# Perspectives on the Chemical Industry in China

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The timing of this talk is perfect for me since I was one of thousands in attendance at the Olympics in China. What a coming out party that was for them. As I sat in the Bird's Nest watching the opening ceremonies, I was awed by the sheer number of people – over 90,000 in the stands and several thousand more on the field. Imagine, just 20 years ago China was an entirely different country – just dipping its toes in the global marketplace to use a Michael Phelps metaphor. It's astounding how far the country has come, and what a fantastic job they did to show the world what they are determined to become.

Earlier this year, the Financial Times opened a story about China with this comment: *"The world is changing China, but China is also changing the world."* I don't think anyone can disagree.

A quick look at some numbers tells the story. Many of you in this room know from experience that investment in China is booming. In 2007, foreign direct investment increased by almost 14% and today totals $83 billion. Compare that to 1998, just 10 years ago, when that same figure was $45 billion – almost double in 10 years.

The US-China Business Council recently did a survey of companies who have operations in China. Over 80% said their businesses there posted a profit in 2007. Even more telling, two-thirds said that rate of profitability was the same *or better* than their company's global profit margin.

As the fastest growing country in the world, China reciprocates as the biggest capital exporter at $1.2 trillion in exports, a number that has increased exponentially in the last 10 years, when it was just $183 billion in 1998.

One of the more interesting developments out of China comes in the form of mergers and acquisitions. Let me give you a few examples.

- China's state-owned bank, ICBC, recently spent $5.5 billion for a stake in South Africa's Standard Bank
- TCL Holdings, a major electronics company in China, bought the German company Schneider Electronics, which owns the U.S. television brand RCA
- China Netcom made one of the bigger acquisitions with its $1 billion purchase of Asia Global Crossing, a subsidiary of the U.S. telecom giant, Global Crossing
- And here's a name I know you will recognize – Lenovo, the current owner of IBM's personal computer division

They may not be household names – yet – but I suspect we'll be hearing a lot more from these companies as their acquisitions of overseas competitors continue to get attention.

China's President Hu Jintao recently promised to accelerate the growth of Chinese brands in the world. That promise is translating into investments in almost 7,500 companies in more than 160 countries.

So what does all this mean? Without question, China has been and will continue to be a principal influence on the global economy. *The Financial Times* got it right – *the world is changing China and China is changing the world.* What's our perspective on all of this change? From the lens of the chemical industry and Dow, I'd like to comment on that today.

Let's start with a look at what China is doing well. Corporations are excelling across industries – electronics … telecommunications … steel … coating … international banking … and let's add the 3rd largest industry in China – the chemical industry.

Today there are more than 100,000 chemical companies in China, two national chemical industrial parks and 50 provincial industrial parks. Total industry output is valued at US $7.4 trillion, or 6% of China's GDP.

China chemical manufacturers are operating in many of the same markets in which Dow has a presence – ethylene, polyethylene, polypropylene – and one of their largest – herbicides, which increased 33% last year.

We can characterize the industry as having a high domestic demand for automotive, construction materials, paper, glass and plastics. Product quality is improving as is technology innovation.

By some estimates, China's chemical industry accounts for 35-40% of the global demand growth for chemicals. For those of you keeping up with China's 11th Five-Year Plan, which maps the direction of future development for the country, China has committed to investing more than 1 trillion Yuan, which is equivalent to over $145 billion dollars, in the coal chemistry segment alone by 2020.

Additional investment plans center on other resource-based industries such as salt chemistry, and more traditional segments such as soda ash, chlorine chemistry and organic chemicals.

Many of China's growth plans – in fact about two-thirds of the total budget allocated in the government's 11th Five-Year Plan – rely on foreign investment from companies like Dow.

Dow already has a presence in China – covering all major market segments. Our bond with China grows stronger every year. That country is a significant contributor to our current success and a key component of our strategic growth agenda.

Dow's history in China goes back nearly 80 years, when we first started selling products and services there in the 1930s. We currently have 8 manufacturing sites, 4 business centers and over 2,000 employees – and growing.

We've invested more than $500 million in the region in recent years and have plans to invest another $400 million. And in 2005, Dow was the first foreign invested enterprise located in a free trade zone to receive an official approval to extend its trading and distribution rights in China.

