



Chinese Butterflies



Have you ever heard the story about the butterfly that flaps its wings in China and causes a hurricane in another part of the world? I've heard many variations of that story, but each illustrates the idea that even the tiniest change can produce enormous effects in the future.

After recently visiting China, I can assure you that the butterfly is flapping—furiously. The changes going on in China are having an enormous impact on the world.

Those of us in manufacturing should consider those changes and how they could affect us and our companies down the line.

Most of us have known for some time that the butterfly is flapping in China. But it wasn't until I went there and saw some of the activity myself that I realized the butterfly weighs about 500 pounds.

For example, China has building projects that dwarf anything ever done. One of the best examples is the Three Gorges Project on the world's third longest river, the Yangtze.

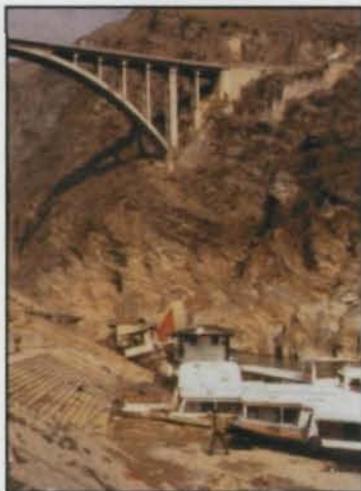
Through this project, the Chinese government is building what will be the world's largest hydroelectric dam. The concrete structure will tower 610 feet (186 meters) above the Yangtze. The 1.3 mile-wide dam will raise the water level by 175 meters, creating a reservoir from Yichang City in Sandouping to Chongqing—a distance of 400 miles (more than 600 km).

The Three Gorges Project began in 1993 and is supposed to be completed by 2009. This year, in June, they will be raising the level of the water behind the dam by 135 meters.

When complete, the Three Gorges Dam will contain 27.15 million cubic meters of concrete, more than twice as much concrete as the Itaipu Dam on the Parana River between Brazil and Paraguay. That dam used 12.8 million cubic meters and is currently the world's largest hydroelectric dam. The Grand Coulee Dam, America's largest, used 9.2 million cubic meters.

The Three Gorges Dam will use 26 turbine generators to produce up to 18,200 megawatts of electricity. That's more electricity than a dozen nuclear power plants.

When the river is fully dammed, 13 cities, 140 towns and more than 1,300 villages will be submerged. Consequently, nearly 2 million people and thousands of houses, apartments, businesses,



The Dragon Gates Bridge crosses a gorge approximately 125 meters above the water of the Yangtze River. In June 2003, the water will be raised to about 10 meters above where the top of the bridge now stands.

factories, farms, ports and wharfs are being relocated from the banks of the river to the tops of the gorges.

Also, the dam is supposed to improve flood control and navigability of the river for ocean-going vessels, allowing more cargo to go into and out of central China.

There is plenty of other construction going on throughout China, too. Office buildings are going up like mushrooms in Beijing and Shanghai. Those in Beijing are very utilitarian, but the new buildings being constructed in Shanghai are gorgeous examples of distinctive modern architecture.

What I saw of the characteristics of the Chinese people leads me to believe that their level of activity is going to continue for some time. The Chinese people I met and observed seemed to be ambitious, cheerful, optimistic, hard working and skilled. In addition, more and more of the Chinese workforce is becoming highly educated, and recent economic reforms have enabled the spirit of entrepreneurship to flourish.

So what does this mean to those of us who are involved in manufacturing in the rest of the world? It's hard to tell what will happen when a butterfly flaps its wings.

I know a number of gear manufacturers who have formed relationships with one or more Chinese companies. Some are buying their blanks from overseas. Some are importing rough gears from China and are finish-grinding them here. Others are producing gears in China. Today's manufacturing world is becoming one without borders. Things that happen in one area of the world can have a huge impact in other areas. Those people who are best able to think globally today may be best able to compete globally tomorrow.

In the end, it may turn out that the butterfly is not in China after all. Perhaps it's in another region of the world altogether. Then again, perhaps it is *you* who are the butterfly, and it's the small changes you make today—including paying attention to the global economy—that will have a big impact on *your* future.



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