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Chinese economy in a state of transition: the world's manufacturing center is becoming a market of the future

The Chinese economy has reached a crossroads. As economic conditions continue to evolve, the 30-year success story is gradually reaching its limits in some areas. The declining demographic dividend, higher labor costs, environmental problems and the maturity level of many industries are driving a paradigm change which will be unavoidable in the near future. This is already apparent in the chemical industry.

Is it the world economy, or are national factors also involved? The Chinese economy has cooled considerably in 2012. GDP was up "only" 7.8 % during the first six months and a similar scenario is expected for the remainder of the year. Foreign investment is still the major driving force, accounting for nearly 50% of GDP in 2011. Now that some sectors such as the solar industry are showing signs of overcapacity, the government is taking active countermeasures by increasing private spending power. Export growth has slowed considerably. In its latest report released at the beginning of October, ADB (Asian Development Bank) predicts however that China's sound government finances and government stimulus will keep the country relatively stable despite the turbulence in the world economy.

The transition from an investment to a consumer economy is reflected among other things in higher pay levels. According to a study carried out by Boston Consulting, China has lost its labor cost advantage in many areas following annual pay increases of around 16% over the past 10 years. The other side of the coin is a continual increase in domestic demand as incomes rise. Social factors also play a role. A rapidly aging population and increasing affluence have boosted growth in the healthcare sector which has an annual expansion rate of around 20%. Besides nursing homes and hospitals, pharmaceutical and medical equipment companies also find this to be a lucrative market.

Chinese government policy is aimed at transforming the country from a manufacturing center to a hub of high technology and innovation. The current Five Year Plan which runs until 2015 defines 7 key areas:

- Energy savings and environmental protection
- Alternative energy sources
- Alternative propulsion technologies
- New materials
- High-end production
- Next-generation IT
- Biotechnology

Demand for raw materials remains high in China. IEA (International Energy Agency) estimates that China currently needs roughly 9.7 million barrels of oil a day, and the country is highly dependent on imports, particularly of oil and gas. Internal oil production stands at 204 million metric tons compared to 500 million metric tons of imported oil. As a result, efforts are being directed at the exploitation of domestic resources. Coal production acts as a resource base for the chemical industry, and reports of successful shale gas production in the US have generated significant interest in China. The country’s reserves are, however, located much deeper and are often in remote locations. China does not have the necessary production expertise for shale gas. International corporations are currently attempting to form shale gas production partnerships with the Chinese government.

China is also promoting regenerative energy production. The share of non-fossil energy sources in primary energy consumption is expected to rise to 11.4 % by 2015. 604 billion euros have been earmarked for investment in generation capacity and the distribution grid. Non-fossil energy sources include hydroelectricity, wind power, solar energy, biomass and nuclear power. Although per-capita energy consumption is significantly lower compared to the US and Germany, China is nevertheless the world’s largest energy consumer. In addition to new construction of nuclear power stations and a doubling of wind power generation capacity, a significant level of support is being directed at solar power. This policy is not entirely altruistic. Given the crisis in the international solar market, the survival of the domestic industry may well depend on stronger domestic demand. Electricity grid expansion is moving ahead in parallel. Government policy favors smart grid solutions, and a number of pilot projects are underway which are based on the results of the country's own R&D programs.

In the past, biomass has attracted considerable attention as a raw material source, but availability is severely restricted. Land loss in the wake of environmental change

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and urbanization has shifted the emphasis of agricultural production to sustaining the food supply. Only liquid manure and agricultural reside may be used for biogas production. Sufficient quantities of these materials should be available to support 70,000 small and 8,000 large biogas production plants by 2015. According to the industry portal RenewableEnergyWorld.com, 700 million metric tons of rice straw accumulate on farmers' fields in China every year. The 150 metric tons which are burned right on the fields could provide a significant amount of feedstock for energy production. In the field of mobility, China is working on the development of electric vehicles, and biogasoline will also play a major role. The goal in the current Five Year Plan is to double the consumption of bioethanol compared to the previous period. The figure is currently in the region of 1.7 million metric tons per year.