Most of our focus has been on Zhangjiagang, in the Yangtze River Delta. In that region, we operate world scale plants that produce latex, epoxy resins, polystyrene and other products. Some of our newer facilities will manufacture epichlorohydrin and liquid epoxy resins.

Additionally, an important part of our investment strategy relates to energy.

As you may know, the chemical industry is traditionally a major consumer of energy. Our businesses use energy to convert fuels, feedstocks and salt into chemicals and plastics, and our consumption of both energy and fuels is quite significant. This large demand makes us extremely vulnerable to energy costs.

For its global operations, Dow uses the equivalent of 850,000 barrels of oil every day as fuel and feedstock. This amounts to the daily output of Qatar. And from this total, approximately half is used in Dow's U.S. operations.

In 2002, our total energy costs were $8 billion for the year, and by the end of this year, we will have spent $8 billion per quarter. That's $32 billion by year-end. In the second quarter of this year alone, our energy costs increased by $2.4 billion compared to the same quarter last year. These are the highest increases in Dow's history.

With those kinds of numbers, we absolutely had to develop an aggressive energy strategy by creating a more advantageous situation for ourselves. China has been part of that solution, with its abundance of coal.

We are currently conducting a joint feasibility study with Shenhua Group, China's largest coal producer, to build an integrated manufacturing facility to convert coal to olefins. After the signing of a Cooperation Agreement in May of last year, the study is progressing well and is on track to be completed in 2009.

The complex will use state-of-the-art technology to make use of the abundant coal and salt resources in that area. The success of the project will provide Dow and Shenhua with a new and viable way to produce chemicals.

In another energy play, we recently signed a memorandum of understanding with Dragon Power Company to jointly study the potential and value of biomass waste power generation projects in China. I expect these projects are only the beginning.

Turning to the business side, another development for us in China is the construction of our Dow Center in Shanghai, which will be the business and innovation hub of Dow in China.

Our China Center fundamentally is home to the best people and technologies – all brought together under one roof to enhance our ability to serve China and to a certain extent our Asian customers. We expect people to begin moving into the new China Center by the end of the year.

Part of the Shanghai facility includes a research and development hub that will include over 60 labs that meet the needs of a range of industries including coatings, building & construction, electronics, automotive, and personal care to name just a few. This is a fully integrated R&D center working on cutting edge problems, not merely a tech services lab like so many others have.

And, an IT Center, also part of the Shanghai complex, will provide the technology and integrated systems we need to support Dow's regional and global operations.

I could list several other projects but I'll limit my comments to two more. One is our 2006 acquisition of Zhejiang Omex Environmental Engineering, a premier water treatment and design company based in Huzhou, Zhejiang province, specializing in pure and ultra pure water applications.

Another is Dow's new site in the Shanghai Chemical Industry Park, where we will build two world-class plants. One will be a glycerin-to-epichlorohydrin plant, which will be the largest and most advanced plant of its kind in the world. Incidentally, the technology is based on using glycerin from the production of biodiesel fuel.

The other plant will produce liquid epoxy resins. Together, these new plants will give us enhanced in-market capabilities to support the rapid growth of the market.

Glycerin-to-epichlorohydrin perhaps is a technology that you may not be familiar with but let me tell you why it's exciting. This novel technology generates 10 times less wastewater and consumes 35% less energy than the traditional chlorine-based epichlorohydrin process.

With that, we are going to reduce our environmental footprint and carbon dioxide emissions as well as our cost to produce. The EPI market in China has grown at a rate of about 28% over the past 3 years and is expected to continue at 12% annually. Dow plans to invest in EPI in order to deliver to our customers on a global basis all while demonstrating our commitment to both China and our corporate sustainability goals.

The Liquid Epoxy Resin plant isn't conventional either.  This plant will be the first of its kind to purify the salty water by-product stream so it can be recycled for use as feedstock to the Chlorine facility on site. About 50% of the global liquid epoxy resin capacity is today based in China with a growth rate in demand of over 30% per annum in the past three years.

I think you will see by these examples that Dow has a sizable stake in China. This growth is certainly exciting, and the benefits of being in China far exceed the risks, but we are watching a few issues.

For one, certainly there is work to be done to tame the country's resource-intensive path to development.

