

Global Tendency of Glass Fiber Market

**Presented by
Daniel He
Jushi Group**

In Sao Paulo, Brazil, on 8 November 2012

Global Tendency of Glass Fiber Market



- **Global financial crisis started in the second half of 2008**
- **Growth in 2009 to 2012**
- **The current status of global fiberglass suppliers**

Global Tendency of Glass Fiber Market



Global financial crisis started in the second half of 2008:

- ---a big boom over the past decade from 1998-2008
- ---output of fiberglass in China less than 1 million tons in 1998 to over 2 million tons in 2008, with 50% for export
- ---quality has been greatly improved and accepted and costs reduced

Global Tendency of Glass Fiber Market



Growth in 2009 to 2012:

- one digit growth rate in capacity**
- slight over capacity under the global economic recession**
- fierce price competition globally**
- anti-dumping and customers paid the bills**
- quality upgraded to world class level and more options for customers to choose**
- new products developed, resulting in higher properties and performance**

Global Tendency of Glass Fiber Market



The current status of global fiberglass suppliers:

- North America: 1 million tons
- Europe 0.8 million tons
- Asia: 2.8 million tons (2.4 million tons in China)

Global Tendency of Glass Fiber Market



- **The responsibilities of Jushi as a leading fiberglass supplier**
- **A brief introduction about Jushi**
- **The active measures Jushi took in 2009 to 2012 and overall strategies**
- **Review of 2012 and prospects in 2013**

Global Tendency of Glass Fiber Market



The responsibilities of Jushi as a leading fiberglass supplier are

- ---to service the whole composite industry with quality and safety products with more cost effectiveness
- ---to target at the composites industry with finished products which are lighter, stronger and better in corrosion resistance
- ---to aim at energy saving and environmental friendly to leave less carbon print globally

A Brief Introduction of Jushi



- A leading fiberglass manufacturer in China
- Position in the industry
- Major products and technology
- Market developments



About JUSHI

巨石集团有限公司
JUSHI GROUP CO., LTD.

About Jushi



Jushi Group is a leading fiberglass manufacturer in global fiberglass industry. It has three fiberglass production bases located in Tongxiang, Zhejiang Province, Jiujiang, Jiangxi Province and Chengdu, Sichuan Province in China, with a total investment of 15 billion RMB Yuan and total annual production capacity of 900,000 tons and 10,000 employees. The company has overseas subsidiaries in Brazil, Canada, Egypt, France, Hong Kong, India, Italy, Japan, Korea, Singapore, South Africa, Spain, and USA.



Group Founder



Founder

**Chairman and President
of Jushi Group**

Yuqiang Zhang

- Winner of State Council Special Allowance
- National May 1st Labor Prize Winner
- China Outstanding Entrepreneur
- China Top Ten Outstanding Entrepreneur
- Zhejiang Top Meritorious Entrepreneur In 30 Years Since Reform and Opening Up
- Zhejiang Top Businessman
- Forbes Best CEO of Public Companies in China in 2009

巨石集团有限公司
JUSHI GROUP CO., LTD.



Jushi and Its position in FG Industry

Position in the Industry



- Annual fiberglass production capacity of more than 900,000 tons
- One of the fiberglass manufacturers with most complete range of products
- State of the art fiberglass manufacturing technology, world class research and development capabilities
- Four largest fiberglass production lines in the world with an annual capacity of 100,000t, 120,000t, 140,000t and 160,000t, respectively

