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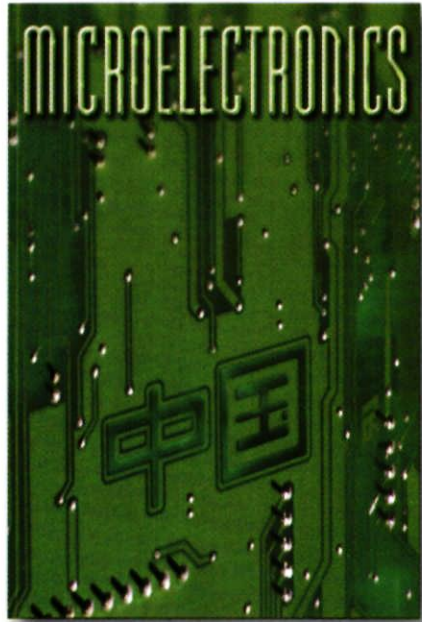
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FOCUS: MICROELECTRONICS

8 **The Microelectronics Industry Crosses a Critical Threshold**

China joins the global industry.

Denis Simon

Plus: A Semiconductor Policy Reconfiguration

22 **China Protects Integrated Circuit Designs**

A new law extends the rights of IC designers.

Jiwen Chen

SPECIAL REPORT: HUMAN RESOURCES

30 **Retaining Chinese Employees**

Human resources departments arm themselves with a variety of tools in the battle to keep prized employees.

Sheila Melvin

*Plus: China's Best Foreign Employers
Recruiting the Right People*

36 **Human Resources and the Transition to Sole Foreign Ownership**

Joint ventures must tackle certain human resources issues before and after making the transition to a wholly foreign-owned enterprise.

Annella M. Heytens

Plus: Cisco Systems China: Lessons Learned

DEPARTMENTS

6 **Letter from the President of the US-China Business Council**

The United States and China: A Post-September 11 Perspective

Robert A. Kapp

26 **Trends and Issues**

TDA: A New Source of US Government Funding

28 **China's Government Structure**

42 **WWW.China**

MOFTEC, China's west, and Chinese-language WTO sites

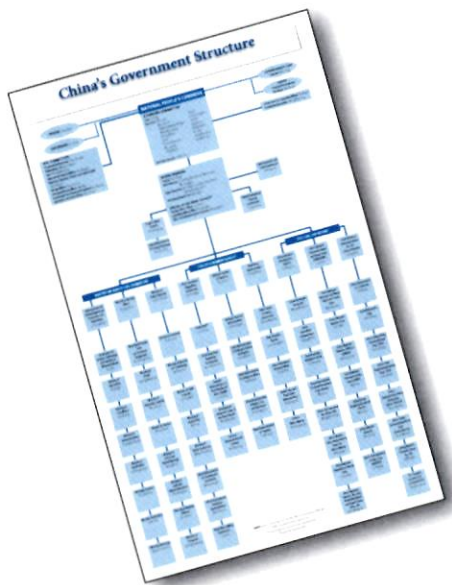
44 **Commentary**

The Green Diesel Initiative

Peter D. Hartzell and Eugenia Katsigris

48 **China Business**

53 **Council Bulletin**



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R E V I E W

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Letter from the editor

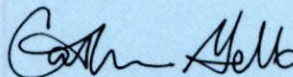
This issue of *The CBR* was a hard one for us to produce. We, like others around the world, were stunned and saddened by the terrorist attacks in New York and here in Washington. Our thoughts are still with the thousands who lost their lives.

Fortunately, none of our friends or families were directly affected by the tragedies. But as residents of the Washington area, we are reminded daily of the events of September 11 and their aftermath. A drive down I-395, just over the Potomac River in Virginia, brings you to within a few hundred yards of the scorched, damaged section of the Pentagon—the gash left in the building's outer ring exposes a cross-section of once-inhabited offices for all to see.

Then, as we began to wrap up the issue, arose the anthrax scare. Again, no one in our offices has been affected, but most of us know someone taking Cipro just in case.

Meanwhile, of course, life—and magazine production—goes on. As Bob Kapp notes in his letter on page 6, the new political and military realities have overshadowed the news that China will soon be a World Trade Organization member. But China's successful integration into the global economy is suddenly even more important to global stability. Denis Simon's thorough survey of the latest developments in China's microelectronics sector reminds us that even as the global economic slump that preceded September 11 deepens, businesses are making long-term investment commitments in China. And Sheila Melvin and Annella Heytens discuss personnel topics that are sure to concern foreign companies in China for years to come.

The context of these discussions may have changed, but the discussions are just as important now as they ever were—if not more so.



Catherine Gelb
Editor

short takes

PRC Eases Migrant Labor Restrictions

Labor shortages have prompted China to ease up on Maoist-era migrant labor restrictions in the coastal provinces. The government has modified the residence registration (*hukou*) system, which is used to control population flows, by allowing some rural residents to enter cities and urban residents to move between cities. Eventually the government plans to eliminate the urban-rural registration divide altogether. By easing restrictions, the Chinese government hopes to achieve a balance between provinces with tight labor markets and those with labor surpluses and move excess agricultural labor to the cities to speed up urbanization.

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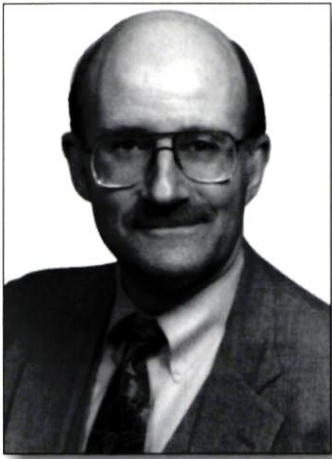
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Robert A. Kapp

The possibility of a more positive rebalancing of each country's popular and official view of the other is now at hand.

LETTER from the President of the US-China Business Council

The United States and China: A Post-September 11 Perspective

In the aftermath of the September 11 horror, getting on with daily affairs is not easy. How can anyone return to business as usual when thousands lie unfound in the wreckage of the World Trade Center and the Pentagon?

In all the punditry that engulfs us, some say "This proves we were right all along; onward with our programs!" Others say, "The world is overturned, permanently; the old road maps are useless. Drop the old priorities; what we face now renders our old preoccupations obsolete."

All in all, at this early point, we can't know just how much of the crockery of our world view has been smashed forever and how much will survive. But already the developments of that September morning are rightly giving us reason to look at our interests from new perspectives.

Let's look, then, at how America viewed China, and how it might now view China, against the background of what exploded upon us on that horrifying September morning.

America the threatened

Franklin D. Roosevelt, confronting the darkening stage of the Great Depression at his first inauguration in 1933, said to the American people:

"So, first of all, let me assert my firm belief that the only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance."

To think that the tide of fear that rolled across America after the terrorist attacks is something new to the American nation would be naive and ahistorical. The United States has known waves of dark foreboding before. A few examples serve to remind:

The Great Depression left its mark on the lives of all who lived through the 1930s, producing a residue of behaviors in our parents and grandparents that youngsters found quaint—an obsession with turning out unneeded electric lights, a tendency to overstock household necessities, an unwillingness to discard the old and acquire the new.

The generation that lived through World War II put its children to bed at night knowing that brothers and fathers and sisters and mothers were struggling far away, in mortal danger, and dreading the "We regret to inform you" message from the War Department.

At the end of the war, we waded through the terrors of military hardware parades in Red Square and the hunt for foreign agents "boring from within" our national government, our universities, and our local school boards. The kids of that era memorized "nuclear blast radius" diagrams and crouched under their desks with their heads between their knees because their elders told them that this could save their lives (the kids suspected otherwise).

The dangers of the 1990s

Sixty years later, as America waded into the post-Cold War era newly crowned the sole remaining superpower and embarked on a decade of vibrant economic success, new worries gnawed at the country. With the information-technology revolution came computer viruses, maliciously planted and capable of paralyzing normal social functions now wholly reliant on technological links. Epidemic diseases, most spectacularly HIV/AIDS, sliced into the population. Tides of immigration, legal and illegal, left some Americans fearful of an inundation of those not rooted in the language and the familiarities of American life. The moment of perceived victory in the Cold War quickly gave way to the realities of gigantic communal, sectarian, and ethnic conflicts within national borders. The globalization of capital, and increasingly of production, like the rise of Japanese industrial power in the 1970s, left many Americans angrily fearful for their economic futures. Notwithstanding the drop in crime rates, incomprehensible acts of violence—school shootings, the Okla-

homa City bombing—left their marks on the national subconscious. Meanwhile, the spread of instantaneous communication provided new avenues for the propagation of allegations, rumors, conspiracy theories, pseudo-military mumbo jumbo, and the “politics of personal destruction.” The 1990s paradox—the simultaneous rise of the *yang* of post-Cold War American confidence and the *yin* of a spreading sense of pervasive danger—was something new, even before the immediacy of terrorist violence exploded in our midst on September 11.

Enter the China threat

One more new site on the American mental map in the 1990s was the “Rise of China.”

Students of China’s past learn that the creation of the American nation at the end of the eighteenth century coincided with the beginning of China’s long slide from imperial splendor to the depths of political and social disorganization in the first half of the twentieth century. Before the 1980s, Americans had never known a world in which China was a powerful state, increasingly prepared to advance its interests in the face of others’ uneasiness and unwilling to be ignored. China’s dramatic performances on the world stage had long been seen as futile exercises in self-deception. As the 1990s dawned and China’s

economy settled into a stable pattern of rapid growth—and as China gained effective diplomatic, economic, and technical skills, including some of America’s own—the Rise of China was added to the growing list of American concerns, especially in certain political and policy quarters.

The American dialogue on China remained contested: Congress and the administration, with help from the American business community, managed to pass the historic permanent Normal Trade Relations legislation in 2001, embracing a broadly positive glass-half-full approach to the PRC on that key trade issue. Since then, though, with China’s accession to the World Trade Organization (WTO) close at hand, the American policy debate regarding China has seemed destined to shift its focus from trade and economics to defense and national security.

The array of arguments in this debate was already becoming clear in the spring and summer of 2001, helped along by the EP-3 crisis of the spring. From one side of the spectrum have come the warning alarms of those whose mission is to awaken Americans to the clear and present danger of a militarily robust and aggressive China, willing and ready to strike at US interests and increasingly animated by popular fury over

Continued on page 27



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The Microelectronics Industry Crosses a Critical Threshold

Denis Simon

After two decades of false starts and of being stifled by international technology-transfer constraints, China's microelectronics industry turned a corner in 2000. In that year, the Chinese government issued a se-

lectronics industry recognize that this lack of investment—more than international export-control restrictions—is the key factor responsible for the slow modernization and growth of the sector. Accordingly, some key PRC officials have come to believe that foreign-invested ventures are the quickest way to improve the IC industry.

Policy changes have sparked new foreign interest in China's integrated circuit businesses

Indeed, some of the world's top foreign chip-makers have already committed to the China market. Advanced Micro Devices, Inc. (AMD) announced in January 2000 that it would set up its first wholly foreign-owned enterprise (WFOE) in Suzhou, Jiangsu Province. Total investment in the project is about \$108 million, with annual production of 50 million units of IC products. Also in 2000, Motorola Inc. announced it would invest ¥16 billion (\$1.9 billion) in Tianjin to build a new IC manufacturing center, including a chip plant and a semiconductor packaging and measurement factory, while Philips Semiconductors launched its first WFOE in Dongguan, Guangdong Province, a semiconductor components measurement and packaging facility.

ries of pragmatic policies to promote the development of the country's microelectronics industry. These policies are closely tied to information technology (IT) development in China and provide a bridge between these two critical technology areas. Adding to this policy momentum in 2000, foreign investors announced or began work on several large microelectronics projects in China worth a total of \$7 billion.

Joining the world market

China has always regarded the microelectronics industry, especially the integrated circuit (IC) segment, as strategically important. The government listed microelectronics as a priority when it formally initiated the "four modernizations" program in the late 1970s. Nevertheless, it has been the weakest link in China's electronics industry. From 1980 to 1999, according to *China Electronics News* (*Zhongguo Dianzi Bao*), a total of ¥25.7 billion (\$3.11 billion) was invested in the country's IC industry. Of this amount, foreign investors provided ¥12.6 billion (\$1.52 billion). These levels lagged woefully behind investments made in Taiwan and South Korea over the same period. Today, officials from within the Chinese

Other large investments were also started in 2000—in November, Shanghai Hongli Semiconductor Manufacturing Co. kicked off construction on a facility slated to produce 8- to 12-inch wafers (see Glossary, p.10). Beijing Xunchuang IC Co., a joint venture with investment from Beijing Electronics Holding Co., Beijing Oriental Electronics Group, Beijing Kingstron Electronics Factory, and Asia Pacific Technology Development Corp., began construction of an IC production line with total investment of \$200 million in December. Also that month, Beijing Huaxia Semiconductor Manufacturing Co., Ltd. announced it would invest in an 8-inch, 0.25-micron production line. All of these projects reflect the growing sophistication and global integration of the Chinese electronics industry. The expanded foreign presence also reflects the changing dynamics of competition and cooperation in the global industry.

Denis Simon
is president of the Beijing-based
Monitor Group (China).

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Glossary

Active elements are electronic components, such as transistors and diodes, that are altered through applied electrical signals (this includes rectification, amplification, and switching).

A **capacitor** is a discrete device capable of storing a charge on two conductors separated by a dielectric (an insulator).

The **central processing unit** (CPU) is the heart of any computer system. The CPU is made up of data registers, computational circuits, the control block, and input/output functions.

A **hybrid microcircuit**, or hybrid, is a customized circuit containing "unpackaged" discrete components, such as ICs, resistors, and capacitors. Hybrid construction saves space and improves performance and reliability, and as such has traditionally been used in military, space, and aviation applications where size, performance, and reliability cannot be compromised.

An **integrated circuit** (IC), sometimes called a chip or microchip, is a semiconductor wafer on which thousands or millions of tiny resistors, capacitors, and transistors are fabricated. ICs are used for a variety of devices, including microprocessors and audio and video equipment. An IC is categorized as either linear (analog) or digital, depending on its intended application.

An **integrated device manufacturer** (IDM) is a single factory that performs the entire set of processes including design, manufacturing, measuring, and packaging.

Packaging refers to the different means used to integrate semiconductor chips into various system boards.

A **resistor** is a device that has resistance to electrical current.

Small-scale integration (SSI) refers to ICs with up to 100 electronic components per chip.

A **transistor** is a three-terminal active semiconductor device that serves as a switch or provides current amplification. It is comprised of a base, emitter, and collector (bipolar transistor) or gate, source, and drain electrodes (field-effect transistor).

Wafers are the slices of semiconductor material (usually silicon) on which ICs are placed. The wafers can be as large as 12 inches in diameter and are cut into hundreds of IC "chips."

Very large scale integration (VLSI) refers to ICs with 100,000 to 1,000,000 electronic components.

SOURCES: Denis Simon, IC Insights Glossary of Terms (www.icinsights.com/links/glossary.html#m%20terms), and Oxford American Dictionary

The so-called "Taiwan factor" is also playing a role in the transformation occurring in China's semiconductor industry. As Taiwan's economy experiences its own restructuring, a large number of key Taiwan-based microelectronics firms have decided to invest in the mainland. One of the most prominent projects is Semiconductor Manufacturing International Corp.'s contract manufacturing facility in Shanghai, which has the capacity to produce 480,000 8-inch wafers at 0.25 microns. Another is Shanghai Grace Semiconductor Manufacturing Corp.'s high-profile \$1.6 billion wafer foundry joint venture involving Winston Wong, son of Wong Yunqing, former CEO of Formosa Plastics, and Jiang Mianheng, son of PRC President Jiang Zemin. Morris Chang, the high-technology guru who turned Taiwan Semiconductor Manufacturing Corp. into one of the world's most successful foundry operations, is reportedly seriously considering establishing a facility on the mainland. These key players from Taiwan bring both extensive expertise and huge capital resources to the table.

A long-term strategy

The output of the global semiconductor industry topped \$200 billion in 2000, of which nearly 90 percent was from the IC sector. China's IC industry grew 42 percent in 2000, producing 5.88 billion units; total sales reached ¥20 billion (\$2.4 billion). According to Cahners In-stat Group, a digital communications research firm, China has the potential to become the third-largest semiconductor producer after the United States and Japan by 2003 and the second-largest IC and semiconductor market after the United States by 2005. By 2005, China hopes to increase IC production to 20 billion units and attain sales revenues of ¥80 billion (\$9.7 billion), or 2 percent of the global market. Such production will meet about 30 percent of domestic demand. By 2010, China anticipates its IC production will reach 50 billion units, with sales revenues of ¥200 billion (\$24.2 billion). At current growth levels, this will constitute roughly 5 percent of the 2010 global market and will meet 50 percent of domestic needs.

For national security reasons, domestic IC enterprises will likely provide key IC products for national defense and related industries such as space and satellites. In fact, some government officials reportedly believe that China should rely more on domestic than foreign investment in developing the sector.

China will require huge amounts of investment, however, to realize these ambitious plans. According to the US-based Semiconductor Industry Association, it takes at least \$200 million to build a 6-inch line; \$1.2 billion to build an 8-inch line; and \$2.5 billion to build a more advanced 12-inch line.

