. From 2003 the consumption of low water peak fibers increased very fast.

3.2 Chinese Optical Fiber Supply 1995-2004

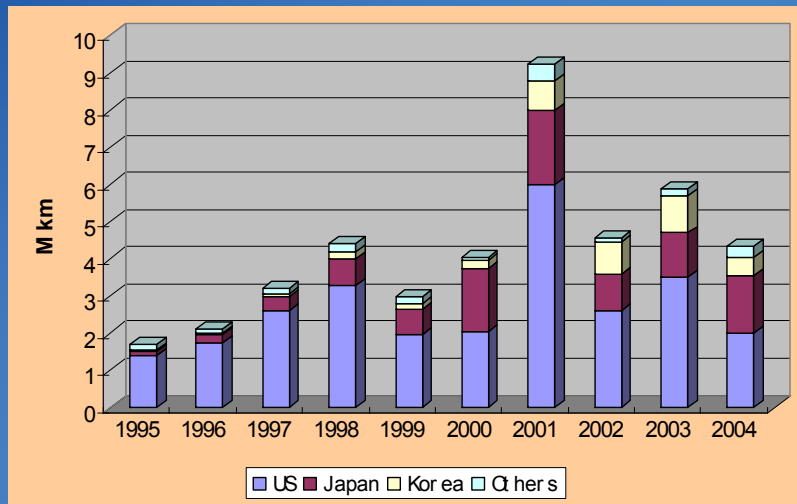
Domestically produced fiber and imported fiber sales volume in China 1995-2004



Source : China Communication Enterprise Association

Until 2001 the import of optical fibers was larger than the domestically produced fibers.

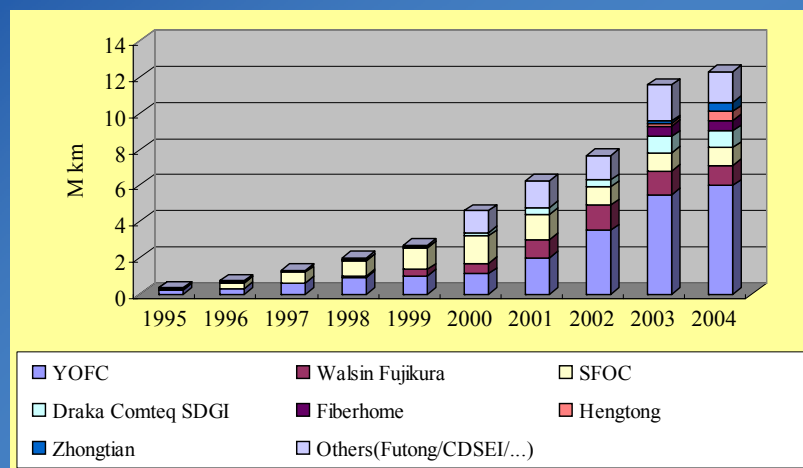
Imported Fiber Sales Volume in China by Countries 1995-2004



Source : China Communication Enterprise Association

USA dominate the import of optical fibers into China, in particular in the earlier years. But then Japan increased its import step by step. From 2001 the volume of imported fibers seems to decrease.

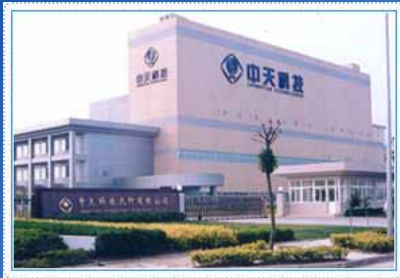
Domestically produced Fiber Sales Volume in China by Companies 1995-2004



Source : China Communication Enterprise Association

This slide shows the major companies in China producing optical fibers.