The chemical industry is China's third largest industrial sector after the textile industry and machinery manufacturing. The chemical industry generates 10% of GDP, and China is the second largest consumer of basic chemicals after the US. Due to developments in world markets, there has been a deceleration in growth rates during 2012, but growth is still impressive. According to figures released by gtai (Germany Trade & Invest), production was up 32.3% year-on-year. Exports rose by 31.1%, and imports increased by 21.1%

The structure of the Chinese chemical industry differs significantly from that of the Western industrialized nations. The accounting firm KPMG reports that more than 33,000 companies are active in the industry. According to China Analysis 91 from September 2011, the ten largest companies together have a 21% share of the market. By way of comparison, the five largest corporations in Japan have a 39% market share and the corresponding figure for Germany is 67%. Due to the high level of fragmentation, which also exists within ChemChina Corporation, a large number of companies are unprofitable and there is insufficient integration in the various stages of the value-add and material streams. Consolidation therefore appears to be long overdue. The steel, cement and coal industries have shown how rapidly this can take place. In addition, since September 2011, new projects which involve the production or storage of hazardous substances will only be approved within the boundaries of the industrial parks. This could lead to further concentration of chemical plants at industrial parks and contribute to the creation of integrated sites.

Foreign experts also point out that inequalities exist between Chinese state and private enterprises and foreign companies. These inequalities are most evident in access to raw materials and low-cost financing, according to AT Kearney. Domestic companies also have an advantage with regard to the length of the approval

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process. In addition, the Chinese government encourages state companies to invest outside the country and make acquisitions.

Up to this point, the chemical industry has been primarily concentrated in the coastal and Eastern provinces. In an effort to redress economic disparity within the country, incentives were introduced for the Western provinces, and that produced a “gold rush mentality” (gtai) in some regions. While growth in the coastal regions has come to a virtual standstill, sufficient low-cost labor resources are still available in metropolitan areas such as Chongching and Chengdu. Tax incentives are also being offered to encourage industry to locate in Central and Western China.

China is expanding its downstream capacity in the petrochemical industry, and it is also investing heavily in clean coal technology for the chemical industry. International corporations are also showing an interest. In partnership with Shenhua, Dow Chemical is investing $10 billion in a project in Yulin, and Celanese has plans to build one or more coal ethanol plants based on a new process.

Change is not limited to the raw material mix. There is also movement in the product portfolio. Figures released by the Chinese National Bureau of Statistics indicate that growth in the special chemical sector is roughly three times higher than the industrial average. This sector is heavily fragmented as well. It is, however, high on the government policy agenda, because the products play a significant role in further development of the seven key technologies listed above. Demand for new materials for consumer goods is also driving change, especially as the Chinese government hopes that the resulting modernization of industry will enhance sustainability and environmental protection.

In general, sustainability and environmental factors have become significantly more important in China. The current Five Year Plan, which came into effect in 2011, contains aggressive goals in this regard: a 16% reduction in energy intensity by 2015, a 45% reduction in CO_2 intensity by 2020, lower SOx and NOx emissions, efforts to combat water pollution and a reforestation program are only some of the main items on the policy agenda. Around $500 million have been earmarked for this purpose. As a result, the outlook for the environmental technology market is bright. Annual growth rates are expected to be in the 15% - 20% range.

The water supply is a major priority. A combination of seawater desalination plants and large diversion projects will provide water to the dry Northeast. However, it is not only availability which is causing concern. The water quality figures are also alarming. The Ministry of Land and Resources has rated 57% of the country’s water supplies as poor or very poor. There is need for significant investment. The China

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Water Network mentions a figure of around $420 billion in the current Five Year Plan. This creates opportunities for German suppliers as well. Exports of German pumps, valves, fittings and analysis equipment to China increased substantially in 2011. In contrast, there was a substantial decline in exports of filtration and water purification equipment to China, but demand was firmer for equipment accessories.

The developments in the chemical industry and related sectors are having an impact on the supply base. Imports of instrumentation and control systems are at a record level. In the past the market was dominated by the electronics industry, but gtai is working on the assumption that process automation and environmental technology customers will become an increasingly significant factor.

Summary: China's industrial landscape is in a state of transition. Foreign companies will have to adapt as the situation evolves, but the new developments will create a wealth of opportunities both for investors and suppliers.

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