During the Ninth Five-Year Plan (FYP, 1996-2000) period, China invested over ¥10 billion (\$1.2 billion) in the 909 Project, the Chinese government's most concerted initiative to date to develop an advanced semiconductor industry in China. The centerpiece of the 909 Project is Shanghai Huahong NEC Electronics Co., formed in October 1996 to design and produce memory and logic semiconductors using 0.35-0.5 micron technology. Because of the continued restrictions on technology transfer posed by the United States and several other countries, the PRC government picked Japan's NEC Corp. to form the joint venture. The project was finished in late 2000 and although there have been reports that the project is facing financial

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China hopes to increase IC production to 20 billion units and attain sales revenues of ¥80 billion (\$9.7 billion), or 2 percent of the global market, by 2005.

difficulties, it has significantly upgraded the technological levels of the industry in China. China still imports over 70 percent of the IC products it needs, however.

Imports and exports

Imports and exports of Chinese microelectronic products have developed quickly over the past five years. Most Chinese exports are lower-end components involving basic processing and manufacturing techniques. Imports, in general, are much more sophisticated. Imports of hybrid IC products grew at a compound annual rate of 91.7 percent from 1995 to 2000, while the level of exports over the same period rose by 59.9 percent yearly.

Because Chinese microelectronics exports are generally low value-added components, such as

transistors, capacitors, and resistors, they mainly compete on price. Export volumes are therefore sensitive to price changes in the global market. The Asian financial crisis in 1997 caused significant currency devaluation in many Asian economies, which resulted in falling prices for microelectronic products and the subsequent sudden drop in Chinese hybrid IC exports in 1997-98.

In 2000, Chinese IC exports reached 4.67 billion units, up 34.8 percent over 1999, and total IC exports were valued at \$2.1 billion, a 30 percent increase over 1999. State-owned enterprises (SOEs) accounted for \$112 million, roughly 5.3 percent, and foreign-invested enterprises (FIEs) for \$1.99 billion, about 94 percent, of total exports. Only \$66 million fell under the normal, direct-trade category, while \$938 million, or 44

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percent, came under export-processing operations. About \$1 billion, or 48 percent of units, were made mainly from imported materials.

A strategic model of competitiveness

The “diamond model,” created in the early 1980s by Michael Porter, a Harvard Business School professor and co-founder of Monitor Group, can be used to determine the current competitiveness of the Chinese microelectronics industry and to suggest possible steps to enhance this competitiveness (*see* p.15). According to Porter’s model, every nation or region must create an environment that enables and inspires companies to build competitive assets. The model points out four broad attributes or determinants that explain productivity and performance:

● **Factor conditions** Advanced and specialized human resources, technical infrastructure, and other factors of production needed in the industry and the ability to upgrade them continuously.

● **Firm strategy and rivalry** Capable, committed, and fiercely competing local rivals and a government that ensures competition and new investment.

● **Demand conditions** A sophisticated local customer base expecting the latest innovations and the highest quality standards. Local demand should anticipate global trends so that producers can learn, adjust, and ultimately upgrade to compete for the world’s most sophisticated customers.

● **Related and supporting businesses** A group of strong local suppliers and distributors that can contribute to the innovation process. Related businesses can reinforce skills using advanced-process technologies or strategic marketing channels.

These four determinants are self-reinforcing: the effectiveness of the whole diamond depends on how the determinants work as a system, with government and chance influencing the outcome. Using this model, a firm can understand the dynamics in a specific industry. Sustained success results from innovation and improvement within this system. Improving one determinant can help to improve the entire system.

Factor conditions

China has no shortage of knowledge about the global microelectronics industry. Most PRC officials involved in this industry can provide an excellent discourse on current trends in both the business and technology sides of the sector. What the industry lacks, however, is enough qualified people to run it. According to one government estimate, the United States has roughly 400,000 IC designers, while China has fewer than 4,000. By 2010, China will require roughly 300,000 IC design engineers and specialists to support the industry.

Three major reasons account for the insufficient numbers: first, the microelectronics industry is international, and multinational companies recruit talented people worldwide. Because of the significant differences in compensation packages and the complex personnel system in China, many Chinese microelectronics experts have chosen to work abroad. After training at top research universities, such as the Massachusetts Institute of Technology or Stanford University,

The Chinese IC industry has been growing more than 40 percent annually for 10 years, with the most significant improvements in product quality and sophistication occurring over the last two years.

Chinese engineers are lured by exciting opportunities to work in Silicon Valley and other attractive destinations.

Second, Chinese universities are good at training students with strong technical skills, but are weak at teaching production and management skills required by the modern microelectronics industry. Third, China lacks managers qualified to handle the business and financial planning activities needed to drive the industry beyond its modest beginnings to world-class levels (*see The CBR*, May-June 2001, p.38).

Strategy, structure, and rivalry analysis

At present, China has seven core IC production enterprises, a dozen important packaging factories, several dozen design companies, and several manufacturers of key materials and equipment. Last year, total IC production topped 5 billion units and sales revenue topped ¥15 billion (\$1.8 billion). The Chinese IC industry has been growing more than 40 percent annually for 10 years, with the most significant improvements in product quality and sophistication occurring over the last two years. (Interestingly, this was nearly five times GDP growth over the same period.)

Initially, all Chinese IC enterprises tried to be self-reliant. In the jargon of the industry, they followed the integrated device manufacturer format, that is, one single factory performed the entire set of processes including design, manufacturing, measuring, and packaging. Examples of this type of enterprise include Wuxi Huajing Semiconductor Microelectronics Co., Ltd.; Huayue Microelectronics Co., Ltd.; and Shougang NEC Electronics Co., Ltd. Shanghai Beiling Corp. Ltd. does its own design, manufacturing, and measurement, but outsources packaging. A foundry line begun at Shanghai Philips Semiconductor Co. (now Shanghai Xianjin Semiconductor Manufacturing Co., Ltd.) only undertakes manufacturing and some measuring tasks and does not have design and

Table 1
Major IC Production Lines in China

Number of Lines	Type	Company
1	8-inch (0.35 - 0.5 microns)	Shanghai Hua Hong NEC Electronics Co., MOS line
3	6-inch (0.5 - 1.2 microns)	Beijing Shougang NEC Electronics Co., MOS line Shanghai Xianjin Semiconductor Manufacturing Co., Ltd., MOS line Wuxi Huajing Shanghua Semiconductor Co., MOS line
6	5-inch (0.8 - 3 microns)	Shanghai Xianjin Semiconductor Manufacturing Co., Ltd., bipolar line Wuxi Huajing Semiconductor Microelectronics Co., bipolar line Wuxi Huajing Shanghua Semiconductor Co., MOS line Wuxi No.58 Institute, MOS line Shaoxing Huayue Microelectronics Co., bipolar line Beijing Qinghua University, MOS line
15	4-inch	Various companies

SOURCES: *China Electronics News*, 3/27/2001; Monitor Group (China)

NOTE: MOS = metal-oxide semiconductor

packaging capacity. The first true foundry line was China Huajing Electronic Group Corp.'s metal-oxide semiconductor production line, which obtained technology from both Toshiba Corp. and Siemens AG and accepts orders from both domestic and overseas design and manufacturing companies. Shanghai Beiling was the first

The growing presence of key foreign players in the industry throughout the value chain suggests that China will only become further enmeshed in the competitive dynamics of the international microelectronics sector and that domestic competition for scarce resources will increase.

publicly listed company in the Chinese microelectronics industry, listing on the Shanghai Stock Exchange in October 1998.

At the end of 2000, China had 25 major IC production lines, but only two that produced more than 20,000 chips per month: Shanghai Beiling's 4-inch line and Shanghai Xianjin's 5-inch bipolar line. Worldwide, there are 246 4-inch lines, 164 5-inch lines, 287 6-inch lines, 252 8-inch lines, and a few dozen 12-inch lines. Most are 8-inch lines running at 0.18-0.25 microns. Table 1 shows the major Chinese IC production lines.

Table 2
Estimated Chinese IC Market Demand, 2001-03

Year	2001	2002	2003
Quantity (billion ICs)	25.8	30.2	33.4
Revenue (billion RMB)	71	83	94.6

SOURCE: Chinese Semiconductor Industry Association, IC Section, June 2001

Competition in China's IC industry is very much driven by regional rivalries. The government clearly aims to have several key "national champions" that are flag-bearers for the Chinese microelectronics and IT industries in the global marketplace. Though several potential candidates are now on the scene, it is probably too soon to know which firms will become future leaders. One of the major issues China faces as it seeks to stimulate development in this sector is whether it can accept the outcomes of the global marketplace. The growing presence of key foreign players in the industry throughout the value chain suggests that China will only become further enmeshed in the competitive dynamics of the international microelectronics sector and that domestic competition for scarce resources will increase as Shanghai, Beijing, and other cities seek to enhance their attractiveness as sites for design, processing, and manufacture of key components and final products. So far, Shanghai appears to be taking the lead in the race to become the country's first serious microelectronics hub, with much of the new activity occurring in Shanghai's Zhangjiang High-Technology Park.

Domestic demand

Demand in China for IC products promises to keep growing as the economy develops (see Table 2). China ranks number one worldwide in the production of televisions, video cameras, VCD players, telephones, electronic watches, calculators, refrigerators, and air conditioners, among other electronics. China also is a major producer of switches, personal computers, mobile phones, disk drives, monitors, and computer boards. ICs are used in all of these products.

China's rapidly developing telecommunications industry, in particular, promises to be a significant source of demand for IC products in the near future. According to *China Electronics News*, the number of Chinese fixed-line telephone users reached 167 million by mid-2001 and is expected to grow 10 percent each year, while the number of mobile phone users, which is put at more than 120 million, will grow more than 20 percent each year. Internet usage growth, which is slowing down slightly, will nevertheless likely expand 40-50 percent each year for the next three to five years. And China will continue to restructure and upgrade traditional industries.

Another important area of IC demand will be smart cards, which include public telephone IC cards, mobile phone subscriber-identity-module (SIM) cards, and other IC cards used in banking and utilities payment. More than 230 million smart cards were sold in China in 2000, including 120 million phone cards and 42 million SIM cards. Demand will probably exceed 300 million in 2001. Domestic firms are attempting to enhance their design and production capabilities in the face of increasingly intense competition from foreign vendors such as Philips, Gemplus SA,

Motorola, and ST Microelectronics. Shanghai Hua Hong Group, for example, sees the smart card as one of the main drivers behind its entry into design and processing, according to *China Electronics News*. The PRC government has certified more than 15 foreign suppliers via the State IC Card Registration Center.

Cluster analysis

In Porter's "diamond model," the cluster factor refers to the presence or absence in a nation of internationally competitive supplier and related industries. Clearly, the existence or absence of the full complement of microelectronics-related IC activities such as design, packaging, equipment, and component manufacturing is relevant in this regard.

For China, the most controversial aspect of the recent expansion of the country's microelectronics industry is the plethora of foreign companies that have started to invest in the supplier, vendor, and service networks of many of the Global Fortune 500-size microelectronics and telecommunications firms. Specialized companies from the United States and elsewhere that hope to generate business by supporting foreign and domestic customers onsite are filling many of the gaps in China's own domestic industry. One good example is Trident Microsystems Inc., which designs ICs for consumer electronics and multimedia chips for computers. Its Shanghai-based design unit now directly serves key Chinese customers such as Konka Group Co., Ltd.; Changhong Electric Co., Ltd.; and TCL Holdings Co., Ltd.

China's Microelectronics Industry

Government Policy

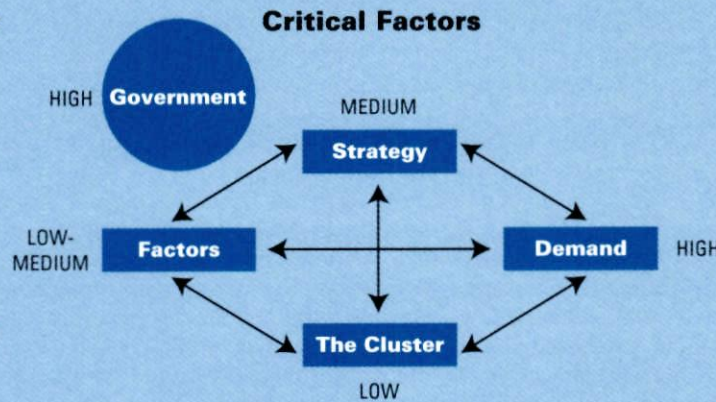
- + Government issued a series of favorable policies to support the industry.
- + Various officials recognize the importance of developing the industry.
- + Government sponsors basic research projects.
- + Several regional development plans are in place and are well funded.

Factor Conditions

- + Cheap labor costs.
- /+ Significant shortage of investment from the PRC government, but foreign investors are showing strong interest.
- /+ Availability of current industry knowledge.
- Capable management and technical personnel are in short supply.
- Inadequate supply of skilled labor.
- Weak banking and financing industries, though some links with foreign capital exist.

Strategy, Structure, and Rivalry

- + Domestic, foreign, and joint-venture players co-exist in the market.
- + China's microelectronics industry grew several times faster than GDP between 1990 and 2000.
- Most manufacturers have not attained real economies of scale.
- The innovative capabilities of most manufacturers are rather weak.
- Brand building and strategic marketing are rare.



The Cluster

- The microelectronics design industry is well behind international standards.
- Most packaging companies are engaged in small-scale operations.
- The technical level of the microelectronics equipment industry is more than 10 years behind international levels.
- The electronics components industry is incapable of producing advanced products to meet domestic demand.

Demand Conditions

- + Strong domestic demand will continue in the future.
- + Consumers are increasingly quality conscious.
- + Exports have developed quickly over the past few years.
- Most export manufacturers still compete on price in the low-end segment.

SOURCE: Monitor Group (China)

NOTE: + = factors advantageous to China's semiconductor industry's development
 - = factors hindering China's semiconductor industry's development

● IC design

Chinese officials are well aware that most IC products used in consumer electronics are designed and produced abroad. Aside from the largest firms, most Chinese design companies are not doing well financially because they lack equipment, personnel, and technical expertise and cannot meet customer requirements. Chi-

According to official planning documents, Beijing and Shanghai will construct a combined 15-20 production lines for wafers of 8 or 12 inches. The total investment required for these production lines will reach \$20 billion. Of this huge investment, 70 to 80 percent will be used to purchase advanced equipment, most of which is unavailable in China.

nese companies have a total annual design capacity of only about 300 types. The highest design capability is 0.25 microns, and mainstream capability is 0.8-1.5 microns. Despite these advances, Chinese IC design companies as a whole still lag significantly behind international standards.

The first important IC design company in China, Huada IC Design Center (formerly Beijing IC Design Center), was formed in 1986. By 1998, fewer than 60 IC design companies had set up operations in China. Today, China has more than 120 IC design companies, centers, and institutes, with a total revenue of more than ¥1 billion (\$121 million) last year. These new firms include WFOEs, joint ventures, private companies, and SOEs. In 2000, only four domestic design companies boasted sales revenue of more than ¥100 million (\$12.1 million): Hangzhou Shilan (a private company), Beijing Huada (an SOE), Wuxi Semico Microelectronics (a shareholding company), and Datang Microelectronics (a listed company under Datang Telecom).

In the 1990s, after Wuxi Shanghua, Shougang NEC, Shanghai Xianjin, Shanghai Beiling, and others began accepting production orders from non-affiliated companies, Chinese design companies developed rapidly and can now be classified into five categories: pure design companies, such as China Huada IC Design Center; design departments of IC enterprises or research institutes, such as Huajing and Shougang NEC; design departments of electronics or communication equipment manufacturers, such as Huawei Technologies, Shanghai Haixin Group, and Nanjing Panda Electronics; design departments of academic institutes, such as Qinghua University, Beijing University, and Fudan University; and for-

eign-invested IC design companies, such as Intel Corp., Motorola, and Seiko Epson Corp. The most recent addition to this group is Integrated Silicon Solution (ISSI), which has confirmed it will set up a \$10.5 million design and R&D center in Shanghai's Zhangjiang High-Tech Park.

In February 2000, the Ministry of Science and Technology established China's first formal industrial base for IC design in Shanghai. With investment from the New Huangpu Group in Shanghai, the base hopes to attract a broad array of design firms so that China can expand its ability to contribute to this section of the semiconductor value chain. By mid-2000, 16 IC design institutes had already moved into the park; some reports suggest as many as 50 design firms are already operating there.

● Packaging

The sales revenues of Chinese IC packaging enterprises exceeded ¥13 billion (\$1.6 billion) last year, with 14 enterprises registering sales revenues of more than ¥100 million (\$12.1 million). Roughly 4.5 billion ICs were packaged last year, but only five enterprises packaged at least 100 million ICs each.

In the Chinese IC packaging industry, domestic companies coexist with foreign ones, and advanced technologies coexist with outdated ones. Currently, China has about 60 major packaging companies and more than 100 small companies. A dozen or so are WFOEs, which generally utilize the latest technology and equipment. These WFOEs target the high end of the market, and include AMD (Suzhou), Dongguan Philips Semiconductor, Intel (Shanghai), Jinpeng Packaging (Shanghai), Matsushita (Suzhou), Motorola (Tianjin), Samsung Electronics Semiconductor (Suzhou), Sanyo Semiconductor (Shekou), Suzhou Shuangyue, and Yiheng Technology (Wuxi).