Chinese Optical Fiber Supply Companies – Examples



Zhongtian Fiber Technology



Sumitomo Shenzhen

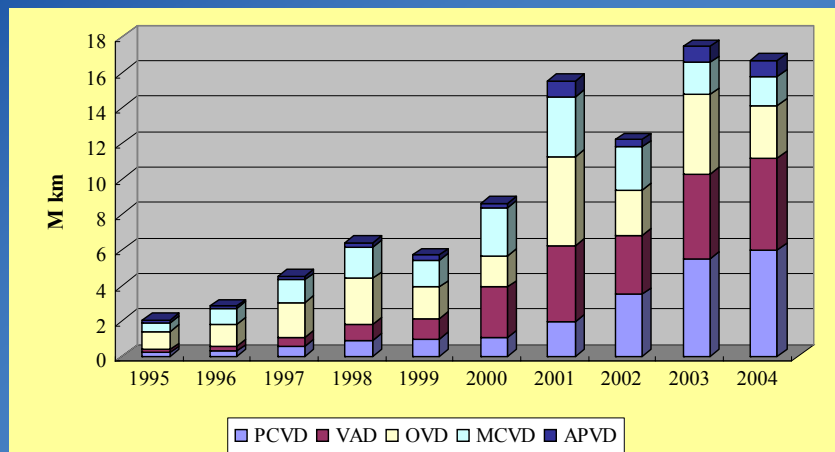


Draka Comteq SDGI



YOFC

Fiber Volume in China by Process 1995-2004

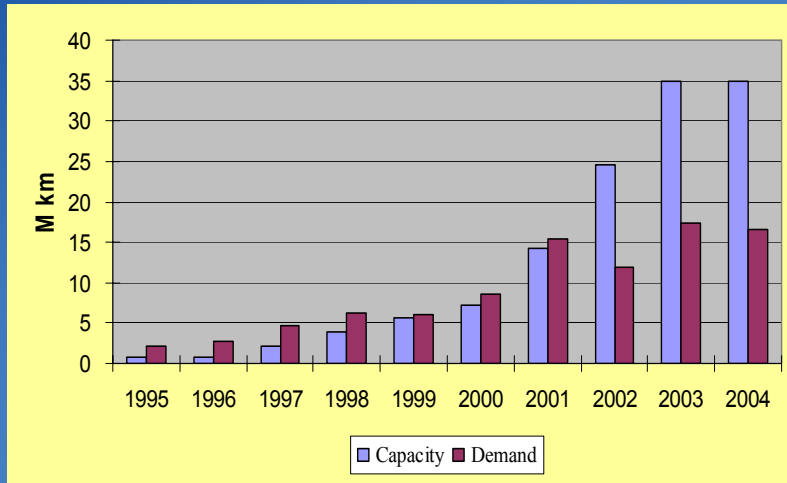


Source : China Communication Enterprise Association

It is interesting to evaluate the fiber consumption in China by the process. Fiber sales volume by PCVD increase yearly in the China market. Nowadays, PCVD and VAD occupy the majority of the market share.

3.3 Chinese Optical Fiber Price 1995-2004

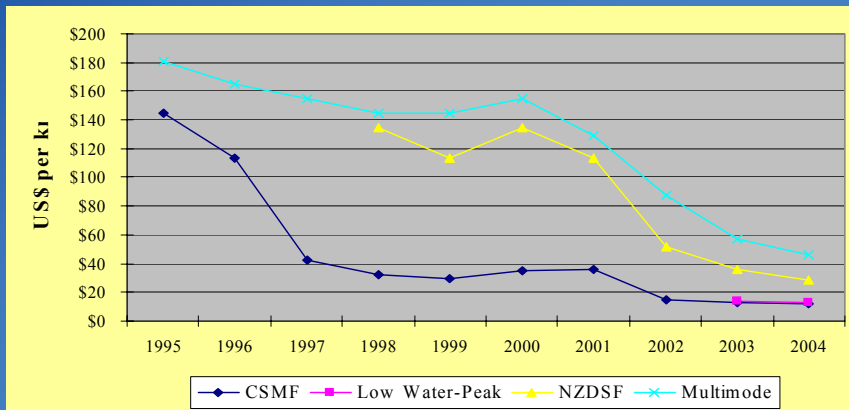
Chinese fiber capacity and demand 1995-2004



Source : China Communication Enterprise Association

The fiber price is not good. Nobody is happy with it. There is one key factor that influences this price. Since 2002 the fiber capacity has been about twice as large as the demand.