Strategic Planning: Domestic Production Capacity



Headquarters



Production Base

Chengdu plant with annual production capacity of 140,000 Tons



CHINA

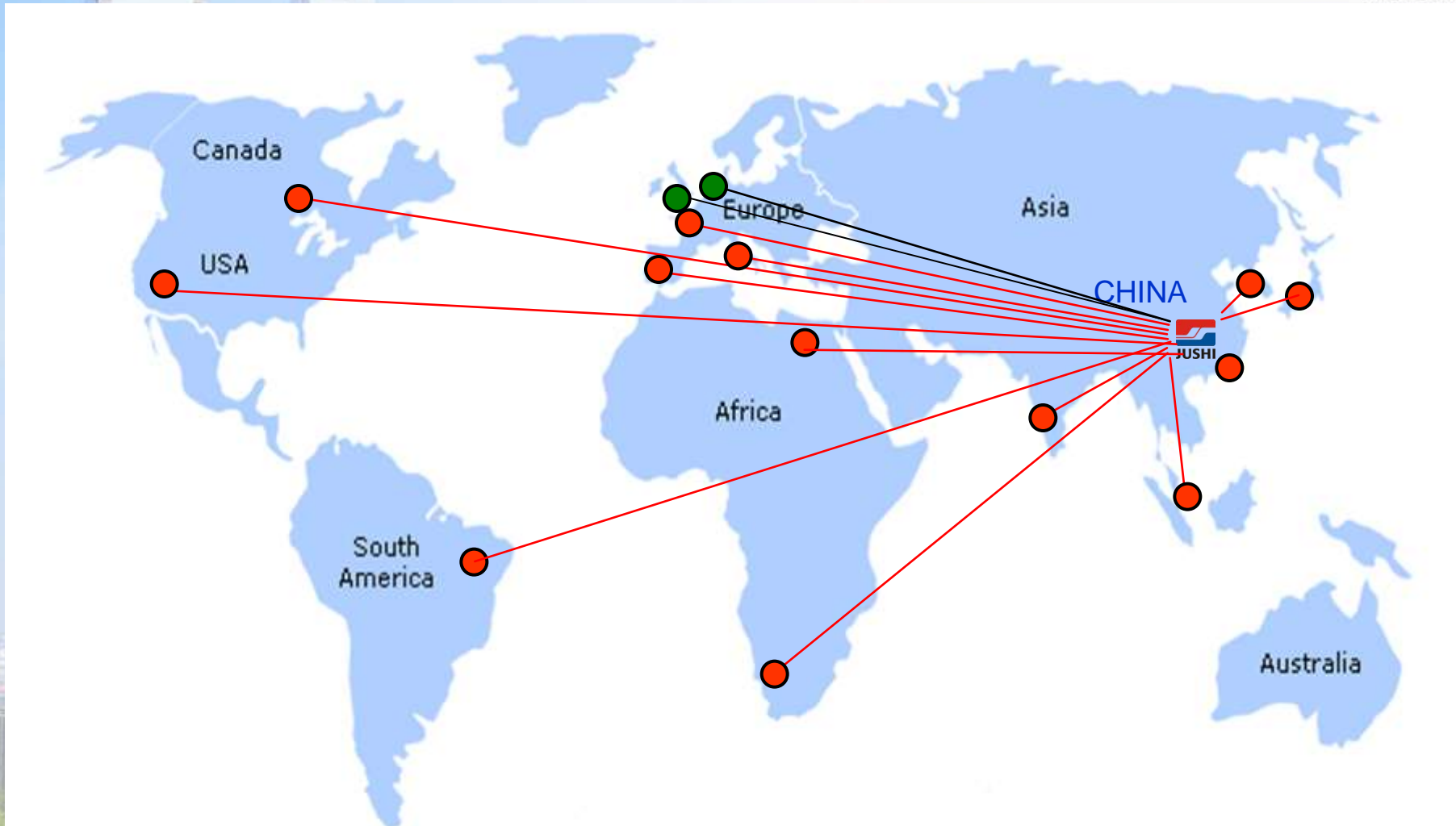


Jiujiang plant with annual production capacity of 170,000 Tons



Tongxiang Headquarters with annual production capacity of 630,000 Tons

Overseas Production Bases and Global Sales Network





Products, RND and Sales Networks

Product Information



- **Assembled Rovings**
- **Direct Rovings**
- **Chopped Strands**
- **Chopped Strand Mats**
- **Woven Roving**
- **Other Products**



Core Technologies



Proprietary world class technologies:

- Design of extra large furnaces
- Glass melting with oxygen firing
- Formulating and synthesizing of sizings
- High performance E6, E6-CR and Vipro (E7) glass formulation technology
- Environmental friendly furnace technology
- Automatic handling and packaging technology
- 15 national new products, 5 national new records
- Over 150 patents



Patents for Invention



Core Markets



- One of major fiberglass suppliers in the USA market
- A first-tier supplier of many global top 500 multinational companies
- The largest domestic supplier of thermoplastic fiberglass in China
- The largest domestic supplier of fiberglass products in China
- Possessing a global marketing and service networks



Research and Development



Jushi R&D Center and Testing Center are equipped with various laboratories and analysis rooms which possess sophisticated and advanced testing and analysis equipment and have the capabilities to analyze glass formulation, fiberglass properties and fiberglass-reinforced composites, thus providing scientific means for product development and quality control. Jushi Testing Center has been certified by both China National Accreditation Board for Laboratories (CNAS) and Germanischer Lloyd (GL)