Some joint ventures have technology from the mid-1990s. These companies target the middle of the market and include Beijing Mitsubishi Stone Integrated Circuits Co. Ltd., Changsha Qunli Integrated Circuit Co. Ltd., Leshan Phoenix Semiconductor Co. Ltd., Nantong Fujitsu Microelectronics Co. Ltd., Shanghai Alphatec Semiconductor Packaging Co. Ltd., Shanghai Kaihong Electronics Co. Ltd., Shanghai Matsushita Semiconductor Co. Ltd., Shanghai Xinkang Semiconductor, Shenzhen SGS-Thomson, Shougang NEC Electronics Co. Ltd., and Wuxi Huazhi Semiconductor Co. Ltd.

WFOEs and joint ventures dominate the high-end product markets. The arrival of firms such as Amkor Technology, Inc. and ChipPac Inc. in Shanghai demonstrate the upgrading that is taking place in the packaging sector of the microelectronics industry. ChipPac, working with Qualcomm Inc., will operate a \$25 million facility to bring ball-grid array and other advanced packaging technologies to China. Amkor, the world's largest merchant supplier of chip-pack-

aging and testing services, will focus on providing packaged ICs for the PRC personal computer, laptop computer, and mobile phone markets. The chip packages will contain static random access memory and flash memories, power controllers, radio frequency power amplifiers, and graphic chip sets.

More than 40 domestic enterprises produce on a small scale. As their technology level is comparable to the international standard of the 1980s, these enterprises target the low end of the market (see Tables 3, 4). Domestic packaging companies account for less than half of the chip packaging market and will continue to do so for the next two to three years. Even given predictions that the size of the overall Chinese semiconductor packaging market will double by 2002, FIEs will likely continue to dominate this aspect of the industry. Faced with fierce competition brought in by these multinational players, many Chinese microelectronics packaging enterprises are restructuring to enhance their competitiveness.

● **Microelectronics industry equipment**

China is still incapable of producing most of the equipment used in an 8-inch IC production line, though it can produce some supplementary machinery. As for 6-inch lines, Chinese firms are technically capable of producing almost all re-

Table 3
China's Packaging Capacity, 2000

	Integrated Circuit		Transistor	
	Capacity (billions)	Percentage of Total Capacity	Capacity (billions)	Percentage of Total Capacity
WFOEs	2.78	41.3%	0.50	2.9%
JVs	2.67	39.7%	8.11	46.7%
Domestic	1.28	19.0%	8.80	50.5%
Total	6.73	100%	17.41	100%

NOTE: WFOEs: wholly foreign-owned enterprises; JVs: joint ventures
SOURCE: *China Electronics News*, 3/30/2001

Table 4
China's Projected Packaging Capacity, 2002

	Integrated Circuit		Transistor	
	Capacity (billions)	Percentage of Total Capacity	Capacity (billions)	Percentage of Total Capacity
WFOEs	8.11	50.5%	3.40	11.0%
JVs	4.78	29.8%	12.11	39.1%
Domestic	3.17	19.7%	15.45	49.9%
Total	16.05	100%	30.96	100%

NOTE: WFOEs: wholly foreign-owned enterprises; JVs: joint ventures
SOURCE: *China Electronics News*, 3/30/2001

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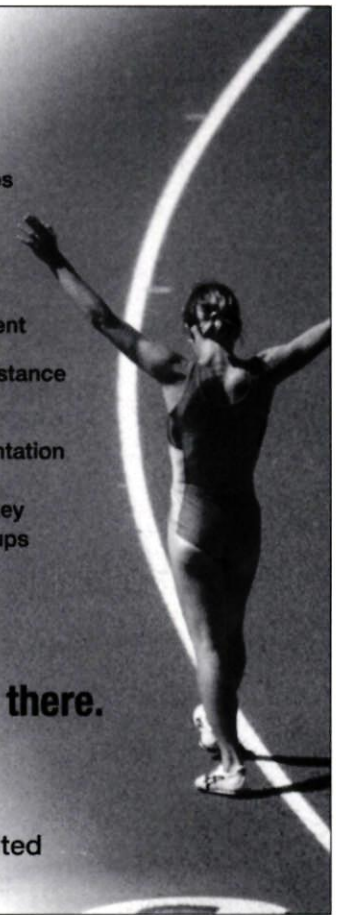
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quired equipment but no one firm is manufacturing enough to be considered a world-class producer.

In the past, China was not a major target market for the top equipment suppliers because of the low volume of chip production inside

In the Chinese IC packaging industry, domestic companies coexist with foreign ones, and advanced technologies coexist with outdated ones. Currently, China has about 60 major packaging companies and more than 100 small companies.

China as well as export-control restrictions. Lately, however, equipment producers have begun to pay much closer attention to the Chinese IC industry because of its growth potential and because many of the previous restrictions on technology transfer have been relaxed over the last two or three years, allowing 8-inch, 0.25-micron technology to come to China. These factors

help to explain the design of Applied Materials, Inc., the world's largest semiconductor equipment and service supplier, to establish a new regional headquarters in China. According to the company's general manager, Applied Materials expects its sales to exceed \$1 billion in three to five years.

Since 2000, the construction of several new IC production lines has started, and several more are being contemplated or are already under contract. According to official planning documents, Beijing and Shanghai will construct a combined 15-20 production lines for wafers of 8 or 12 inches. The total investment required for these production lines will reach \$20 billion. Of this huge investment, 70 to 80 percent will be used to purchase advanced equipment, most of which is unavailable in China.

Industry experts have assessed the market demand for semiconductor equipment in China at roughly \$4 billion. This is a significant jump over previous years, when the number and size of planned projects was much smaller. In 2003, demand will likely increase to \$7 billion, and by 2010 China could be one of the biggest markets in the world for semiconductor and related equipment, with well over \$10 billion in sales.

In the meantime, China will have to import most of the equipment it needs. As noted, Chinese microelectronics equipment manufacturers produce on a very small scale. Even the best company had sales revenue of only ¥276 million (\$33.4 million) in 2000. The total sales revenue of domestic manufacturers of semiconductor equipment in 2000 was a modest ¥170 million (\$20.5 million). These sales met less than 10 percent of domestic demand. Domestic manufacturers provided only 10 percent of the equipment for technology improvement projects with government subsidies approved by SETC in 1999 and 2000.

● Electronics components

Low technology levels, high unit production costs, and small-scale production have long characterized China's electronics components industry, which had total sales revenues of about ¥95.4 billion (\$11.5 billion) in 2000. Production processes at China's 6,093 electronics components companies employ 1.3 million people and are still dependent on outdated equipment and technology. Advanced management systems are generally absent, and the ability to develop new products is limited. For example, 95 percent of Chinese light-emitting diode (LED) manufacturers are actually performing packaging work and must import the core chips. Because of the constraints of technology and equipment, 90 percent of the materials used for the production of 0.35-0.5 micron chips must be imported. Last year, Shanghai Feile Co. Ltd. ranked number one in terms of sales revenue—at only ¥3.2 billion (\$384.3 million).

The top 100 electronics components firms include all five different types of ownership struc-

Table 5
Top 20 IC Makers in China by Output, 2000

Rank	Company	Output (million units)
1	Motorola China Electronics	524.22
2	Shenzhen STS Microelectronics	496.38
3	Nantong Huada Microelectronics	300.20
4	Jiangyin Changjiang Electronics Industry Co.	269.86
5	China Huajing Electronics	258.81
6	Xiamen Fuji Electric Chemical	200.72
7	Hangzhou Youwang Electronics	155.00
8	Ningbo Integrated Circuit Element Factory	117.89
9	Huayue Microelectronics Co.	110.35
10	Shougang-NEC Electronics Co.	49.74
11	Xinwei Electronics Co.	41.36
12	Shanghai Matsushita Semiconductor Co.	23.69
13	Nanjing Semiconductor Device General Factory	16.14
14	Guangdong Xinhui Guifeng Microelectronics Co.	13.97
15	Beijing Dongguang Electronics Factory	8.32
16	Shenzhen Zhenhua Microelectronics Group	7.29
17	China Zhenhua Group Technology Co.	7.29
18	Sichuan No. 6 Meter Factory	6.69
19	Xijing Electric Corp.	3.60
20	Dezhou Hualin Electronics Co.	3.52
TOTAL		2,632.40

SOURCE: *Asia Pulse*, 7/20/2001

tures, with shareholding enterprises and FIEs in the majority. The mean sales revenue of these 100 firms is ¥437 million (\$52.8 million). For comparison, Intel's sales revenue in 2000 was \$26.8 billion, according to a survey by Gartner Inc., a Connecticut-based research and consulting firm, and the top 20 semiconductor companies in the world had sales revenues of over \$2 billion each. The remaining 6,000 or so companies had average sales revenues of only ¥8.6 million (\$1 million)—well below world-class levels. The average

gross profit margin of the top 100 was about 14 percent, but SOEs and collective enterprises had only 9.9 and 10.6 percent gross profit margins, respectively. This is probably due to limited economies of scale and poor management. In contrast, FIEs, which account for more than 50 percent of all PRC electronics exports, excel because they have advanced technology, relationships with overseas parent companies, and an export-processing orientation. Finally, because the companies on this list include only the best per-

A Semiconductor Policy Reconfiguration

In recent years, the Chinese government has introduced policies that reveal its interest in microelectronics development. The essence of the current government position is best captured in remarks made by Vice Premier Wu Bangguo and Ministry of Information Industry (MII) Minister Wu Jichuan at the National Integrated Circuit Work Conference held in mid-September 2001. Emphasizing that the integrated circuit (IC) industry remains a critical bottleneck in the development of China's information industry, the vice premier stressed the urgent need to develop the IC sector. MII's Wu made three key points: First, he noted that that because of the capital- and technology-intensive nature of the IC industry and the huge investments required, local governments must be cautious about duplication and the waste of critical talent and resources; second, that developing the IC industry is more than just chip-making and involves creating necessary design, application, and support capabilities; and third, that China should focus on meeting domestic IC needs, including smart cards, central processing units, telecommunications, and audio and video products.

The MII chief's remarks also echoed a key point he made at a July 2001 seminar on microelectronics and the information technology (IT) sector. Acknowledging the gaps in the capabilities of China's domestic industry, he indicated the Chinese government's willingness to allow a combination of market forces and foreign investment to boost IC industry development. His remarks may be tempered by recent reports that other central government players are reluctant to rely on foreign investment, and would prefer China to develop the necessary technology on its own.

The government has issued several other major policy initiatives that have occurred over the last few years, and more are likely to come. The following is a brief list of the key documents that reflect the change in thinking in Beijing:

● **January 1998** The State Development Planning Commission (SDPC), the State Economic and Trade Commission (SETC), and

MII jointly issued the Guiding Catalogue for Foreign Investment in Industry, which included a new list of "encouraged industries" for foreign investment, and is the major reference guide for government approval of foreign-invested enterprises (FIEs). The "encouraged" list includes the manufacturing of large-scale ICs with line widths less than 0.35 microns used in both consumer and industrial products and the development of specialized materials for the semiconductor industry. According to the new regulations, foreign investors have no shareholding requirements in these two fields.

● **June 1999** The Ministry of Science and Technology (MOST), together with several other departments, issued a document that confirmed that new IC enterprises could seek venture capital and other sources of funding previously off limits.

● **Mid-2000** The State Council promulgated Policies to Encourage the Development of the Software and IC Industries. In the decree, China promised to simplify the approval process for setting up joint-venture or wholly foreign-owned IC enterprises and give the IC industry appropriate intellectual property protection. The policy also reduced the applicable value-added tax to 6 percent, and may soon lower it to 3 percent and phase it out altogether. IC enterprises will enjoy favorable treatment regarding customs duties, other taxes, and foreign exchange controls, which will be introduced gradually over the next 12 months. These incentives apply to both FIEs and Chinese domestic enterprises.

● **July 2000** The government designated the IC industry a high priority in the 863 Plan—the MOST development plan to promote Chinese high-tech industries, products, and projects. The government will fund the research and development of super-large-scale ICs, which are powerful chips used in computers, telecom equipment, and other high-end machines.

● **August 2000** SDPC and SETC jointly issued an updated catalogue of 526 "encouraged" products, technologies, and services for domestic investment. This catalogue is a gov-

ernment reference guide for upgrading China's economic structure and for project investment approval, as well as a reference for Chinese banks evaluating project loans. Included in this list are the design and manufacturing of ICs with line widths less than 1.2 microns, advanced electronic components, and specialized materials and equipment for the production of silicon wafers larger than six inches.

● **March 2001** The Tenth FYP (2001-05), passed by the National People's Congress, acknowledges many of the shortcomings in China's existing industrial structure and stresses the need for China to invest in critical areas of high-tech industry. The plan proposes the construction of a series of key high-tech projects, including a high-speed broadband information network and sub-micron ICs.

The plan also recognizes that deficiencies in the IC and software industries constrain the development of China's information industry and describes IC design as vital. The long-term goal is to develop and produce IC products with China's own intellectual property and to launch the design and development of general ICs, including central processing units. MII also plans to master design technology capabilities for 0.18 micron ICs and commercialize 0.25 micron ICs. MII Vice Minister Lu Xinkui has stated that from 2001-05, the PRC government hopes to invest \$120 billion in the IC industry, which would enable the IT sector to account for 7 percent of the country's GDP.

● **April 2001** The State Council issued an announcement that protects intellectual property in terms of IC layout and design. Effective October 1, the regulations will recognize the commercial importance of protecting the intellectual property derived from the research and design work underlying the development of ICs and be enforced by the State Intellectual Property Office. The regulations aim to assist and nurture new domestic IC design companies as well as to give confidence to foreign companies willing to bring design work to China (see p.22).

—Denis Simon

formers each year, the operating results for the industry as a whole are likely to be much worse.

The impact of WTO entry

The Electronics Industry Alliance calls China "the most promising emerging market" for the US electronics industry. In 2000, US electronics exports to China totaled \$4.2 billion, a 43 percent jump over 1999. US companies also increasingly rely on China as a site for sourcing electronics parts and components that are not produced in the United States; the electronics trade deficit reached \$22 billion in 2000.

The entry of China into the World Trade Organization (WTO) has made US companies optimistic that they will have opportunities not only to export more but also to invest directly in some of the areas of most rapid Chinese economic growth. In particular, when the United States and China concluded their bilateral agreement for eventual WTO membership in November 1999,

China agreed to six requirements that the American semiconductor industry had presented as top priorities: elimination of tariffs by 2002 on semiconductor imports (currently 6-10 percent); trading and distribution rights for foreign firms; de-politicization of buying decisions by SOEs; removal of technology-transfer and export requirements as a condition for foreign investment or market access; adequate protection of intellectual property rights; and continued permission for the United States to use antidumping methodology in trade disputes with China.

Foreign investors should be cautious in their optimism, however, as central government players' opinions about how best to develop China's semiconductor industry seem to be diverging. Though some still see technology import and foreign investment as the best way to promote the industry, others advocate national self-reliance and domestic development of technology. 完

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China Protects Integrated Circuit Designs

Jiwen Chen

This year China, for the first time, conferred expansive intellectual property rights (IPR) protection on integrated circuit (IC) designs. By granting exclusive rights to IC design owners, this timely legislation will help promote the development of China's domestic semiconductor and telecommunications indus-

In a new law, China allows inventors to obtain exclusive rights for their IC designs and outlines a conflict-resolution process

tries and thus encourage foreign investment in these fields. The Regulations for the Protection of the Design of Integrated Circuits (IC Design Regulations) and the Implementation Rules for IC Design Regulations (Implementation Rules), both of which took effect on October 1, 2001, will also move China a step closer to honoring its World Trade Organization (WTO) commitments.

The need for separate legislation

Semiconductor integrated circuits are the foundation of the computer and telecommunications industries throughout the world. Yet China's traditional IPR legal regimes offered inadequate protection for the layout designs of integrated circuits (IC designs). For example, IC designs rarely met the strict standards of patent law, which only protects inventions and ideas that are innovative, inventive (non-obvious), and useful. Drafting proper patent claims in concise language for complex IC designs is difficult, if not impossible. In addition, lengthy patent prosecution procedures clashed with the rapid technological development in the field.

Copyright law is also inadequate because it primarily protects works that express ideas and thus is not well suited to the designs of three-di-

mensional electronic circuitry. Moreover, once IC products are sold, their IC designs are publicly available and not eligible to be protected as trade secrets.

For these reasons, most countries and regions have chosen *sui generis*, or separate and independent, legislation to protect the IPR of IC designs. For example, the United States adopted the Semiconductor Chip Protection Act in 1984 to protect IC design as a new type of IPR. Japan, most European countries, Russia, South Korea, and the Hong Kong Special Administrative Region all adopted similar legislation. Two major multinational agreements later conferred similar protections on IC designs: the 1989 World Intellectual Property Organization Treaty on Intellectual Property in Respect to Integrated Circuits, also referred to as the Washington Treaty (though it has never come into force), and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) in 1994. China's IC Design Regulations and Implementation Rules comply with the Washington Treaty and TRIPS. Nevertheless, it is useful to view the new PRC regulations in the context of China's own IPR protection system and its legal and business environment.