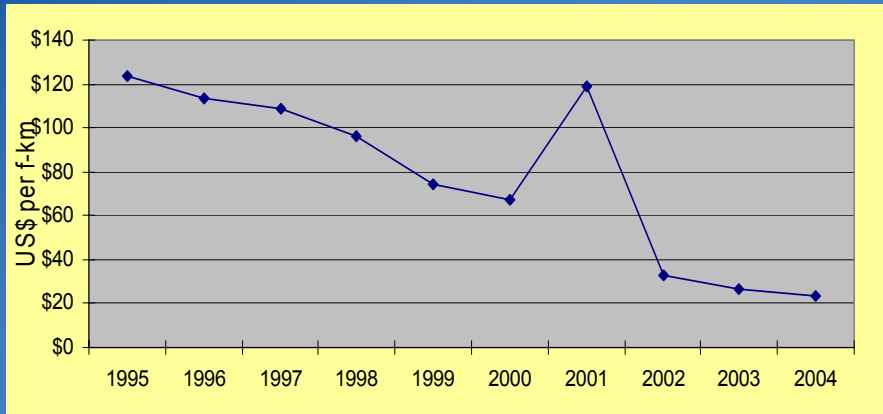
Chinese Optical Fiber Price Tendency 1995-2004



Source : China Communication Enterprise Association

The price of fiber decreases during 1995~2004 yearly except for 2001. 2001~2002 the price drops again . The price is currently stable at about \$9 to \$10 for standard single mode fibers.

Chinese Optical Cable Price Tendency 1995-2004 (Loose tube 24 CSMF cable)

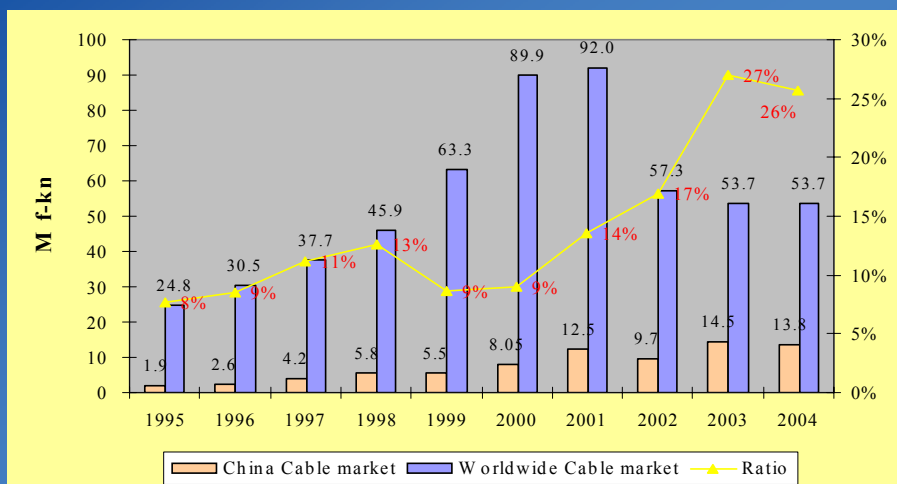


Source : China Communication Enterprise Association

Conclusion: Chinese optical cable price decreases during 1995-2004 yearly except for 2001.