CNAS Certificate



Germanischer Lloyd



Tensile strength testing room



FRP testing room

Quality Assurance



Products approved by:

DET NORSKE VERITAS (DNV)

Lloyd's Register, UK

Germanischer Lloyd (GL), Germany

Food and Drug Administration (FDA), USA

China Classification Society



Quality Assurance



Management systems certified to :

- ISO 9001
- ISO 14001
- OHSMS 18000
- ISO 10012



Overall Strategies and KPI



Overall Strategies:

- To improve product mix and make value-added products
- To speed up industry integration and build industry clusters
- To accelerate globalization and take advantage of global resources
- To improve overseas sales network and increase global market share

Overall Strategies and KPI



Key Performance Indicators (KPI):

- **Scale** : to increase annual production capacity to 1.5million tons, accounting for 25% of the total global capacity, maintaining leading position in production scale, market share and technology
- **Products**: to improve product mix by having 90% for the middle and high-end customers
- **Export**: to maintain at 50%

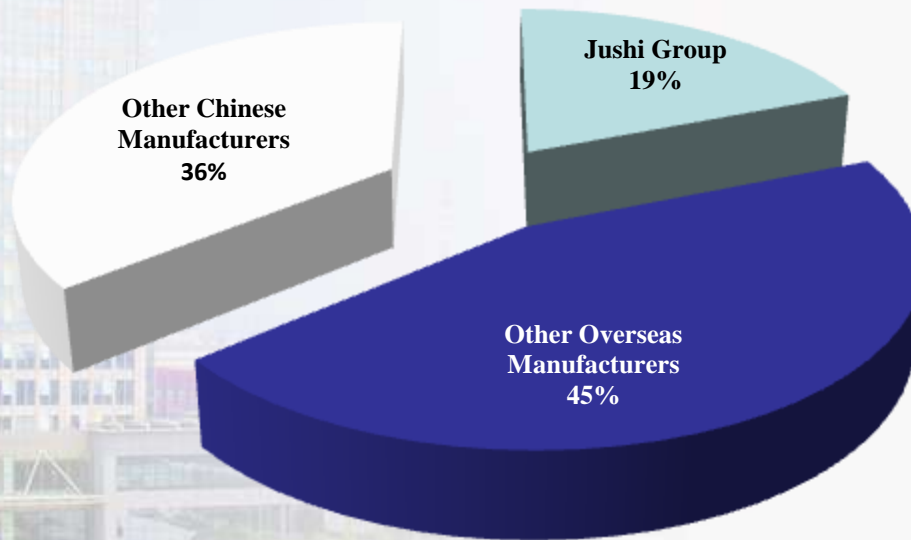
Analysis of Global Markets in 2012 and Prospects in 2013

Review of 2012



- **Market share**
- **Product development**
- **Sales networks**
- **Overseas layouts**

- **Production is stable in three bases in China**
- **Product mix has been greatly adjusted**
- **New records of sales were reached both at home and abroad**



- Glass formulations of E6 and E6-CR with enhanced performance has been carried out in three production bases
- Glass formulation of Vipro (E7) with higher strength and modulus came into mass production
- There were fast growth in the applications such as products for thermoplastics chopped strands, wind energy, SMC, LFT, high pressure pipes and oil pipes etc. Product function was upgraded and the scope of customers was enlarged

E6 高性能玻璃纤维
Enhanced
Glass Fiber

ViproTM 高强度高模量玻璃纤维
New High Performance
Glass Fiber

- **Jushi overseas sales networks is under restructuring and customers' service is improved**
- **Jushi Egypt is under construction and Project Giant in the USA is under evaluation**

Prospects for 2013



- **To control the domestic output**
- **To optimize the existing capacity**
- **To adjust the investment quality**
- **To enlarge overseas expansion**

- **Since 2008, Jushi's capacity has always been around 1 million tons and there was no additional increase in volume**
- **The growth rate in China fiberglass industry was 24.9% in 2010, 7.8% in 2011 and 3% in 2012, dropped year by year. The total capacity was under control**

- **There shall be 16 furnaces in China ready for cold rebuilding in 2013. To add some furnaces outside China, there shall be a total capacity of 600,000 tons under rebuilding, resulting in a reduction of output by 150,000 tons in 2013. In addition, the backward capacity shall be removed and the total output in 2013 shall remain at the same level as in 2012**