Designs eligible for protection

According to the IC Design Regulations, any inventors that are Chinese natural persons, legal entities, or other organizations have exclusive rights to their IC designs. Foreign natural persons or legal entities that commercially exploit an IC design first within China also have exclusive rights to their designs. Foreign inventors of IC designs that have commercially exploited the design first in another country have exclusive rights to the design only if China has signed bilateral agreements with the respective foreign country or if China and the respective country are members of an international IC design treaty. China currently has not entered into any bilateral IC design treaties with other countries. However, when China joins the WTO it will be bound by TRIPS,

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which will protect IC designs of all WTO members in China if they also satisfy the requirements in China's IC Design Regulations.

The definition of IC design

The IC Design Regulations define an integrated circuit as a semiconductor integrated circuit, namely a product, in an intermediate form or its final form, in which the elements—at least one of which is an active element—and two or more of the interconnections of which are integrally formed in or on a piece of material, and which is intended to perform an electric function. This definition conforms to the language in the Washington Treaty and TRIPS. However, the US Semiconductor Chip Protection Act appears to provide broader protections than do the IC Design Regulations, as the former does not require an active element (*see* Glossary, p.10).

To qualify for protection under the IC Design Regulations, all IC designs must possess originality—that is, they must be the product of the intellectual labor of the inventor and not a standard design generally accepted by IC design inventors and IC manufacturers. If the IC design is a combination of standard designs, the combination as a whole must meet the originality requirement. The scope and definition of “a standard design generally accepted by IC design inventors and integrated circuit manufacturers” remains unclear. Further administrative regulations and rules are expected to shed some light on this issue. Notably, the regulations do not protect ideas, procedures, processes, or mathematical concepts.

Exclusive rights and ownership

IC design inventors have the exclusive right to reproduce the whole or any part of their protected IC design. They can also commercially exploit—import, sell, or otherwise distribute for commercial purposes—their protected IC design itself, or an integrated circuit or article incorporating their protected IC design. Holders of IC designs may also assign their exclusive rights or licenses to other persons.

The exclusive rights to an IC design belong to the IC design inventor except in certain circumstances. If a natural person invents an IC design while under the direction, arrangement, or responsibility of a legal entity or any other organization, the legal entity or organization is the inventor. If two or more natural persons, legal entities, or other organizations jointly invent an IC design, previous agreements between the cooperating persons or parties determine the ownership of exclusive rights. If no previous agreement was reached, or the agreement was not clear, the exclusive rights are shared by the cooperating persons or parties.

If two parties form an entrusted development agreement to develop new IC designs, the exclusive rights of the IC designs are awarded accord-

ing to the agreement. If no agreement was reached or if the stipulation in the agreement is not clear, then the exclusive rights belong to the entrusted party.

Obtaining exclusive rights

The exclusive rights to an IC design must be registered with China's State Intellectual Property Office (SIPO). Unregistered IC designs are not protected in China. The IC Design Regulations and Implementation Rules do not provide a timeframe for the registration process. According to the Implementation Rules, foreign applicants without residence in China must submit

When China joins the WTO it will be bound by TRIPS, which will protect IC designs of all WTO members in China if they also satisfy the requirements in China's IC Design Regulations.

materials through designated patent agencies. Applicants must submit four physical models of the IC design to SIPO if they have already exploited the design commercially. If the design is not yet on the market, applicants may include confidential information in the application and SIPO will protect such information except as required in infringement litigation or administrative proceedings. Confidential information should constitute no more than 50 percent of the entire design.

If the exclusive rights holder transfers exclusive rights to another party, the transferee must also submit IC design assignment contracts to SIPO, which will then publish the recorded assignment. The Implementation Rules require transferors to obtain the approval of relevant departments under the State Council, possibly the Ministry of Science and Technology or the Ministry of Information Industry, if the transferees are foreign persons or entities. The exclusive rights and assignments of the IC design take effect on the date of registration. Applicants must file registration applications for IC designs within two years of the date they first commercially exploit the design anywhere in the world. This is a strict standard, and foreign companies seeking IC design protection in China should be sure to file registration applications with SIPO promptly.

According to the IC Design Regulations, SIPO must register, issue, and publish the registration certificate unless it finds reasonable grounds for rejection upon preliminary examination. If SIPO rejects the application, the applicant has three months to file a reexamination request to the SIPO Board of Patent Reexamination. If the board then rejects the application's argument, the applicant may appeal the decision to an Intermediate People's Court in Beijing.

A person is not guilty of infringement if he or she commercially exploits an integrated circuit or an article without knowing, or having any reasonable grounds to know, that it incorporates an illegally reproduced IC design.

Limitations on exclusive rights

The exclusive rights to IC designs are not absolute, and in certain circumstances the holders of these rights cannot prevent other persons or organizations from exploiting their designs. These restrictions are generally similar to those found in US law and TRIPS.

● **Reverse engineering and prior rights**

The IC Design Regulations do not deem the following actions infringements of exclusive rights: reproducing protected IC designs for individual purposes or for the sole purposes of evaluation, analysis, research, and teaching; creating an original IC design on the basis of the foregoing evaluation of the protected IC design (also known as reverse engineering); and reproducing or exploiting commercially one's own independently created IC design that is identical with the IC design of another person. The last scenario may cause controversy in practice, as it would be hard to prove that a person created his or her own IC design without reference to the IC design(s) of others.

● **First sale**

A person who purchases a protected IC design or an integrated circuit or article that incorporates a protected IC design may exploit it commercially without a license from the exclusive rights holder as long as the exclusive rights holder, or someone with the exclusive rights holder's authorization, has already put it on the market for sale. The exclusive rights are "exhausted" after the first sale. However, it is not clear under Chinese law whether such exhaustion is applicable to first sale abroad. If so, the import of previously exported IC design products will not constitute infringement.

● **Innocent infringement**

A person is not guilty of infringement if he or she commercially exploits an integrated circuit or an article without knowing, or having any reasonable grounds to know, that it incorporates an illegally reproduced IC design. After the dealer or user is notified that the product incorporates an illegally reproduced IC design, he or she may continue to sell goods that remain in stock or were previously ordered. The IC Design Regulations do not specify whether a government agency or the exclusive rights holder should deliver the notice. The dealer or user must, however, pay reasonable royalties to the exclusive rights holder, the amount of which may need to be decided by the courts.

● **Compulsory license**

The IC Design Regulations provide the basis, procedures, and remedies for compulsory licenses, which are of major concern to foreign investors. SIPO may grant a nonvoluntary license to exploit an IC design to a third-party applicant under three circumstances: a national emergency or any extraordinary state of affairs; if it is in the public interest to do so; or if the People's Court or the supervising and inspecting department monitoring unfair competition (the State Administra-

tion for Industry and Commerce [SAIC]) decides that the exclusive rights holder of the IC design is competing unfairly. It remains to be seen how effectively SAIC and SIPO will work together in this process, or if subsequent rulings will clarify the relationship between the two bodies.

According to the IC Regulations, SIPO must notify the exclusive rights holder in a timely manner of any decision concerning a compulsory license and must specify the scope and time of the IC design's exploitation. Such exploitation must be noncommercial and for public purposes, unless the People's Court or SAIC determines that the exclusive rights holder was involved in an act of unfair competition. SIPO will terminate, upon examination, the compulsory license decision at the request of the exclusive rights holder when the conditions for the compulsory license cease to exist.

The natural person, legal entity, or other organization that receives a compulsory license does not enjoy the exclusive right to use the IC design and does not have the right to authorize exploitation by another person. The compulsory licensee must pay reasonable royalties to the exclusive rights holder, the amount of which is determined by consultation between both parties. SIPO will adjudicate if the parties fail to reach an agreement. If the exclusive rights holder is unsatisfied with SIPO's decision in granting the nonvoluntary license, or if the exclusive rights holder or licensee is unsatisfied with the adjudication of royalties, the party may institute legal proceedings in the People's Court within three months of receipt of notification.

Remedies for infringement

The IC Design Regulations outline the legal steps available to parties on either side of an IC design dispute. The regulations designate SIPO as the administrative arbiter in such disputes, though parties may take their cases to the People's Court if necessary. The outlined procedures generally comply with those found in the Washington Treaty and TRIPS, according to which any administrative remedy decisions are subject to judicial review.

● **Preliminary and permanent injunction**

If the exclusive rights holder of an IC design or an interested party has evidence showing that another person is infringing and will inflict irreplaceable damage if not stopped, they may request the People's Court to order the relevant party to stop all infringement and preserve the infringing materials before the exclusive rights holder institutes legal proceedings. Of course, the infringer must permanently stop all related activities if infringement is proven during the trial.

● **Compensation for damages**

Compensation for the infringement of exclusive rights should include any interests sought by the infringer, such as sales income, or losses incurred by the exclusive rights holder, including

the expenses of stopping the infringement (which, though not mentioned specifically, likely includes attorney fees).

● **Seeking remedies**

Interested parties may settle infringement disputes that result from the unauthorized commercial exploitation of an IC design. If the parties are unwilling to consult with each other, or if the consultations fail, interested parties may either institute legal proceedings in the People's Court or request that SIPO handle the matter. SIPO may order the infringer to stop infringing immediately or may confiscate or destroy the infringing products or materials. According to the PRC Administrative Procedure Law, interested parties, if unsatisfied, may institute legal proceedings in the People's Court within 15 days of the receipt of SIPO's notification. If the infringer neither institutes legal proceedings nor stops infringing, SIPO may request compulsory enforcement from the People's Court. SIPO may also, upon request from both interested parties, mediate the amount of compensation. If mediation fails, interested parties may institute legal proceedings against each other in the People's Court according to the PRC Civil Procedure Law.

● **Post-grant revocation**

If SIPO, after granting the registration of an IC design, discovers that the registration does

not conform to the provisions of the IC Design Regulations, it will revoke the registration, notify the exclusive rights holder, and publish the revocation. The exclusive rights holder, if unsatisfied with SIPO's decision, may institute legal pro-

The law seems to compromise the exclusive nature of an IC design holder's rights by stating that an independently invented IC design that is the same as a previously registered IC design is not an infringement.

ceedings in the People's Court against SIPO within three months of receipt of the notification. Notably, the IC Regulations and Implementation Rules do not recognize the rights of third parties, or the public, to participate in the application review process or to challenge the award of exclusive rights during the process. Unless future regulations correct this omission, the People's Court, which lacks the necessary expertise

Continued on page 40

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The US Trade and Development Agency (TDA) signed its first set of grants for Chinese projects in more than 10 years in late July, marking the re-establishment of an important source of US government funds for foreign companies in China.

The outgoing Clinton Administration announced on January 16 that the US government would resume permitting TDA funds to be spent on new activities in China. TDA funds, which support feasibility studies, orientation visits, specialized training, business workshops, and technical assistance, had been restricted for projects in China since 1989, when President George H.W. Bush imposed a number of sanctions after the Tiananmen Square massacre. The Clinton Administration chose to end the TDA ban before leaving office because it was the easiest of the remaining Tiananmen-era sanctions to justify removing, sources said. Citing national interest grounds, the Clinton Administration told House and Senate leaders that the decision to lift the TDA restriction would support the creation of higher paying, export-based jobs in the United States by improving the ability of US exporters to compete in the China market.

What it means for US companies

US renewal of TDA spending authority for projects in China should make a difference to small and medium-sized US firms seeking commercial opportunities in China and could also help boost US exports to the PRC. Before 1989, TDA had obligated about \$24 million for projects in China, and more than \$1.4 billion in US exports had been documented as being associated with those projects. Today, roughly \$15 million is allocated for the Asia-Pacific region, according to Geoffrey Jackson, TDA's regional director for East Asia, of which "China is the biggest component" this year. Jackson commented, "It is arguably the biggest market in terms of need for infrastructure development, so it will likely continue to account for a big component of TDA funding."

Jackson explained TDA's approach to China in a recent interview: "Basically, our China program is not going to be unlike our other programs around the world. However, we decided, because of the size of the country, to take baby steps. We're focusing on the environment, energy, aviation, [and] safety as first areas of concentration. We do work in surface transportation as well—ports, rail

(mostly freight)—but thought that [surface transportation] would be a fourth-tier opportunity....We're trying to identify projects that are of mutual economic benefit, projects where China is lacking the expertise for project preparation work and is seeking outside assistance."

To qualify for TDA assistance, China-related projects must have a positive development impact on and have been identified as a development priority for China; have financial backing for carrying out the project should the feasibility study confirm the project's viability; support US exports of goods and/or services directly; and demonstrate that TDA assistance is necessary (for example, provide evidence that foreign competitors receive subsidies).

Formal green light

TDA Director Thelma Askey and PRC Ministry of Foreign Trade and Economic Cooperation (MOFTEC) Vice Minister Sun Zhenyu formally re-opened TDA activity in China with the signing of the Operating Framework Agreement on July 31. Under the agreement, TDA will work with MOFTEC to examine and approve projects that seek TDA grant money. TDA will continue to rely on the US & Foreign Commercial Service staff in China to help identify US companies interested in TDA assistance.

At the same time, TDA signed four grants for air- and water-quality monitoring, coal liquefaction, and petroleum pollutant monitoring projects. The air- and water-quality monitoring projects—one with the Shanghai Environmental Protection Bureau (EPB) and the other with the Shandong Provincial EPB—are designed to upgrade local environmental monitoring systems and laboratories. US vendors will compete through a bid announced in the *Commerce Business Daily*. The grant for the coal liquefaction project will partner the Shenhua Group Corp. Ltd. with US company Hydrocarbon Technologies, Inc. A fourth grant, for an automatic petroleum pollutant emissions monitoring system, was signed with PetroChina Co. Ltd.

A fifth TDA grant was signed in Beijing on August 16 for \$186,000 in technical assistance for the Shanghai Model Port Project (see *The CBR*, September-October 2001, p.22). The grant will be used to train Shanghai Customs in the use of information technology (IT) procured for the project.

Three additional grants were signed more recently for West-East gas pipeline training, a Changzhou wastewater treatment plant, and a southwest aviation infrastructure project. TDA is expected to sign additional grants for airport development.

TDA anticipates that Beijing's hosting of the Olympics in 2008 will help expand the agency's scope to include IT and telecommunications projects. Beijing's Olympic Committee apparently has already engaged a consultant to evaluate transportation infrastructure needs, including air traffic control.

Upcoming events and other projects

TDA is involved in a number of upcoming bilateral exchanges. The agency is sponsoring, in cooperation with the US Federal Aviation Administration, an aviation conference in China on March 3-5, 2002. The General Administration of Civil Aviation of China (CAAC) will reportedly participate in the conference, which will showcase roughly a dozen Chinese aviation project opportunities and will make available brief profiles of prospective aviation projects in airport development and general aviation. TDA met with a CAAC delegation to the United States in September to discuss airport financing issues. The agency has also expressed interest in developing a closer relationship with CAAC on air-traffic management issues.

Projects related to China's natural gas development dominated a spring 2001 energy definitional mission. Chinese project sponsors are also interested in inexpensive methods of gas transfer.

Tapping into TDA's funds

In a recent discussion with US-China Business Council members, TDA's Jackson detailed a few of the features of TDA assistance:

- TDA is designed to offer technical assistance in areas in which domestic capabilities are lacking. Twenty percent of a grant can be used to purchase domestic goods and services, while 80 percent must be used for purchases from US companies.
- TDA can turn around applications in as little as a week, if needed.
- Project sponsors must be from the PRC and must submit the request for TDA funding. If a US company is working on a deal that involves TDA money, then ultimately the PRC company would have to submit a

request proposal. If, upon preliminary consideration, TDA believes a project to be eligible for funding, it will instruct the PRC project sponsor to submit a notice to MOFTEC and will simultaneously inform MOFTEC. (To make Chinese companies aware of and help them understand the procedure, MOFTEC has posted instructions on the Internet at www.moftec.gov.cn/moftec_cn/dsbgx/america/mg-tda.html.) The TDA liaison is Wang Chao, MOFTEC deputy director general of the Department of American and Oceanic Affairs

(Tel: 8610.6519.8843, 6519.8818;
Fax: 8610.6519.8904;
E-mail: wangchao@moftec.gov.cn).

● US companies interested in keeping abreast of TDA projects that entail competitive bidding should contact TDA on a regular basis. TDA maintains separate internal and public lists, and only a portion of the activities are posted in the "pipeline" part of TDA's website (www.tda.gov). For more information, contact Geoffrey Jackson, regional director for East Asia (gjackson@tda.gov), or Mark Dunn, country manager for China (mdunn@tda.gov).

—Ann Weeks

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LETTER from the President of the US-China Business Council

Continued from page 7

perceived US insults. From the other side of the spectrum have come familiar but powerful calls for economic mobilization against the unimaginable economic threat implicit in China's sheer numbers: lost jobs, lost economic preeminence, a lost future for America's children.

The darkness in Americans' concern with China in recent years, then, has been the outgrowth not only of the visible changes that have taken place within China since Tiananmen, but of an era in which Americans in many walks of life looked with feelings of growing uncertainty at the intrusion of unfamiliar forces into their lives. Without claiming that those whose fears of China popped so urgently into view over the past decade were simply imagining phantoms, we must see that the currency of the China threat was also a manifestation of a national preoccupation with pervasive, often hidden, dangers—a preoccupation that itself went largely unexamined.