3.4 Chinese vs. Worldwide Fiber Industry 1995-2004

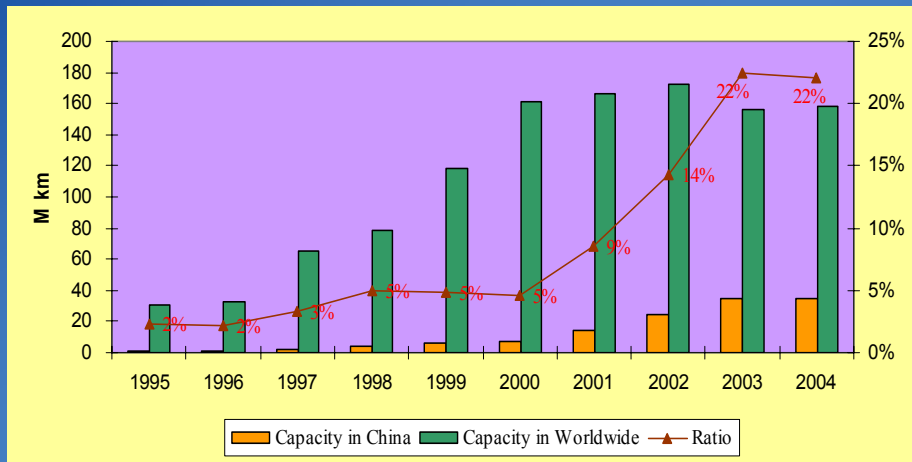
Chinese Cable Demand and Worldwide Cable Demand 1995-2004



Source : KMI & China Communication Enterprise Association

Early on the Chinese optical fiber industry was very small compared to the world demand. But it has steadily increased. At 2003/2004 the proportion of China vs. Worldwide cable market is close to the proportion of population. Some people have asked the question: Why is this drop from 27% to 26% in 2003/2004? It is because there are some rumors regarding the telecom companies, that there will be some reorganization and that some fiber makers have made an announcement that they will be out of this business.

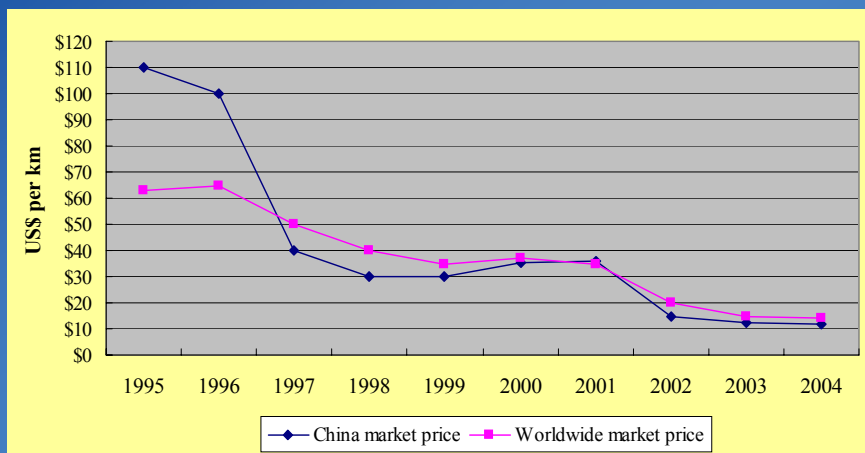
Chinese Fiber Capacity and Worldwide Fiber Capacity 1995-2004



Source : KMI & China Communication Enterprise Association

The proportion of China fiber capacity vs. Worldwide fiber capacity increases from 1995 to 2004. At 2003/2004, the proportion is near to the proportion of population.

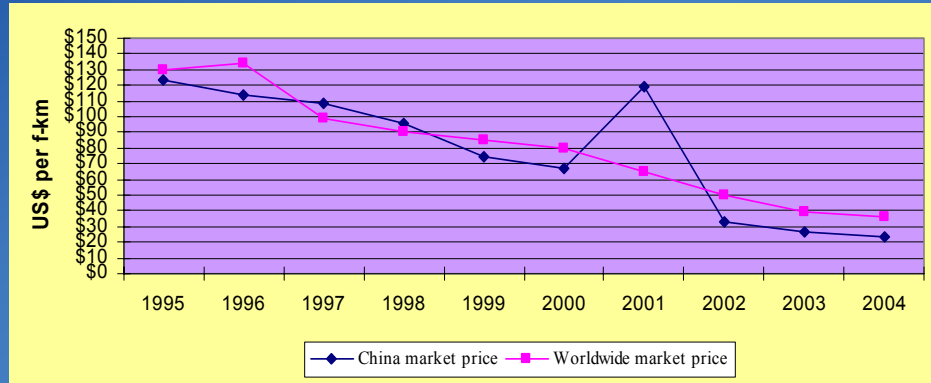
Chinese Fiber Price and Worldwide Fiber Price 1995-2004 (CSMF)



Source : KMI & China Communication Enterprise Association

Conclusion: Before 1997, Chinese fiber price is much higher than Worldwide fiber price. After 1997, the price in China became equal with world market price .