- **Jushi shall carry out overall production of E6 and E6-CR formulations with enhanced performance, taking the replacements of the traditional E-glass formulation**
- **Jushi shall have a mass production of Vipro (E7) formulation with higher strength and modulus, providing customers with a better solution in the composite industry**
- **Jushi shall strengthen adjustments in product mix to meet customers' demands by expanding production scale in some products like wind energy, thermoplastic chopped strands, fabrics and mats, etc.**

- **In addition to many overseas subsidiaries in North America, South America, Europe, Africa and Asia, the setting up and improvement of Jushi's international marketing and sales networks shall be one of the key tasks in 2013**
- **Regional Headquarters (Sales Service Centers) shall be considered to set up in 2013 to improve our service level to customers, to better our communications and coordination, and to quicken our decision making and feedback**

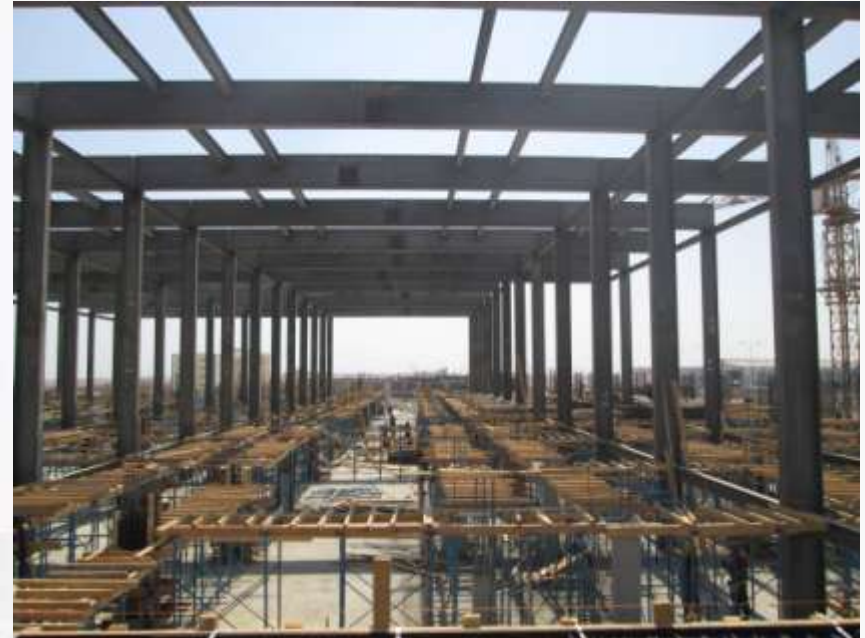


Jushi Egypt and Project Giant in USA

- **Jushi Egyptian plant with 80,000 tons was constructed smoothly**
- **Living blocks were already finished**
- **Construction for workshops was completed over 50%**
- **The plant is scheduled to go into operation in the third quarter 2013**