China in perspective

It is far too soon to determine where the lethal reality of terrorist violence will come to rest in the fabric of American life, and how that peril will change Americans' perceptions of other dangers. But perhaps we can make a couple of post-September 11 observations about how Americans might deal with the reality of our complex engagement with China.

First of all and most broadly, the nation is not well served by wallowing in a muddy pool of undefined fears. This, I think, is what Roosevelt was saying when he called on Americans to overcome the paralyzing trepidation that the early years of the Depression had spread.

Second, while some web enthusiasts may enjoy cruising through the conspiracy/threat sites, where they can find, linked together by plausible

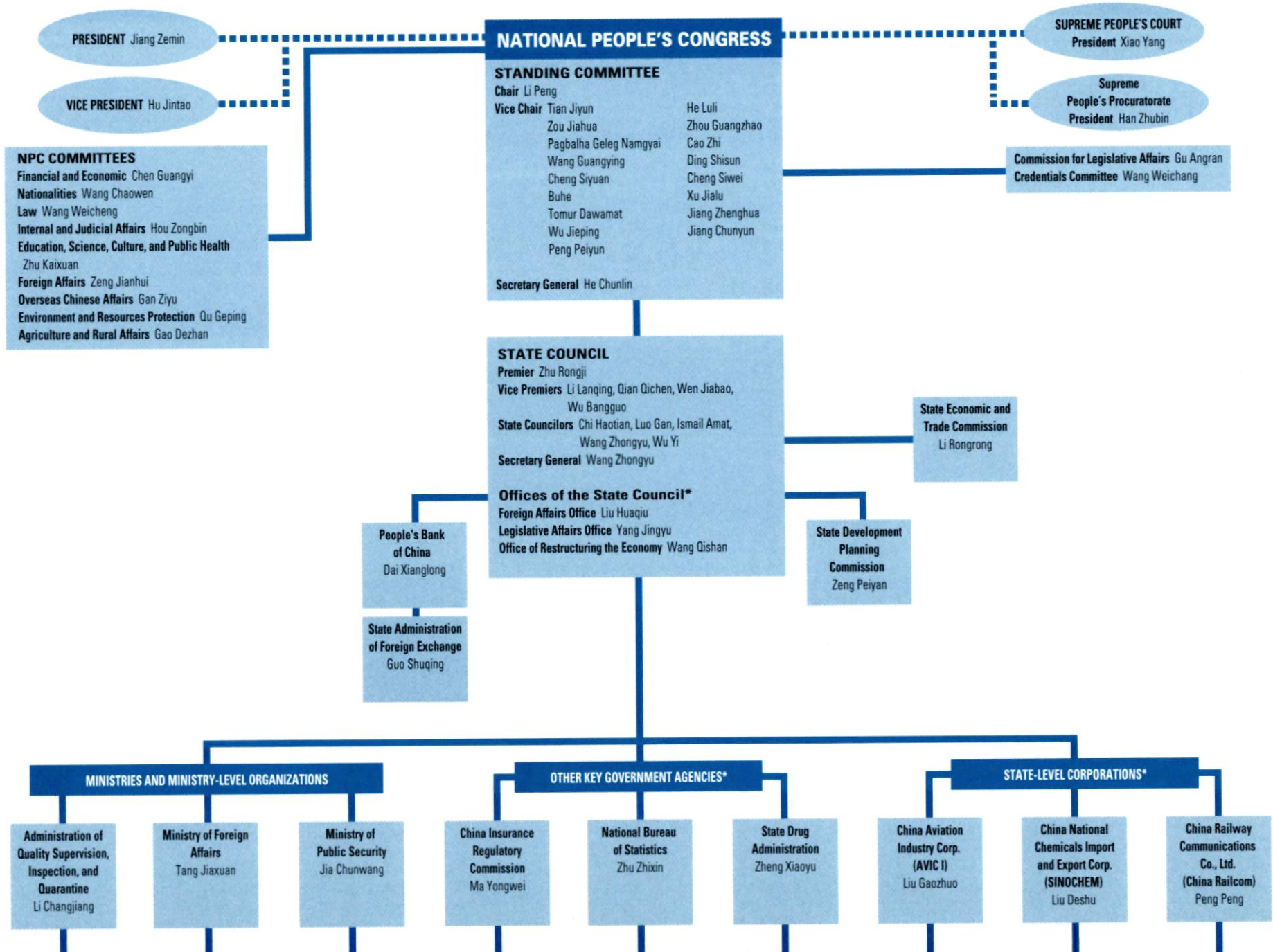
pretensions, the confirmation of their worst nightmares, the nation and its government must establish a reasoned consensus about what threats are more important, immediate, and dire than others.

Third, if we should not bury our heads in the sand with regard to the threats we face, neither should we fail to recognize and act on the opportunities and positive possibilities before us. In the case of China, we have to remember, for example, that in the very week that saw fuel-laden airliners tearing into America's most prominent buildings in an act of ultimate lawlessness, the world's trading nations finalized their agreements with China on PRC entry into the global rules-based trading system, the WTO. Concerns over China's future behavior must also acknowledge the many ways in which China, as a nation seeking to strengthen its domestic institutions and to participate fully in the institutions of global engagement, offers opportunities to the United States.

With the brutal attacks on the World Trade Center and the Pentagon, Americans' sense of insecurity is bound to deepen, at least for a while. Economic decompression won't help, either. The China threat may rise in the hierarchy of American worries, or it may drop. No serious analysis of the future of US-China relations, including analysis by the business community, should pretend that there is nothing even to ponder in the realm of security concerns between the United States and the PRC. Bald predictions that the formation of a global antiterrorist alliance will forever bury the many frictions that have rocked US-China relations since 1989 are premature.

But the possibility of a more positive rebalancing of *each* country's popular and official view of the other is now at hand. That rebalancing, so difficult to achieve and maintain, is nevertheless worth working for. 完

China's Government Structure



Commission for Science, Technology, and Industry for National Defense
Liu Jibin

Ministry of Foreign Trade and Economic Cooperation
Shi Guangsheng

Ministry of Railways
Fu Zhihuan

China Post**
Liu Liqing

National Tourism Administration
He Guangwei

State Family Planning Commission
Zhang Weiqing

China Everbright Group Ltd.
Wang Mingquan

China National Minerals Import and Export Corp.
Miao Gengshu

China Re-insurance Co. (China-Re)
Dai Fengju

Ministry of Agriculture
Du Qinglin

Ministry of Health
Zhang Wenkang

Ministry of Science and Technology
Xu Guanhua

China Securities Regulatory Commission
Zhou Xiaochuan

State Administration for Physical Culture and Sports
Yuan Weimin

State Forestry Bureau
Zhou Shengxian

China Great Wall Industry Corp.
Zhang Xinxia

China National Nuclear Corp.
Li Dingfan

China Resources Corp.
Chen Xinhua

Ministry of Civil Affairs
Doje Cairng

Ministry of Information Industry
Wu Jichuan

Ministry of State Security
Xu Yongyue

General Administration of Civil Aviation of China (CAAC)
Liu Jianfeng

State Administration for Religious Affairs
Ye Xiaowen

State Intellectual Property Office
Jiang Ying

China Huaneng Enterprise Group
Li Xiaopeng

China National Offshore Oil Corp. (CNOOC)
Wei Liucheng

China Shipbuilding Industry (Group) Corp. (CSSI)
Huang Pingtao

Ministry of Communications
Huang Zhendong

Ministry of Justice
Zhang Fusen

Ministry of Supervision
He Yong

Development Research Center of the State Council
Wang Mengkui

State Administration of Radio, Film, and Television
Xu Guangchun

State Press and Publication Administration
Shi Zongyuan

China International Trust and Investment Corp. (Group)
Wang Jun

China National Petroleum & Gas Corp. (CNPC)
Ma Fucui

China State Shipbuilding Industry Corp. (CSSI)
Chen Xiaojin

Ministry of Construction
Yu Zhengsheng

Ministry of Labor and Social Security
Zhang Zuji

Ministry of Water Resources
Wang Shucheng

General Administration of Customs
Mu Xinsheng

State Administration of Taxation
Jin Renqing

Xinhua News Agency
Tian Congming

China Life Insurance Co. (China Life)
Wang Xianzhang

China Ocean Shipping (Group) Co. (COSCO)
Wei Jiafu

China Telecommunications Group Corp. (China Telecom)
Zhou Deqiang

Ministry of Culture
Sun Jiazheng

Ministry of Land and Natural Resources
Tian Fengshan

State Administration for Industry and Commerce
Wang Zhongfu

General Administration of Customs
Mu Xinsheng

State Administration of Taxation
Jin Renqing

China Mobile Telecommunications Corp. Ltd. (China Mobile)
Zhang Ligui

China Netcom Corp. Ltd.
Tian Suning

China United Telecommunications Corp. (China Unicom)
Zhou Weichen

China United Telecommunications Corp. (China Unicom)
Zhou Weichen

Ministry of Education
Chen Zhili

Ministry of National Defense
Chi Haotian

State Environmental Protection Administration
Xie Zhenhua

General Administration of Customs
Mu Xinsheng

State Administration of Taxation
Jin Renqing

China National Automobile Industry Corp.
Chen Xulin

China Petrochemical (Group) Corp. (SINOPEC)
Li Yizhong

China Petrochemical (Group) Corp. (SINOPEC)
Li Yizhong

Jitong Network Communications Co. Ltd.
Qi Mingqu

Ministry of Finance
Xiang Huaicheng

Ministry of Personnel
Zhang Xuezhong

State Ethnic Affairs Commission
Li Dezhu

General Administration of Customs
Mu Xinsheng

State Administration of Taxation
Jin Renqing

China National Cereals, Oils, and Foodstuffs Import and Export Group Corp., Ltd.
Zhou Mingchen

China National Cereals, Oils, and Foodstuffs Import and Export Group Corp., Ltd.
Zhou Mingchen

The People's Insurance Co. of China (PICC)
Tang Yunxiang

The People's Insurance Co. of China (PICC)
Tang Yunxiang

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Retaining Chinese Employees

Sheila Melvin

China's increasingly sophisticated workforce requires a flexible human resources approach

"How do you keep and maintain a stable and qualified workforce?" asked one expatriate general manager, citing his prime concerns for the joint venture he runs. "How can we attract and retain workers with new ideas?"

If these questions are prime concerns for a general manager, they dominate the working lives of human resources (HR) professionals. The three basic tasks of HR managers—recruitment (*see* p.32), retention, and compensation and benefits (C&B)—are as fundamental in China as anywhere. But HR managers in foreign-invested enterprises (FIEs) in China have had to devise creative ways to carry them out to remain competitive in China's tight market for local managerial talent.

Retention in particular is the lynchpin of a company's HR strategy and is crucial to building an effective workforce and a thriving business. It is vital to short- and long-term stability, efficient day-to-day functioning, and the achievement of long-term goals such as localization—the replacement of expatriates with local Chinese managers.

Career development and other concrete retention tools

Career development programs are key retention tools that may seem nebulous but are concrete in any company able to keep its best managers; in a Korn Ferry International study conducted in Beijing in early 2001, it ranked first on local managers' lists of concerns.

"Career development is very important," said one HR manager. "But usually the bigger the organization, the less attention is given to certain personnel. They start to feel neglected. Usually the biggest problem is with mid-level personnel—they are the biggest group you really want to retain."

For many young Chinese managers, career development is a new and alien concept, and both manager and company benefit from regularly investing time and effort in it. The most effective career development plans are tailored to individuals. Just notifying employees that they have a lot of potential and will receive special training and attention is a valuable retention tool in itself.

Successful plans also spell out exactly how employees can fulfill the ambitions the company

has for them. Vague assertions such as "I want you to be regional general manager in two years" won't work, for instance. Instead, the company must tell targeted employees what it will do to support them in attaining such goals. The company must also provide regular feedback, from multiple sources, as to the progress employees are making toward their goals. The goals should be reachable but also challenging. Many HR managers argue that it is better to promote people before they are ready and give them the additional support they need in a new position than to wait until they are past ready, and perhaps getting restless.

Other elements of a sincere career development program for higher-echelon managers are training and overseas assignments. Several HR managers from US multinationals mentioned the HSBC training program as a comprehensive retention model. The program includes 10 weeks of training in Britain for new managers, with follow-up training in Hong Kong over a three-year period. HSBC gives participants bonuses, spread out over a year, after they complete the program and return to China. HSBC also offers these employees the opportunity to borrow money to purchase homes at below-market interest rates.

"This is very good," enthused one HR manager at a US oil company. "Everybody will want to be one of their trainees. It will make them think that the company really cares about them—they won't want to leave."

One US multinational with significant investments in China tracks employees with high potential by periodically evaluating them on the basis of job accomplishment, education, performance, competency, and the like. If they are performing well, they are given a three-month "professional development assignment" in an overseas office. The same multinational runs a second, longer program for promising Chinese managers that involves support for the development of a close working relationship with an expatriate in China and one or two years of work in an overseas office.

Looking ahead, both Watson Wyatt Worldwide and Korn Ferry predict an increase in "personalized" retention efforts that include tailored employment packages, since what will retain different people varies greatly by age, gender, posi-

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This article is adapted from a forthcoming US-China Business Council report on human resources in China.

tion, and personality, among other factors. To keep the packages fair and manageable, companies usually allocate them by grade levels. Executive MBAs are usually the major retention tool that companies give out exclusively on an individual basis. Designing and maintaining such tailored packages takes significant effort, but can save resources in the long run by keeping people with the company.

A look at the package

Last but not least of the tangible retention tools is, of course, financial compensation. The compensation portion of C&B includes salary, bonuses, stock options, incentive schemes, and deferred compensation plans. Competitive compensation is simply an assumed component of both recruitment and retention—to attract and retain the best workers, every company has to be within the same salary range. But competitive financial compensation is an effective retention tool only when used in combination with many other tangible—and intangible—retention techniques. High salary alone is simply not enough to retain employees in the increasingly sophisticated Chinese job market.

A joint venture is likely to offer lower salaries and higher non-cash benefits than a wholly foreign-owned enterprise (WFOE) because of the influence of the Chinese partner, which is accustomed to this compensation structure (see p.36). Indeed, even in a WFOE, the benefits side of the C&B package for Chinese employees is much more than the faithful administration of insurance and other miscellaneous benefits regardless of investment structure. Joint ventures and WFOEs alike have to abide by all the statutory regulations concerning social insurance, whereas representative offices pay the Foreign Enterprise Service Corp. (FESCO) or a similar employment agency, which is then supposed to take care of their employees' social insurance needs.

Companies must clearly articulate each and every C&B package and explain its benefits to recruits and current employees alike. Some HR departments make the mistake of assuming that employees read and understand the various e-mails or notices they send out regarding benefits. In fact, many young people, in particular, are so focused on cash that the mere mention of a pension fund is likely to make their eyes glaze over. A growing number of HR departments thus teach employees about the various aspects of compensation and explain, for instance, how the employee will ultimately benefit more from a total compensation package than from a package that is solely or primarily cash based. These HR departments also explain the company's own reasons for preferring a total compensation philosophy. Some comparison to compensation packages at other companies in the industry is useful as a frame of reference, particularly given the fact that salary and benefits information is widely shared in China. C&B packages are likely

to be complicated and continue to evolve, requiring creativity and responsiveness on the part of their designers and administrators.

Compensation

Some parts of a compensation package are more effective than others in retaining employees.

● **Salary** Salary, of course, is the portion of the compensation package to which employees look first. Salary levels vary substantially by region, company, position, and investment type, but representative office salaries are generally the highest and joint-venture salaries the lowest. Salary surveys are conducted regularly in major cities by management consulting, HR, and other organizations.

Compensation naturally differs from place to place since the cost of living varies so much from a coastal city like Shanghai to an interior city such as Xi'an, Shaanxi Province, not to mention smaller, third-tier cities like Xuzhou, Jiangsu Province. Most companies either abide by the local market when setting salaries or establish a general compensation and pay structure that carves China into first-, second-, and third-tier cities. Under this system, workers in a first-tier city would receive 100 percent of the salary scale while those in a second-tier city would get 80 percent and those in a third-tier city, 60 percent.

One aspect of salary about which it is possible to generalize is salary inflation, the bane of FIEs. Salary inflation ran at nearly 30 percent in the mid-1990s but leveled off considerably during the deflationary period at the end of the decade. Salaries are once again on the rise, however, and companies are likely to be grappling with the trend for the foreseeable future. Watson Wyatt estimates that salary increases in 2001 will hit 7.5-8 percent, much higher than the economy's current inflation rate of 1.2 percent. Indeed, the company's annual salary survey already shows that salaries are up in 2001, with the highest salaries in Beijing, Shanghai, and in Guangzhou and Shenzhen, Guangdong Province. The highest paid positions generally fall into the categories of information technology, sales, marketing, and finance. Staving off salary increases is an uphill battle, one that can be won only through comprehensive benefits, generous incentives, and a work environment that is both challenging and supportive enough that your best employees simply don't want to leave.

A final salary trend worth noting is a move toward decentralized payment decisions that give individual business units more authority and flexibility in determining employee salaries. This more flexible approach is being applied to both direct and variable pay and can be seen as part of the move toward individualizing compensation packages.