Chinese Cable Price and Worldwide Price 1995-2004 (Loose tube 24 CSMF cable)



Source : KMI & China Communication Enterprise Association

Before 2002 the Chinese cable price is comparable with the worldwide cable price. 2001 is special because of shortage. After 2002 the Chinese cable price is lower than the world market price.

II. Development of Chinese Optical Fiber Industry

The evolvement of the domestic optical fiber and cable industry:

- The number of domestic optical fiber manufacturers changed from 5 (1995) to 9 (2000) and then to 13 (2004);
- The number of domestic optical Cable manufacturers changed from 20 (1995) to 200 (2000) and then to 50 (2004).
- Chinese optical fiber and cable industry is very much centralized now.
- In 2004, the top 5 fiber makers occupied over 60% market share
- and the top 10 cable makers occupied nearly 80% of the market.

The general performance of locally produced fiber:

- price, quality, brand, service and company capability, etc. has improved with great progress, and became the essential fiber source in the Chinese fiber market.

Currently YOFC, Corning and Fujikura are the 3 main players in the Chinese fiber market, and these 3 brands all have local production in China.

Integrated fiber and cable industrial chain was formed in China.

Price is the key feature of Chinese optical fiber market competition.

Most of Chinese fiber makers are still lacking the core technology.

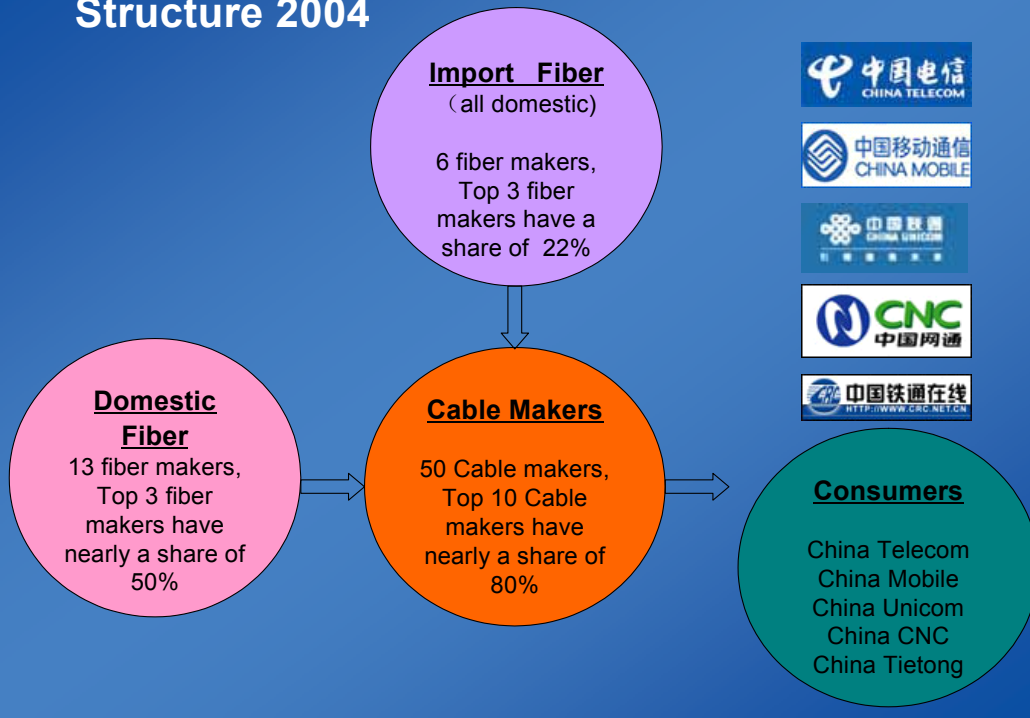
1 History of Chinese Optical Fiber Industry