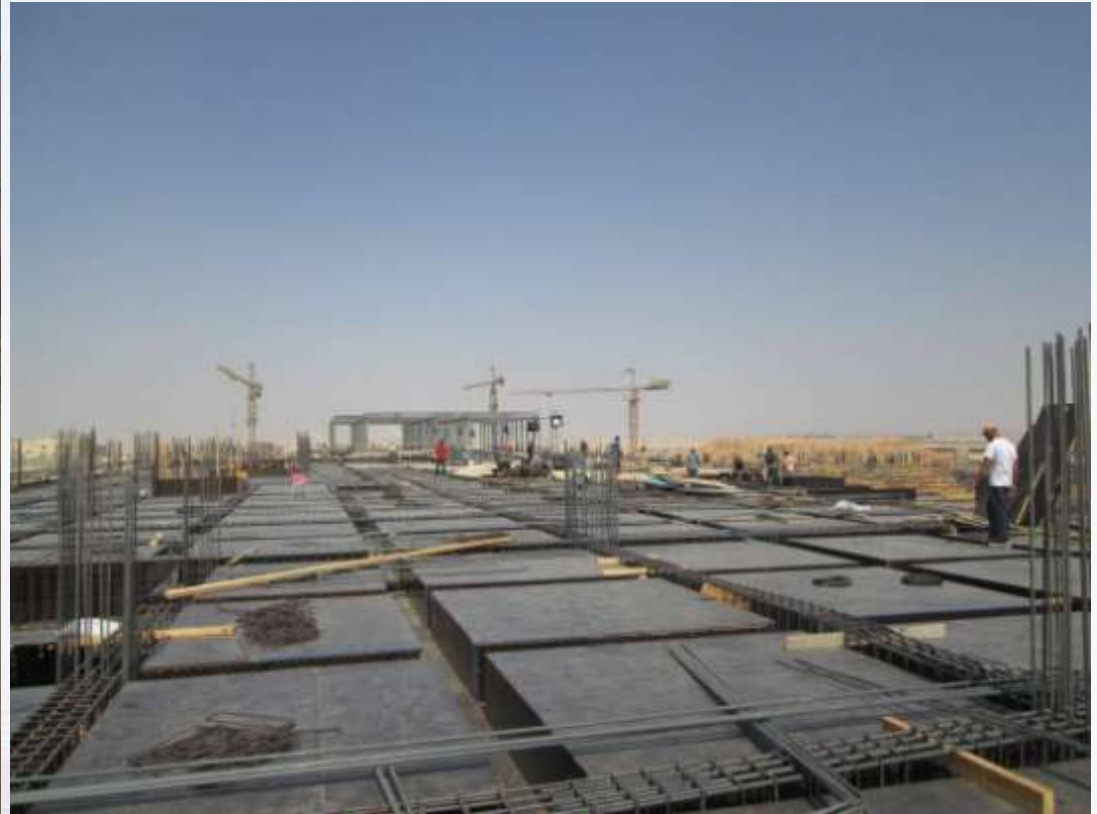
Living blocks



**Installation of the 7 meters high
fiber drawing area**



Workshops under construction



Installation of the 7 meters high fiber forming areas



**Construction of
the fabrication area**



**Meeting between Mr. Cao, VP of Jushi
and Mr. Governor of Suez, Egypt**



Meeting regarding Jushi Egyptian Project between Ms. Yao, GM of China National Building Materials Group Corporation and Mr. President Morsi of Egypt



Meeting between Mr. Ma, VP of China National Building Materials Group Corporation and Minister of Investment in Egypt

Project Giant in USA



Jushi shall start the initial investigation and evaluation work for Project Giant, a production base in the US.

“International layouts” is a key part of Jushi's strategy for development and the US market is an important overseas market for Jushi. Jushi hopes to be closer to our US customers by setting up a production base in the US and also to show the confidence of opening up the US market. More importantly, this shall also display Jushi's advantages in product quality, variety and competitiveness



Other Projects in Future

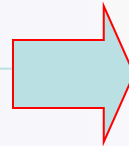


- **Globalization, especially in manufacturing, is the key strategy for Jushi in the next three to five years**
- **It is still under investigation and evaluation to have more facilities outside China, for example, in other countries like in India, the Mid East and Brazil, etc.**
- **Aside from building brand new plants itself, Jushi is looking for partners for opportunities of cooperation on an M & A basis for further growth**

What shall be 2013, a year of recovery?

Up and down in 2010, fluctuational in 2011, and weak in 2012

New government in China
New government in the US
New stimulus policy in China
New currency policy in the US
Moderation of Euro-debts crisis



Does the recovery of global economy mean the recovery of fiberglass market?

Global Tendency



- **Challenging**
- **Centralized**
- **Globalized**
- **Optimistic**

Global Tendency



- **Challenging**
- ---lack of natural resources
- ---increasing costs in energy
- ---increasing costs in production, especially in labor costs
- ---increasing costs in transportation, especially the sea freight rate
- ---technological innovation of new materials like carbon and aramide, etc.
- ---political concerns of trade protectionism, like anti-dumping, etc.

Global Tendency



- **Centralized**
- ---due to the challenges and global competition only a few shall survive
- ---there shall be not only competition but also collaboration between the fiberglass manufacturers
- ---there shall be M&A in the fiberglass industry in future

Global Tendency



- **Globalized**
- ---to have local service to have a better communication and understanding of customers' demands
- ---to be closer to customers for providing better commercial advantages, safety stock and on time delivery
- ---to be in a fair position in global competition for a long and sustainable cooperation, resulting in jointly growth with customers

Global Tendency



- **Optimistic**
- ---there shall be a recovery as economy is periodical for growth
- ---there shall be increasing use of composites for energy saving and environmental friendly purposes
- ---there is an estimation of 5.5 million tons of fiberglass in need by 2020 as currently there is only a supply of 4.6 million tons
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Global Tendency



More to Share



- **Contact information:**
- **Daniel He**
- **General Manager of Int'l Sales**
- **Jushi Group, China**
- **Daniel.he@jushi.com**
- **www.jushi.com**



Thank You!

www.jushi.com

sales@jushi.com