● **Bonuses** A movement is currently under way to tie many aspects of compensation to performance as an incentive for employees to meet cer-

China's Best Foreign Employers

Hewitt Associates, in collaboration with Dow Jones publications, recently announced the results of a study ranking China's best employers. With the help of employee opinion surveys and CEO questionnaires, the study identified strategies that enable employers to retain their top personnel. Among the thousands of foreign-invested enterprises in China, the following companies make up the top 10, ranked from first to tenth:

1. The Portman Ritz-Carlton, Shanghai
2. Microsoft (China) Co. Ltd.
3. Roche (China) Ltd.
4. Abbott Laboratories—China
5. ASIMCO (Asian Strategic Investments Corp.)
6. Navion (Shanghai) Software Development Co. Ltd.
7. Anheuser-Busch Asia Inc.
8. Shanghai Hormel Foods Co. Ltd.
9. Amway (China) Co. Ltd.
10. Shangri-La International Hotels & Resorts Ltd.

—Nazihah Hassan

tain goals. Getting employees to accept performance-based compensation has not been easy, since bonuses in the PRC have long been viewed as entitlements rather than as true rewards for in-

“Stock options don’t really work with young people,” explained one HR manager. “Saying we’ll give it to you in five years doesn’t fly. They want options *and* cash.”

dividual or company achievement. As companies gradually ratchet up the percentage of compensation tied to performance, however, employees are adapting. In areas such as sales, bonuses are particularly effective and are sometimes tied to additional incentives, such as even higher bonuses if the sales manager is able to collect cash on delivery. Other companies have introduced bonus schemes to reward employees if they come up with creative ideas to reduce costs, improve safety conditions, or increase efficiency.

● **Stock options** Even before the international markets began their decline last year, most HR managers argued that the jury was still out when

it came to evaluating the effectiveness of stock options. Options were perceived as useful in high-technology firms whose stock prices were skyrocketing. Unsurprisingly, the recent steep declines have been accompanied by a diminished enthusiasm about the value of stock options in retaining employees.

“Stock options don’t really work with young people,” explained one HR manager. “Saying we’ll give it to you in five years doesn’t fly. They want options *and* cash.” Ongoing education about the value of stock options will likely increase their usefulness as a retention tool, particularly in the case of employees who have remained with a company for a few years and have seen the value of their stocks appreciate.

Their efficacy as a retention tool aside, stock options increasingly form part of compensation packages at major multinationals. Corporate policy often dictates who receives stock options; in some companies all employees get options, no matter their level, while in other companies options are reserved for upper-level management. Most companies that give options award them according to position and performance.

Awarding stock options to Chinese employees is complicated since foreign exchange restric-

Recruiting the Right People

Successful recruitment is the base upon which all other human resources (HR) policies and programs depend. Even the most well-thought-out retention programs or generous compensation and benefit policies in the market will bring little benefit to a business unless it has recruited the best employees. Before finding the best staff, however, companies must ask themselves, “Who are the best employees for us?”

This sounds like a simple question, but as many HR managers point out, companies are often so busy searching for the “perfect” candidate that they neglect to consider whether the “perfect” candidate is necessarily best suited for their company or for the position they want to fill.

Foreign companies generally target the same small group of skilled people who speak fluent English, are comfortable around foreigners, and have previous experience in a foreign-invested enterprise (FIE). Candidates with the requisite technical know-how and on-the-job experience are often overlooked if they don’t speak English or have never worked in an FIE environment.

“There is an overemphasis on English and on making me feel comfortable,” said one expat HR manager, who suggested that companies carefully consider how important English language skills and “polish” really are for the job at hand.

Other HR managers pointed out that English is important, but that it is a skill that can be acquired. Soft skills, on the other hand, such as leadership, getting along with colleagues, or the ability to think creatively, are much harder to learn. If a potential manager possesses these soft skills but speaks halting English or wears bad suits, he should not automatically be overlooked.

In other words, the best person for the position may not be the obvious superstar with fluent English and a Harvard MBA, but someone with quieter strengths who will in the end prove more valuable. By considering less-obvious candidates for a particular position, companies may not only improve their odds of hiring the right person, but will also find the pool of potential candidates to be considerably deeper than they had originally thought. The degree to which this approach can be implemented depends in large part on the company’s general and functional managers and to a lesser extent on input from the home office, which may be less willing to work with people who don’t fit the standard mold.

Tips on the hiring process

● **Interviews and references** Any candidate for a management position should be interviewed by all key members of the venture’s leadership team. This enables everyone to determine if the candidate is someone they can work with and

also gives the candidate a sense of his or her potential colleagues and bosses. One US pharmaceutical company puts together panels with 10 to 12 members of the company’s leadership team to interview finalists for management positions. References should be plentiful and must be checked and double-checked, since padding, exaggeration, and outright deception are unfortunately rampant in the PRC job market.

● **Being an “employer of choice”** Watson Wyatt Worldwide argues that companies increasingly need to be seen as “employers of choice.” Such companies offer greater flexibility in scheduling and work arrangements; support for a balance between life and work, such as flextime; sponsorship for health and wellness, such as health club memberships or medical checkups; clearly articulated values; an individualized and decentralized approach to rewards and recognition; and a strong performance focus.

● **Brand attraction** Equally important, but harder to control, is a company’s brand attraction. Big-name companies that have invested considerable capital and are frequently in the press are considered desirable places to work and have an easier time attracting applicants than lesser-known companies with less glamorous images. Companies can improve their brand image through general marketing campaigns in the mass media and through targeted recruitment campaigns, such as on a university campus. However, not all China businesses have the

tions prohibit PRC citizens from owning stocks listed overseas. However, companies have devised ways to issue stock shares to Chinese employees while technically abiding by PRC law. Under most plans—usually called “shadow” or “phantom” stock plans—employees never actually take possession of the stock and do not legally own it. Instead, the company issues employees a letter confirming the number of shares and the prices at which they were issued. The stocks are held in the United States, perhaps by a professional broker. After a specified vesting period, if employees should choose to cash in their options, the company or broker makes the transaction on their behalf and the company gives them the *renminbi* equivalent of profits from the sale. Taxes are deducted before employees receive the money and paid to the local tax bureau at a rate negotiated by the company.

● **Golden handcuffs** Golden handcuffs, or deferred compensation plans, are financial incentives given to employees if they stay with the company for a contractually specified length of time, such as an extra year’s salary after two years of employment. A few companies also extend golden handcuffs to employees who leave to earn an advanced degree at a top international uni-

versity. The reasoning here is that no retention package can compete with a Harvard MBA, and young employees should not be discouraged from pursuing higher education. Rather than try to stop them, companies offer support by

A company that has helped employees obtain mortgages and is paying the interest may require them to repay the interest, plus penalty, if they leave the company before the contract expires.

promising to reimburse their tuition if they return to the company for a specified number of years after completing their degree. This is a relatively new policy at most companies and its effectiveness in bringing people back has yet to be measured. Other companies try to combat the problem of losing valued young managers to overseas study by sending them to school themselves, at established company programs or at universities with which the company has made special arrangements.

funds for such campaigns, or the need for them. If a company suffers from low brand recognition, it must simply work harder at recruiting and at establishing a reputation as a desirable place of employment.

Where to look?

Once a company is ready to go out and recruit—a process that should be ongoing at any large venture—it can pursue numerous avenues. For high-level managers, many FIEs prefer to use executive placement firms that preselect and screen potential candidates on their behalf. Such firms are costly, but can save time and effort, not to mention give firms access to a pool of candidates who may not be actively seeking jobs, or who may wish to be discreet in their search efforts.

A file full of customized profiles of successful employees can prove useful when HR personnel set out to interview candidates. So, too, can networking and referrals for both high- and lower-level employees. Current managers and staff are likely to know what type of employee a company needs, and their recommendations can often be useful. *Compagnie Financière Alcatel*, for instance, offers bonuses ranging from \$300 to \$5,000 to employees who successfully introduce a candidate to the company. Similarly, re-recruiting former employees is a tactic favored by some companies. While the mutual familiarity present in such situations is

certainly an advantage, the new job would presumably have to involve greater responsibility or more challenges to ensure that the former employee stays with the company the second time around.

Some HR professionals also point out that if a company is not actively seeking a new manager but serendipitously encounters someone who seems like a perfect fit, the company should take action. Most businesses hire only when they have an empty chair to fill, but sometimes it is wise to hire exceptional candidates because they are good, available, and will help the company grow, not just because they are immediately needed.

Companies seeking a certain type of employee may target their recruitment efforts to universities or, in the current era of bureaucratic downsizing, government bureaus. University recruiting is generally undertaken by companies who want “blank slates”: talented young men and women with no work experience who can be trained and channeled into higher-level positions. University recruitment can take many forms, including hiring current students as interns, setting up relationships with specific universities, establishing joint research programs, or participating in on-campus career workshops. Some companies target current or former government employees for specific jobs, such as government relations, and hire them for their connections and their understanding of the Chinese bureaucracy and regula-

tory processes. Such recruiting obviously has to be undertaken with delicacy so as not to harm the company’s relationship with the bureaucrat being recruited or to cause offense to his or her colleagues who have been overlooked.

Other common sources for recruitment include job fairs and help-wanted ads in newspapers and online. In a 2000 survey by the Shanghai Human Resources Service Center, 80 percent of respondents said they looked for work at job fairs, 40 percent in classified ads, and 25 percent online. Those searching online tended to be seeking white-collar positions and to have previous work experience in an FIE.

The Foreign Enterprise Service Corp. has long been a recruitment source for representative office employees, among others, and in recent years it has become more active in its efforts to act as an executive placement service. In third-tier cities, local talent centers can also be helpful in finding workers. A final source of talent for management positions are the untold tens of thousands of Chinese working or studying in the United States, as well as those who have already returned to China. Companies targeting Chinese in the United States often work through FIE executive search firms with branches in both China and the United States or through smaller companies that specialize in seeking out Chinese with specific skills who are willing to return to work in their homeland.

—Sheila Melvin

● **Iron handcuffs** Iron handcuffs are punitive fines levied on employees if they leave before their contracts expire. The terms of iron handcuffs are included in labor contracts or in training agreements appended to labor contracts. For instance, a company might require managers embarking on extended overseas training assignments to agree to reimburse the company for the cost of the training should they leave before the contract expires or, in the case of open contracts,

Incentive schemes that work best involve recognition as well as rewards and are tailored to individual preferences. Some HR managers tie the plans to business goals and design them in consultation with the company's business units.

before a specified amount of time. Or, a company that has helped employees obtain mortgages and is paying the interest may require them to repay the interest, plus penalty, if they leave the company before the contract expires.

The enforceability of such agreements used to be a major question but most HR managers report that in cities such as Beijing, Shanghai, and Guangzhou, employees are generally willing to abide by the terms, albeit with a bit of negotiation over, for instance, the amount of time they are given to reimburse funds or pay penalties. "If they refuse to [abide by the terms] you take them to court," explained one HR manager. "But usually they won't do this, they will pay—it will influence their future if they don't."

● **Other incentives** Incentive schemes are generally designed to spur productivity and encourage employees to remain with the company. They may involve cash, savings plans, travel, gift certificates, or in-kind rewards and may be given for anything from exceeding a sales target to coming up with a creative idea to working well as a team member. Incentive schemes that work best involve recognition as well as rewards and are tailored to individual preferences. Some HR managers tie the plans to business goals and design them in consultation with the company's business units.

Benefits

Although employees may not consider benefits to be a significant part of their total compensation, at a joint venture or a WFOE they may add up to as much as 50-70 percent of salary. Benefits are lower at representative offices, partly because their pay scales tend to be higher. At a state-owned enterprise (SOE), on the other hand, non-cash benefits may be triple an employee's cash compensation. Benefits can be divided into two categories: social benefits and commercial benefits.

● **Social benefits** Social benefits consist of government-mandated payments into the government-run social insurance funds that currently include housing, pension, medical, unemployment, accident/disability, and maternity (see *The CBR*, May-June 2001, p.18). Regulations governing these funds, which were started on a local basis in 1995, vary widely from city to city, creating nightmares for HR and payroll divisions. Though the funds were created to alleviate the social welfare burden borne by enterprises, in reality most money for the new funds still comes from enterprises, with FIEs contributing a disproportionately high share. Contributions to the funds are split between employer and employee, with the local government setting the contribution percentages as well as the wage floors and ceilings upon which contribution levels are based. Many localities are phasing in contributions and will raise them in small increments every few years until they reach a final percentage.

In Shanghai, for example, companies and employees each pay a percentage of their salary—with contribution percentages based on 300 percent of the average local wage—into four funds, with 7 percent from each going to housing, 2 percent from each going to medical, and 1 percent from each going to unemployment. Employees in Shanghai currently pay 6 percent into the pension fund; employers pay 25.5 percent. All of the individual's contribution goes into an individual account, which receives 11 percent of the total contribution. The corporate contribution is scheduled to decline as the individual contribution rises to 8 percent. The remainder of the corporate contribution goes into a social pooling fund. Employees' contributions to the funds are deducted from their taxable income.

Pension funds, which place the largest burden on both employers and employees, are supposed to be unified nationwide, and the individual accounts are intended to be transferable should an account holder move to another city. Unification of the many local regulations has proved extremely difficult, however. Also, there is considerable question about the mobility of these funds, which in fact are simply numbers on paper, as the actual contributions are funding payments to today's retirees. As a result, some FIEs in Shanghai supplement pension funds with additional contributions or insurance. For example, one major US company in Shanghai contributes to its employees' pension funds based on their true salaries rather than the 300 percent of average monthly wage that the government requires. This extra contribution—25.5 percent of the difference between 300 percent of average wage and the employee's true salary—goes into the employee's individual account. However, a portion of this difference is actually taken by the Shanghai government and put into the pooled fund rather than the employee's individual account; the government announces the percentage it will take only at year's end.

“They say that if you want to do more for your employees, you have to do more for the government, too,” explained the HR director at the company with this scheme.

This company offers life, accident, and hospitalization insurance to employees as supplementary benefits, with life insurance equal to 52 times the employee’s monthly salary. The firm also provides travel insurance, but only for business trips. Some companies put an additional percentage of the employee’s salary into the housing fund, rather than just the mandated 6 percent.

● **Commercial benefits** HR managers design many commercial benefits perks to retain valued employees. Like compensation, benefits packages for senior managers are complicated and spread out over a period of time to encourage them to stay. Commercial benefits may include housing plans or mortgage assistance, including loans or the payment of interest on bank loans; car plans; additional accident and medical benefits, including partial coverage for one child; supplementary pension plans; child care and elder care; cell phones; health club memberships; extra vacation time; and tuition assistance programs.

Commercial benefits programs tend to change with China’s evolving economy and to follow social trends. Five years ago, purchasing a home was still a difficult enough endeavor that many companies offered extensive housing plans to senior managers, and some even built homes and sold them to employees at highly preferential rates. In the past two years, however, the stock of housing available for purchase in major cities has increased considerably, and banks have begun to make mortgage loans to individual buyers. Housing plans now more frequently take the form of mortgage assistance programs.

Important intangibles

Though all companies grapple with the retention issue using more or less the same set of tools, some are consistently more successful at it. The reasons cannot always be fully explained; one company may lose valued workers even while another retains them with a virtually identical C&B package. The reasons why may have much to do with intangible factors.

● **Identifying retention goals**

At the top of the list of intangibles is how a company defines highly valued employees and subsequently determines its retention goals. Turnover is inevitable; companies that acknowledge this are least likely to suffer seriously when it happens. Indeed, the best way to avoid turnover is by anticipating and planning for it. Rather than trying to keep everyone equally happy, a company must target those employees who are most essential to its current functioning and future growth. While doing everything within reason to retain targeted employees, companies should keep possible successors in the pipeline.

Companies that suffer from high turnover rates should not let the fear that they have become virtual training schools for other FIEs limit development programs that could ultimately help with retention. “There will always be people who leave; that’s life, you have to deal with it,” summed up one HR manager. “You still have to train.”

“The personal relationship of the manager and employee is very important. The sense of loyalty is to the person—the company is nothing, it’s a building. You need to move beyond work, to family. You have to invest some time in getting to know your employees.”

● **Managing employee expectations**

Just as a company must honestly evaluate its own expectations when it comes to retention, so must it manage the expectations of its employees. Though it is important to keep people motivated and enthusiastic, it is equally important to dispel unrealistic expectations for fast promotion or rapidly increasing responsibility. And, just as employees need honest evaluations of their probable paths in the company, so do they need to have a sense of the company’s own growth plans and goals.

The importance that personal relationships play in retention in China should not be underestimated. Indeed, the Korn Ferry study mentioned above found that local managers listed relationships with their bosses second behind career development in a list of factors motivating them, more important even than salary.

As the HR manager of one major US multinational explained it, “The personal relationship of the manager and employee is very important. The sense of loyalty is to the person—the company is nothing, it’s a building. You need to move beyond work, to family. You have to invest some time in getting to know your employees.” This opinion was echoed by another HR director who noted, “Superiors are very important. Most people leave companies because they lose confidence or interest in their boss.”