	Preform	Drawing
Startup 1988-1997	YOFC (PCVD)	YOFC SFOC Tefa-Alcatel SDGI CDSEI Shianfu
Developing 1998-2002	YOFC (PCVD)	YOFC SFOC Tefa-Alcatel SDGI + CDSEI Shianfu Walsin Fujikura Futong Showa Fasten Twentche NJ Tianda tiancai
Present 2003-	YOFC (PCVD) + Futong Showa (try VAD+OVD) Fasten (try MCVD+OVD) Fibrehome (try MCVD+OVD)	YOFC SFOC + Draka Comteq SDGI CDSEI Shianfu Walsin Fujikura Futong Showa + Fasten Twentche NJ Fibrehome Alpha Zhongtian Samsung

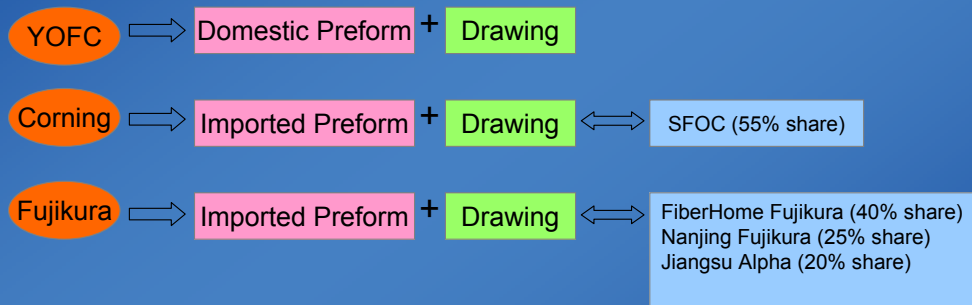
Source : China Communication Enterprise Association

YOFC is the only company making preforms in China in large quantities.
Recently some other companies try to begin production of preforms.

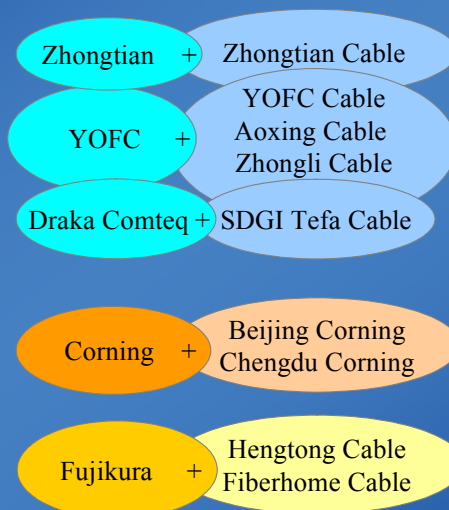
2 Chinese Optic Fiber Cable Industry Structure 2004



3.1 The Localization of 3 Major Brands



3.2 Integrated Fiber and Cable Industrial Chain was formed in China



III. The Future of Chinese Optical Fiber Industry

1 Certain factors

- Chinese optical fiber cable demand will be relatively stable. According to the forecast by China Ministry of Information Industry, the investment to fixed assets of China telecommunications industry is relatively stable, yearly investment will be 25 billion US\$ from 2005 to 2008.
- “To build an information society” and “Olympics Beijing 2008” will boost the demand of cable demand in China.
- Four major Chinese telecom operators are all listed companies. Their operating pattern was investment oriented in the past, but now they changed to return-on-investment oriented, which results in a more reasonable and careful investment behavior.
- The purchase mode was also changed from province self-purchase to headquarters centralized purchase. With this new purchase mode, telecom operators are more focused on supplier’s general performance, such as price, quality, brand, service, and company capability, etc.
- Some Chinese fiber makers will quit this business or be merged. With the market consolidation, Chinese optical fiber capacity is on its way to a reasonable level.

In which direction will China develop ?



Will FTTH be a nice business in the future?