China is the biggest emitter of carbon dioxide and will soon be the world's largest consumer of energy. In 2006, the country consumed 32% of the world's steel, 25% of the world's aluminum, 23% of the world's copper and more than 7% of the world's oil. In fact oil consumption jumped 33% just since 2000.

The chemical industry in particular has been addressing environmental challenges throughout its history and we have gotten pretty good at it. In fact a chemical plant today offers one of the safest work environments in the world.

One reason is that leaders in our industry voluntarily stepped forward in the 1980s to participate in the Responsible Care initiative. In 1995, Dow added an interesting twist by setting a series of aggressive, 10-year environmental goals that many people said could never be achieved. In that time, we reduced our injury and illness rate by 84% and improved the number of process safety incidents by 71%.

I should also mention our 2015 Sustainability goals. These next generation goals are even more aggressive, seeking ways to strengthen our relationships within the communities where we operate, continuing to improve our product stewardship and innovation to solve some of the world's most pressing problems, and to reduce our global footprint.

As we grow our business and bring alive our 2015 Sustainability Goals in China, we are focusing as much on our environmental and social performance as on achieving our financial goals.

China's government has high expectations for Dow in China and they assume we will set the standard others will follow.

For its part, in 2007 China's State Council released three plans on energy efficiency and climate change, and is encouraging new environmental and energy-saving technologies in several industries.

We know that policymakers hope to tie energy efficiency and environmental protection to job performance reviews for officials and also to the ability to secure bank loans.

Proposed new energy laws could also boost investment in clean and renewable energy. It's a massive undertaking but it can be done, as we know from experience. We'll have to wait and see how that evolves.

We also continue to look at protection of intellectual property as a differentiator for us in China. Innovation has been a cornerstone of Dow's success and will continue to be critical for the future – and the same is true of China.

China's investment in R&D is now second only to the U.S. Since 1999, China's spending on R&D has increased by an average of more than 20% each year. In 2006, China's research and development spending as a percentage of its economic output has more than doubled.

The country recognizes the fundamental role that innovation will play in its long term success and, I think, sees the importance of helping companies protect their Intellectual Property.

As for us, R&D is a critical component of our growth strategy. With this strategy, we must be able to innovate with confidence that our patents and inventions are protected. Our experience so far has been positive, partly because Chinese authorities are exerting tremendous efforts to address Intellectual Property. Generally, the Chinese government, particularly the Central Government, has made a commitment to address Intellectual Property protection, but enforcement remains a challenge.

Dow has established an IP process that clearly defines the level of knowledge required by different roles within the company, and that limits individual access, beyond that, on a need-to-know basis. We back this with strict Intellectual Property protection and support it with regular dialogue with relevant authorities.

The way we see it, we can't operate effectively without tapping the talents of our people so we choose to be aggressive with IP protection. The alternative is to say, "*I'm going to China and I'm going to put my second best foot forward.*" That attitude dooms you to failure.

In terms of labor relations and human resources, a new labor law is now in effect. We're waiting to hear about new regulations from the Ministry of Labor and Social Security regarding labor contracts and hiring practices, and an anti-monopoly law went into effect in August. Implementation for all of this remains a challenge, since the administration and regulatory details have yet to be defined.  And, all of this is adding on to the cost of doing business.

We're also keeping an eye on inflation in China, and all of Asia for that matter, and on monetary issues that are emerging across the region.

As we maneuver through this extremely promising territory, these are just a few of the issues we're watching. This is just a sampling and quite honestly nothing we wouldn't experience in any other country in the world.

So in conclusion, let me return to my statement from the beginning: *"The world is changing China, but China is also changing the world."*

Transformation is in the air but the fundamentals of success will not change -- sound business decisions based on a good understanding and appreciation of the local culture and the competitive landscape, a healthy approach to risk and most importantly for Dow, a rigorous commitment to science & technology.

We are committed – through chemistry -- to the betterment of global humanity. This commitment drives all of our strategy for growth and profitability – in China and everywhere else in the world where we have operations.

There will always be debate about whether China is moving fast enough or too fast. But, when you consider that the country only embarked on its journey of economic reform 30 years ago, I think we can give it a decent grade for progress.

This is history in the making and China knows it.  We are working together effectively and we believe the future holds great promise.

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