Employees who feel personally appreciated, respected, and cared for by their superiors are far more likely to stick with a job than those who do not. HR managers repeatedly stress that bosses must strive to show interest in and concern for their employees by asking after their families, organizing and participating in company outings and other social activities, visiting staff when they are sick, and expressing concern in other ways. This personal interest must start from the general manager and radiate down through the

Continued on page 43

Human Resources and the Transition to Sole Foreign Ownership

Annella M. Heytens

A large number of foreign companies opened representative offices and established joint ventures (JVs) during the early 1990s wave of enthusiasm for investing in China. Now that these companies have been in China for the better part of a decade, often with mediocre business results, many are looking to convert their representative offices and JVs to the

before the transition and those that will arise after the formal transition. They also can keep abreast of relevant regulations guiding WFOE labor issues, which are spelled out by the local labor bureaus and vary by location.

Pre-transition issues

A company faces a complicated series of steps in preparing its personnel structure and operations for the transition to a WFOE:

● **Labor agency contracts** One of the first things a company should look at when considering the conversion to a WFOE is the company's existing contract with a labor agency, such as the Foreign Enterprise Service Corp. (FESCO) or China International Intellectech Corp.. China has hundreds of labor agencies, most of which operate locally and are controlled by the government—though some have ties to private Chinese companies.

Companies need to understand all contract terms prior to the transition in case costs are incurred as a result of the contract's termination. For instance, labor agencies generally require advance notice before a contract is terminated. Contracts signed before 1996 or 1997, depending on the agency, often have rigid termination clauses. The standard labor agency contract also usually requires some form of severance payment (typically one month per year of service) to both the labor agency and the employee if the contract is terminated. In certain situations, the severance or termination costs may be waived, particularly if the company opts to continue using the labor agency to administer the WFOE's benefits plans.

A company that decides to continue using the labor agency needs to sign a new contract that defines the new service terms. The new contract should spell out all services—which may include personnel-file maintenance, passport and visa application procedures, social insurance administration, and supplementary insurance services, among others—in as much detail as possible. (Every legally registered Chinese citizen has a

Companies that adopt the wholly foreign-owned enterprise structure occasionally overlook employees' needs

more promising wholly foreign-owned enterprise (WFOE) form.

The WFOE structure has several advantages over that of the JV. The absence of a Chinese partner minimizes the need for large amounts of registered capital and allows for total foreign control over management. It also provides numerous tax and customs duty benefits to the investor, particularly if products are to be exported. In 1997, the WFOE replaced the JV as China's most popular foreign investment vehicle in terms of both value of new projects and investment. In 2000, China approved 6,481 WFOE contracts with a total of \$15.9 billion in contracted capital and 5,401 JV contracts with a total of \$11.7 billion in contracted capital, according to the Ministry of Foreign Trade and Economic Cooperation.

When foreign-invested companies decide to upgrade from representative offices or JVs to WFOEs, they often explore the above business issues at the expense of the human resources implications. Foreign companies can avoid the delays and unplanned costs associated with human resources problems by allocating staff to this dimension of the transition. This staff can then distinguish between issues that must be handled

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personnel file, which includes birth, school, work, criminal, and other records. Only government administrators are permitted to view the files, which they reportedly review on a regular basis and during registration or application procedures, including those for social insurance.) Many companies choose to sign short-term contracts with labor agencies to leave themselves open to better offers in the future.

● **Direct employment contracts** A WFOE has the right to bypass labor agencies entirely and hire its employees directly under a company employment contract. Most companies allow employees to remain officially employed by labor agencies if they choose not to be directly hired. In contrast, representative offices may not directly hire employees, and JVs rarely do so because the Chinese partners are usually responsible for hiring employees.

If they choose the direct employment option, WFOEs must pay special attention to the drafting of new employment contracts. The local government labor bureaus have a standard contract that they urge companies to use. Fortunately, WFOEs have the option of drafting employment contracts that are more suitable to their needs than these standard contracts. Local labor lawyers agree that many of the clauses in the standard labor contracts are not actually contained in the labor law and hence may be eliminated or altered. For example, companies can dictate the number of vacation days for employees even though standard labor contracts specify the number of days. In the past, companies were reluctant to make any changes to the standard labor contracts out of fear that they would not hold up in cases of dispute. They have since found that regular consultation with labor bu-

reau officials can help avoid this problem. They have also found it useful to register contracts with the local labor bureau as part of the pre-transition process, even though this is not required before—or even after—the transition.

● **Registration with authorities** Companies are required to register with the district labor bureau, the statistics department of the labor bureau, the social security bureau (the local outpost of the Ministry of Labor and Social Security), and the municipal housing fund.

A WFOE has the right to bypass labor agencies entirely and hire its employees directly under a company employment contract.

These registrations must be completed in all cities in which the company will establish a WFOE or branch.

● **Explaining the direct hiring process** Foreign representative offices or JVs often take for granted that employees want to be directly hired by the new WFOE. Unfortunately, this is not always the situation, as Cisco Systems, Inc. discovered when it established a WFOE in 1999 (see p.38). Before moving ahead with the conversion, the company should take an informal poll of the employees who may work in the WFOE. The company should then manage separately any employees with special circumstances so as not to slow down the transition process. For instance, employees who do not sign new direct contracts can be hired as contract or temporary employees but will be unable to participate in the new WFOE's benefits and other programs.

Mandatory Social Insurance Contributions in Major Cities (per month)

Social Insurance	Beijing	Shanghai	Guangzhou, Guangdong Province	Shenzhen, Guangdong Province
Pension	19% of 300% of last year's city average earning (CAE)	22.5% of the employee's average monthly salary last year	21% of 300% of last year's CAE	12% of 300% of last year's CAE
Work-Related Injury	0.3%-1.9% of the employee's average monthly salary last year	None	0.5% of the employee's average monthly salary last year	1% of last year's CAE
Health	10% of 300% of last year's CAE	12% of 300% of last year's CAE	None	7% of 300% of last year's CAE
Maternity	None	None	0.7% of 300% of last year's CAE	None
Housing	10% of the employee's average monthly salary last year	15%-20% of the employee's average monthly salary last year	8% of the employee's average monthly salary last year	13% of 300% of last year's CAE
Unemployment	1.5% of the employee's average monthly salary last year	2% of the employee's average monthly salary last year	2% of 300% of last year's CAE	1% of 100% of last year's CAE
Disability Fund (Incurred only if the company does not hire disabled workers.)	None	1.6% of the employee's average monthly salary last year	None	None

SOURCE: Beijing Foreign Enterprise Service Corp., September 2001

NOTE: Implementation tends to vary by locality and may or may not follow regulations exactly.

● **Mandatory benefits costs** Representative offices and JVs that use labor agencies must pay the agency a management fee ranging from \$120-\$200 per employee per month. Included in the management fee is the cost of an employee's benefits plan, including both mandatory employer contributions to social insurance and supplementary benefits such as medical plans (see Table). Though the management fee appears to be quite high, it does not even cover all the costs of mandatory social insurance. These labor agencies generally contribute less than the required amount of social insurance: regulations dictate that they contribute based on 300 percent of the

city average earning (CAE) of the previous year, or in some locations, the employee's average monthly salary for the previous year. Instead, most contribute based on only 100-200 percent of CAE. For example, Beijing's CAE in 2000 was ¥1,300 (\$157). The pension contribution for an employee earning ¥5,000 (\$604) per month is ¥1,300 x 300% x 19% (the percentage contribution to the pension fund), or ¥741 (\$90). The labor agencies contribute based on only one to two times the CAE, or ¥247-¥494 (\$30-\$60).

WFOEs must pay additional fees equal to 17.5 percent of an employee's salary. These costs are broken down into an education fee, a trade

Cisco Systems China: Lessons Learned

To expand its existing operations rapidly, Cisco Systems China decided in 1999 to convert its five representative and liaison offices in China (Beijing; Shanghai; Guangzhou, Guangdong Province; Chengdu, Sichuan Province; and Wuhan, Hubei Province) into a wholly foreign-owned enterprise (WFOE) and branches. During the transition process, the company learned some valuable lessons that other foreign firms would do well to keep in mind.

1 Do not assume that all employees want to be hired directly

Cisco assumed incorrectly that all local employees would welcome the chance to work directly for the company—after all, as employees of labor agencies the local Cisco staff did not have benefits that Cisco offers its employees around the world, such as worldwide medical assistance or business travel accident insurance coverage. Though more than 90 percent of the workforce was happy to make the change, Cisco soon discovered that some employees did not want to shift their employment status. Some of the employees had outstanding loans from the labor agency or a past employer, and others had incomplete residency (*hukou*) status. In some cases, the employees' original work units (*danwei*) had not released their personnel files, meaning that their earlier employment status had not changed. Other employees, because of the original labor agency's inattention, had incomplete or unusable personnel files, thereby making their employment status questionable. (Every legally registered Chinese citizen has a personnel file, which includes birth, school, work, criminal, and other records.)

To avoid this situation, companies should poll employees up front about the transition as soon as management has made the decision.

Companies should try to understand the issues that employees may raise and manage these exceptions. It only takes a few employees to bog down the transition.

2 Set a deadline for employees to sign the new employment contract

Cisco's transition was delayed in two locations because some employees did not sign their new employment contracts, which are required as part of the direct employment process, in a timely manner. When converting into a WFOE, a company should set a deadline for the signing of this contract, allowing enough time for review by employees who are on vacation or traveling. If an employee does not sign the contract within the assigned period, the company should give the employee a final notice or find out why he or she is unable to sign the contract. If the employee still does not sign the contract, decide immediately whether the company wants to keep the employee or change his or her status to that of a contract employee so as not to delay the whole process.

3 Make future job offers contingent on the employees sorting out their personnel file situations

Though Cisco's transition proceeded on schedule, some employees were unable to resolve their employment status by the time the company had completed the transition. To avoid this, companies should ask employees to work on their personnel files before they are directly hired by the new WFOE. Human resources staff and the benefits administrator will have smaller workloads if the company requires employees to fix their personnel files before offering them jobs in the new WFOE. Once employees start a new job, they are less likely to address problems with their files.

4 Prepare to oversee service quality of the local labor agency

Cisco selected one nationwide labor agency to administer its mandatory and supplemental benefits plans, primarily to enhance customer service and to streamline the process of benefits administration. Cisco's human resources department is lean and therefore wanted to outsource this low-value work to an outside provider. Cisco soon discovered that its own corporate approach to human resources was far more service-oriented than that of the selected provider. Cisco's human resources staff spent many hours working on improving the interface between its employees and the labor agency. To prevent this problem, companies should assign a full-time human resources associate to handle transition issues early in the process.

5 Do not underestimate the amount of work required for the transition process

Cisco realized during the transition that it needed to hire a full-time employee to coordinate the company's benefits plans. The company found that consolidating employees' files into one labor agency was long and tedious and that additional effort from human resources staff was required to ensure that the transition was completed quickly. If a company does not decide to use a single provider, as Cisco did, then additional help from the human resources staff will be necessary to coordinate the various transition processes.

—Charles Kuan, John Liang,
and Annella M. Heytens

Charles Kuan and John Liang are human resources managers at Cisco Systems China.

union fee, and a welfare fund fee totaling 1.5 percent, 2 percent, and 14 percent, respectively, of the employee's previous year's average monthly salary. While these costs need not be registered monthly on a company's profit and loss statement as an expense, they must be included in a balance sheet account on a monthly basis and spent by the end of the year. Companies may offset existing costs, such as training expenses, health spending, and company activities, against these costs—once they have obtained approval from the tax and social insurance authorities.

● **Supplementary benefits costs** The benefits plans that labor agencies provide for representative offices and JVs are typically less generous than the benefits provided by WFOEs that manage their own plans. Labor agency plans are not tailored to a company's needs, offer less flexibility in the selection of insurance vendors, and often include sub-standard benefit levels. Therefore, a company converting into a WFOE typically designs a new benefits plan that is competitive with those of companies in its labor market segment. Such supplementary plans usually include housing, retirement, medical, life, total permanent disability, and accidental death and dismemberment insurance. The cost of this new plan should be taken into consideration when planning the transition process and selecting the appropriate insurance vendor. Any insurance contract the company signs should probably be short term, because of the expected future proliferation of insurance JVs with foreign carriers and the rapid evolution of the insurance market generally.

● **Administrative costs** Part of the management fee that a representative office pays to a labor agency covers the cost of administering the employee's mandatory and supplementary benefits, payroll, personnel-related costs, and personnel-file management. A WFOE should forecast the cost of administering such a company-sponsored benefits program should it decide to employ staff directly. The new plans can be administered in-house or can be outsourced to one of the labor agencies. In-house administration of the plan has the advantage of preserving the confidentiality of the WFOE's payroll information.

If a WFOE decides to outsource, it should consider several factors when evaluating which labor agency or benefits administrator to use. The first consideration is the labor agency's ability to service the company in the cities in which it operates. A national provider makes the process and contracts easier to negotiate. The WFOE should also understand the costs and types of services it requires. Administration costs range from ¥50 (\$6) to ¥400 (\$48) per month per employee depending on the level of service. Lower levels of service generally involve only file management while the top levels include admin-

istration of mandatory and supplementary benefits, travel assistance, and additional third-party insurance such as life and accidental death and dismemberment. Finally, the WFOE should investigate the labor agency's reputation and service quality thoroughly.

In recent years, particularly in Shanghai, the social security bureau has been conducting random audits of multinational companies, especially WFOEs, to determine if the companies have been paying the required social insurance. The fine for noncompliance is a steep 0.2 percent of the amount owed per day.

● **Compensation costs** In general, representative offices pay higher cash salaries to employees than do WFOEs—largely because they offer fewer benefits. Companies that are converting to a WFOE thus sometimes reduce salary increases during that year in order to afford a new benefits program. This also allows existing cash compensation to adjust to WFOE levels.

● **Explaining the new plans to staff** After devoting resources and energy to setting up a new benefits program, the WFOE must be sure to communicate the plan's features to employees clearly. These sessions also serve as opportunities to answer any questions employees may have about the program and to ensure that employees fully understand and appreciate the newly implemented plans.

Post-transition issues

To facilitate a smooth transition process, foreign companies must pay attention to a number of issues in addition to those surrounding the labor contract:

● **Payments to the local social security bureau and the municipal housing fund** Hiring a labor agency to administer mandatory and supplementary benefits minimizes the number of steps the company must take to register all employees. The labor agency will assist the company with opening individual employee accounts for pension, housing, and other benefits. The labor agency will submit the changes in the employee census and calculate the amounts due to the social security bureau and municipal housing fund and the monthly withholding from an employee's salary.

● **Personnel file transfer** If a WFOE asks a labor agency to keep personnel files, the employees are usually asked to sign forms authorizing the labor agency to transfer the files. The social security bureau requires that an authorized agent hold the personnel files and that the em-

employees have the appropriate residency (*hukou*) status when making the necessary payments—primarily their mandatory pension contributions. If employees have problems with their files then the company must address the problems. For example, if employees do not have a *hukou* in the city in which they are employed, the company may want to pay their social insurance contributions in the city where the employee is registered.

● **Statutory audits** In recent years, particularly in Shanghai, the social security bureau has been conducting random audits of multinational companies, especially WFOEs, to determine if the companies have been paying the required social insurance. The fine for noncompliance is a steep 0.2 percent of the amount owed per day. Many representative offices have failed to comply with social insurance payment requirements—sometimes unintentionally. Companies are not always aware that labor agencies do not include the full required government contributions in their fees, as mentioned above. In the past, companies were able to use ignorance as an excuse for noncompliance; this is no longer the case.

● **Administrator and benefits provider performance** China's labor agencies and insurance

carriers today are not necessarily equipped with the technology to provide adequate customer service to multinational corporations. These providers are often slow and inefficient in filing and processing claims, non-transparent in disapproving claims, and inadequately staffed to handle customer inquiries. Companies should therefore monitor these service providers and be prepared to change providers if necessary.

A delicate balance

To be successful as a WFOE in China, a company must devote time and effort to addressing human resources issues during and after the transition process. Unfortunately, the costs associated with employee benefits will undoubtedly increase when a representative office or JV becomes a WFOE. These costs can be offset, however, by the improvements in employee satisfaction, loyalty, and economic security that result when a company assumes direct responsibility for employing its workers and controlling their benefits. In fact, these potential strategic advantages can be important factors in a company's decision about whether to establish a WFOE in China in the first place. 完

China Protects Integrated Circuit Designs

Continued from page 25

and resources, will need to address any careless examination work done by SIPO.

Gaps remain

Though the IC Design Regulations, as China's first administrative legislation to protect IC designs, will undoubtedly benefit the country's high-technology industry, they are not perfect. The regulations lack detailed provisions on standards and timing in the examination of IC design registration applications. As mentioned, the regulations also do not adequately define what constitutes a "generally accepted standard design"—which is ineligible for protection. In addition, the law seems to compromise the exclusive nature of an IC design holder's rights by stating that an independently invented IC design that is the same as a previously registered IC design is not an infringement. The regulations include no requirement for labeling IC designs with markings to notify the public that this IC design is exclusively owned by the registered owner. Finally, the regulations fail to state whether customs protections are available for IC designs and products. SIPO is expected to clarify

these outstanding uncertainties in future practice with future implementation rules.