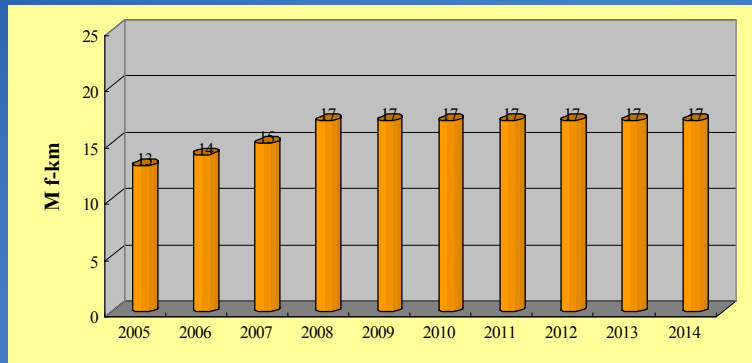
2 Uncertain factors

Following factors restrict the development of Chinese optical fiber industry:

- How long will the Chinese economy growth last?
- The split and restructure of Chinese telecom operators.
- The start of FTTH.
- The start of 3G.
- How much will Chinese fiber makers grasp core technology?

3 A Scenario of Future China Optical Cable Market

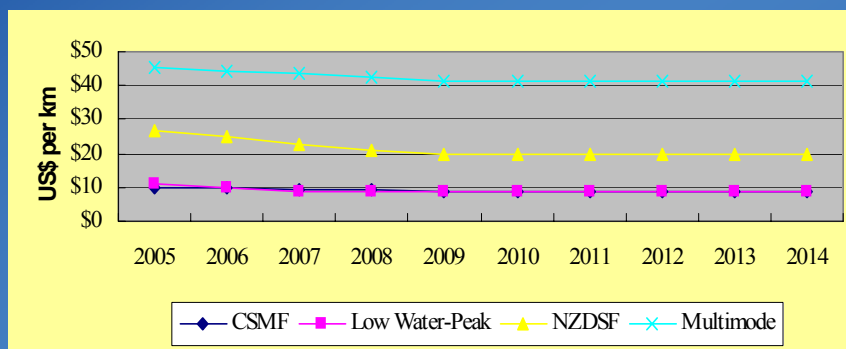
3.1 Forecast of possible Cable Demand 2005-2014



Source : China Communication Enterprise Association

The yearly Chinese optical cable demand today is around 15 million f-km. It will increase a little bit during 2005~2008, then it will come to a flat demand.

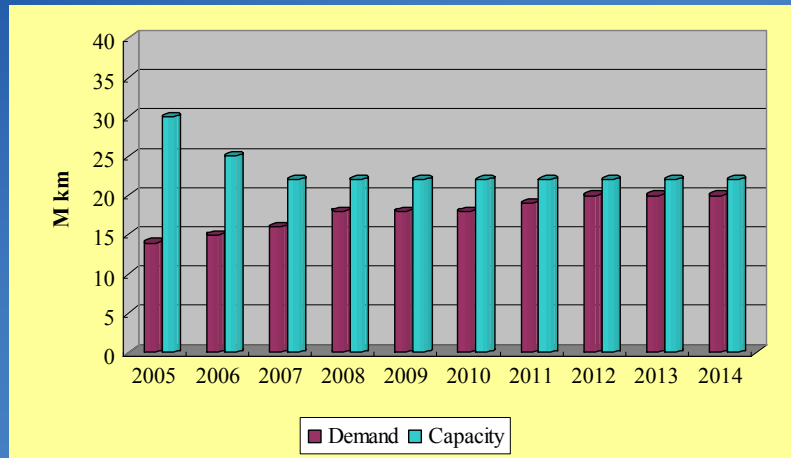
3.2 A Scenario of possible Fiber Price 2005-2014



Source : China Communication Enterprise Association

The possible fiber price will decrease very slowly during 2005~2014, except if some company invents a new process.

3.3 Forecast of possible Chinese Fiber Capacity 2005-2014



Source : China Communication Enterprise Association

The Chinese fiber capacity will possible decrease down to a reasonable scale after the year 2010.

We need more optical fiber between East and West in the future?



And HARD work ?



And green and sustainable development



I believe in the future of China !



And I – the sleeping lion will take care of the future !



Thanks!