Foreign companies that are contemplating an investment in China's semiconductor industry should draft a comprehensive contract to address issues left unresolved in the IC Design Regulations and its Implementing Rules. For example, in foundry contracts, well-drafted disclaimers and indemnification clauses are necessary to avoid infringement liabilities.

Investors will also find it necessary to keep in mind the protections provided by other Chinese intellectual property laws for IC design and related products. The common wisdom that calls for developing a comprehensive multilayered IPR protection strategy remains the best way to protect IC design products in the Chinese market effectively. For example, different aspects of semiconductor IC products are protected by IC design, trademark, copyright, and even patent laws. Perhaps more important, the enforcement of these intellectual property rights is still subject to the broader legal and business environment in China. Continued communication and engagement with enforcement agencies and local governments are still the keys to IPR protection in China. 完

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The redesigned website for the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) includes a range of new information, from ministerial background and policy papers to press releases and statistics. The site posts links to local foreign-investment offices, chambers of commerce, and foreign trade organizations. The most useful section of this free site is a searchable database of MOFTEC laws and regulations in English dating from 1949 to 1999.

www.chinawest.gov.cn/english/index.htm

This free website, run by the State Council Office of the Leading Group for Western Region Development, includes an updated list of investment project opportunities for foreign firms throughout the 12 provinces, autonomous regions, and municipalities in China's western region. The site also includes extensive economic, industrial, and general information about the regions. Current government policy summaries and development plans are available. The site also collects news from the PRC press on current projects.

www.chamber.org.hk/wto

The Hong Kong Chamber of Commerce's "WTO Corner" features recent World Trade Organization (WTO) news, largely taken from PRC sources and organized by industrial sector. The site also offers research reports written by the Chamber of Commerce and PRC and Western online and media sources, free of charge. Visitors can find a calendar of conferences and other events sponsored by the Chamber of Commerce and a number of WTO-related links. The site notes that plans are under way to establish a forum for small and medium-sized businesses.

<http://europa.eu.int/comm/trade/bilateral/china/china.htm>

This European Commission website offers information on bilateral trade with China. The site posts press releases and articles on past and current trade negotiations, including highlights of the EU-China bilateral trade agreement signed in 2000. Visitors can also link to the official site of the European Commission in China (www.ecd.org.cn), which contains more recent EU-China trade statistics, posts the EU-China newsletter, and lists a number of EU-China cooperation projects. Both sites are free of charge but contain a fair amount of outdated information.

www.drc.gov.cn/e/index.htm

The English-language website for the PRC Development Research Center (DRC) of the State Council offers general background information on the DRC and its leaders, including brief summaries of each branch of the organization. Most useful is the database of several hundred research abstracts dating back to 1999. Complete texts of the studies, as well as books and the DRC journal, are available only by purchase from DRC.

www.economist.com/countries/China

The Economist's China Briefing website collects past articles from the publication and from a variety of other online media sources and provides a series of background pieces on various aspects of the country. Particularly useful is the analysis of China's political forces and the monthly political and economic forecast briefing. Some articles are available only to *Economist* subscribers, and all visitors must pay for full versions of the reports.

www.ynet.com/bjtoday/

Beijing Today is a weekly English publication launched by the *Beijing Youth Daily* in May 2001. Articles cover everything from vacation ideas to housing tips, but most issues focus on business deals and urban development in the Beijing area. Articles are free and arranged by topic.

SITES IN CHINESE

www.wtochinese.com

This privately run, nonprofit website is a good source of information on China's WTO entry and its possible impacts on various industries within China. All articles are free and are excerpted from newspapers, magazines, books, and other websites in China. The site includes a timeline of WTO-entry negotiations, summaries of WTO rules, and the full text of the bilateral market-access agreements with the United States and the European Union. The site plans to provide intermediary services to small and medium-sized enterprises that want to enter the international market.

www.cacs.gov.cn

Run by the Antidumping and Antisubsidy Office of the State Economic and Trade Commission, this website posts recent information on antidumping lawsuits filed by and against China, including a number of case studies. The site also provides tips to Chinese enterprises on how to avoid antidumping lawsuits. Available free of charge is recent information on China's WTO accession, the full text of 10th Five-Year Plan reports by various industries, and a number of trade laws (some of which include English versions).

www.wto-tbt.gov.cn

This website, run by the State Administration of Quality Supervision Inspection and Quarantine, provides background information on the WTO Agreement on Technical Barriers to Trade, related agreements and notifications, and Chinese and international standards databases. The free site also posts PRC technical regulations and conformity assessment procedures, including system and product certification, lab accreditation, and environmental and safety labeling. The English version of the site lacks many of these features.

www.wtoinfo.net.cn

The WTO Information Inquiry Center, run by the China Institute of Reform and Development in Hainan Island, is the 95th WTO inquiry center established in the world with help of the WTO. The center provides information on WTO regulations and news relating to WTO activities and China's entry into the organization. The center's database contains official WTO statistics and documents. The center provides fee-based consulting services to Chinese enterprises.

www.shanghai.gov.cn

Launched in September, this website brings together all of the existing sites run by the Shanghai Municipal Government and serves as the city's main resource for municipal services and information. City residents can use the site at no charge to apply for business and household registration permits, locate information on government services, and access government policies and regulations.

—Dennis Chen, Dong Ke,
Naziha Hassan, and Drake Weisert

Retaining Chinese Employees

Continued from page 35

various levels of management. Naturally, the more genuine the interest and concern, the more effective it is likely to be, but even just going through the motions is better than ignoring this basic desire to humanize a corporate relationship.

● Welcoming newcomers

One of the most important elements in a company's retention strategy is a commitment to ensure that the newcomers feel welcome. "Companies should pay more attention to bringing people into the organization," says Helen Tantau of Korn Ferry. "It's like a guest coming to your home, you need to take care of them from the beginning. Help them settle in, find their feet, see where they are going."

The FIE environment is demanding for all concerned, but the effort it takes to integrate new employees—especially managers—into the company will be worthwhile in the long run. A smooth start and a thorough introduction to the workings and goals of the company can help make new employees feel like valued team members, encourage them in their work, and build their loyalty to their new company.

Some retention tools straddle the line between tangible and intangible. These include autonomy, empowerment, recognition, and credit. Upper-level managers are far more likely to stay if they are given the independence they need to make a mark and if they receive public recognition for their successes. Firms should also make clear to everyone that top-level Chinese managers will have the opportunity to move on to senior management positions; if a glass ceiling seems to exist, with all of the top positions staffed by expatriates, the turnover rate is likely to be higher. One way of making the possibility of promotion clear is to identify high-potential employees and put them on an ac-

celerated career track. Another, of course, is to staff top positions with local managers.

Measuring effectiveness

One aspect of retention policy that should be tangible—but often isn't—is the success or failure of various retention tools. Most companies can quote their turnover rate in an instant, but have a much harder time explaining why turnover continues at that rate or how retention tactics affect it. Since companies invest a considerable amount of time and money in retention tools, an analysis of their effectiveness is certainly worth the effort.

Of course, when conducting an analysis, companies must consider such factors as the age of their workforce and the structure of the company. FIEs that hire a large percentage of recent college graduates will inevitably have a higher turnover rate than those that employ more people in their 30s or 40s. Similarly, FIEs that have flat organizations in China will have higher turnover rates than those that have deeper hierarchies and more opportunities for promotion.

HR bread and butter

For the near future, China will suffer a dearth of educated, experienced, and self-motivated men and women capable of managing in a global economy. Competition to hire managers with the most desirable qualifications therefore will remain stiff, with pervasive poaching, salary inflation, and localization efforts hobbled by problems with recruitment and retention. While China's impending WTO entry will eventually benefit HR development, in the short term the arrival of new foreign companies into the China market will likely heighten rivalry among FIEs to attract and retain talented and experienced managers. Finding, retaining, compensating, and training workers will thus still be the bread-and-butter work of most HR departments in foreign firms in China. 完

The Green Diesel Initiative

Peter D. Hartzell and Eugenia Katsigris

A case study of an effective coalition that could become a model for future interaction with the Chinese government

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Local government policymakers in several Chinese cities, under pressure to clean up vehicle emissions, began targeting and in some cases outlawing diesel vehicles in early 2000. But the technology-specific regulations that the governments of Beijing; Dalian, Liaoning Province; Qingdao, Shandong Province; Shanghai; and Xiamen, Fujian Province, issued or proposed failed to take relative emissions levels into consideration. This meant that a clean diesel engine with emissions equal to Euro 2, or the emissions level of European diesel vehicles in 2001, might be prohibited, while a spark ignition (gasoline, natural gas, or liquid petroleum gas) engine with higher emissions levels could remain on the road. Further, the authorities announced the changes in the regulations with little or no prior notice, and in some instances—as in the case of gasoline passenger cars—even retroactively. This process is in sharp contrast to the approach in many other countries where emissions regulations are agreed upon years before implementation to give industry time to prepare for compliance.

As foreign investors are well aware, this kind of sudden policy change is all too common in China. Bold new government programs are launched without prior notice. Agencies and departments are suddenly formed, reorganized, or closed. These problems are only compounded by the tension, and at times outright rivalry, between the central and provincial governments.

To counter this opaque, unpredictable regulatory environment, some foreign companies in China have joined together to express their concerns about specific issues to the Chinese government. The Green Diesel Initiative is an example of one such effort. The initiative, a coalition of nine foreign engine and auto manufacturers from three different countries—Robert Bosch GmbH, Caterpillar Inc., Cummins Inc., DaimlerChrysler, Dana Corp., Isuzu Motors Ltd., Scania Truck, Volvo Truck, and Valvoline Co.—formed in 2000 to educate the government on technical issues, to advocate for the revision of the new antiodiesel regulations, and to help China establish effective future vehicle-emissions regulations.

The development of a new model

In the past, foreign businesses in China have taken several approaches to addressing sudden government policy changes. One popular method has been for companies to work through their respective trade associations, national chambers of commerce, or embassies in China. This method has met with notable success, particularly when concerning high-profile and cross-sector issues, such as World Trade Organization (WTO) negotiations. But these routes are nation-specific and can, as a result, lack the leverage of multilateral representation or an industry-specific focus. Accordingly, these organizations have recognized the need for more issues-based initiatives and cross-national representation and have participated in and even helped to organize such efforts. The US Embassy in Beijing, for example, facilitated the incubation stage of a multilateral anticounterfeiting coalition.

Another approach that foreign businesses have found to be effective in some cases is lobbying as an independent company using a public relations firm or other agent to help push a cause or issue. The extremely strong connections (*guanxi*) that can result from this approach can translate into favorable treatment for the company over competitors, particularly in the case of project bidding. Well-known examples of this approach include MTU Friedrichshafen, the marine and industrial engine division of DaimlerChrysler, which has had success in the PRC military vessel market, and Wartsila Corp., the Finnish medium-speed engine maker, which has come to dominate China Ocean Shipping Co. business for propulsion engines.

Foreign companies in China, as in any other country in the world, will always find it important to foster strong relationships with key ministries and officials. Yet relationships may become less effective in the future at making the working and regulatory environments in China more predictable. In particular, the WTO will scrutinize China's special treatment agreements closely. Also, as more competitors gain footholds in the Chinese market, quiet bilateral agreements may be more difficult to arrange.

A third approach to influencing policy in China has been the use of the foreign media to apply pressure on an agency with regard to an issue. But some foreign companies worry that publicizing a problem could cause the Chinese counterpart to lose face which, the companies fear, might sour valuable relationships.

Foreign industry associations have operated in China for years. Complementing their efforts in recent years have been these China-based coalitions of foreign companies formed for the sole purpose of addressing China-specific issues. Examples include, in addition to the Green Diesel Initiative, the Quality Brands Protection Committee (an anticounterfeiting coalition); the E-Commerce China Forum; a holding company interest group; and an international, cross-industry coalition that successfully lobbied against PRC regulations requiring registration of encryption software. Though no two of these coalitions are alike, many share a number of characteristics. First, by definition, the coalitions are multicompany and most are also multinational. Also, the coalitions tend to be more issue- than industry-focused. In some cases, a third party has helped manage the coalition.

Green Diesel Initiative

The Green Diesel Initiative grew out of the China Auto Forum, a more general, loose group of about 20 foreign auto firms that meets monthly for breakfast discussions. While the auto forum is informal and lacks funding or officers, each member company of the initiative provides substantial funding (over \$40,000 per company during the first year), and the group has elected two chairs.

The Green Diesel Initiative developed the general goal for its first year of educating key officials and decisionmakers across China about the benefits of modern, clean diesels. Its second year has focused more on one-on-one meetings with specific, higher-level decisionmakers.

The initiative's approach combines media-directed efforts, technical seminars, and high-level meetings with the Chinese government. Members of representative companies play an active role in the coalition under the coordination of Automotive Resources Asia Ltd. (ARA). ARA facilitates meetings, proposes and leads marketing communications initiatives, tracks local regulatory proposals, and coordinates with the initiative's co-chairs to lead decisionmaking among the members, among other activities.

The initiative distributed three editions of its newsletter to more than 5,000 industry and government-related contacts in 2000, and launched a website, www.green-diesel.com. The group organized four technical seminars in major cities for 500 PRC government, technical institute, and media participants. Press releases and interviews resulted in more than 500 published articles.

Members of the Green Diesel Initiative believe that these efforts were instrumental in speeding up local governments' alteration of their diesel policies in 2000. At the central level, the State Development Planning Commission (SDPC) criticized the banning of diesel in certain cities and the State Environmental Protection Administration (SEPA) issued an amendment to the Air Pollution Prevention and Control Law that requires local governments to obtain special State Council approval before issuing their own emissions regulations. Also, the China Association of Auto Manufacturers—formerly part of the State Ad-

The Green Diesel Initiative grew out of the China Auto Forum, a loose group of about 20 foreign auto firms that meets monthly for breakfast discussions.

ministration of Machine Industry—submitted a letter to the State Council urging the government to adopt policies to support the development and application of modern diesels. At the local level, the Shanghai Municipal Government rescinded its proposed diesel-discriminatory regulations while the Beijing Municipal Government began to discuss the option of clean diesels. The Guangzhou, Guangdong Province, government also began developing plans to introduce high-quality diesel engines.

In the second year, as an indication of the coalition's success, Scania Truck and Valvoline joined the initiative, as did the China Society of Automotive Engineers. In October 2001 the group conducted a benchmarking visit to Germany. The initiative targeted top government officials from four Chinese cities known for their awareness of environmental issues—Beijing, Dalian, Qingdao, and Xiamen—and invited them to meet with their German counterparts to discuss common concerns about environmental economics, clean air, and regulatory drafting and enforcement.

Why Green Diesel worked

The recent success of this coalition may be due to the sophisticated relationship that has developed between foreign companies and the government over the last decade. For example, the coalition has approached the Chinese government less aggressively than it would have the US or a European government. To ensure that its activities did not rub the government or local industry the wrong way, the group launched the education phase of its objective first. Only after nearly a year of educational programming did the advocacy part of the initiative come into play, and only then at the request of SEPA, which asked the coalition to put forward specific policy recommendations.

This request from Chinese policymakers for input from foreign industry was important to the success of the initiative. As a result of reductions in government staffing since 1998, many government officials today lack access to much-needed data and have had difficulty managing their workloads. Some have expressed a desire for research organizations and other groups to provide relevant information in manageable formats that include specific policy recommendations. In some cases officials have appeared unfamiliar with the policymaking process and have welcomed informal training or exchange in this area.

Pitfalls avoided

Once the green diesel coalition formed its membership concept, financing mechanism, decisionmaking process, and strategy, it needed to

The Chinese policymaking process still often fails to accommodate industry input in many areas—despite recent progress in the area of transparency, such as the government's ever-more-frequent circulation of draft laws among foreign and domestic outside legal advisers.

address a number of potential problems that face such groups. For example, the Chinese policymaking process still often fails to accommodate industry input in many areas—despite recent progress in the area of transparency, such as the government's ever-more-frequent circulation of draft laws among foreign and domestic outside legal advisers. Fortunately SEPA was open to industry input.

The Green Diesel Initiative also addressed the conflicting objectives and competition among participating companies. One Western diplomat in Beijing noted that the “divide and conquer” strategy is often the downfall of such groups, with the government “going out of its way to strike individual deals with individual companies,” while the group as a whole pursues standardization. The diplomat explained that while the chair or chief operating officer of a company may be steadfast in calling for legislation, the chief representatives based in Beijing are often subject first and foremost to sales pressures, and will pursue individual deals or exceptions and “back off” from coalition participation once they cut their deals. The Green Diesel Initiative instituted a rule that prohibits individual members from visiting members of the Chinese government alone, and chose the co-chair organizational structure to ensure that no one person or company dominates.

Coalitions may also present problems in terms of cost and complexity of coordination. As mentioned, the green diesel group chose to out-

source coordination and much of implementation, financed by contributions from participating companies. Coalitions may find it difficult to isolate and measure results. Although the Green Diesel Initiative saw measurable policy changes in its first year of existence, it is difficult to say to what extent these policy changes resulted from the coalition's activities. To help measure goals, Mitchell Presnick, vice president of Edelman PR Worldwide and vice chair of the American Chamber of Commerce in China, suggests that coalitions develop goals with a timeline. These should include general goals, such as raising the profile of an issue with the government, and specific goals, such as having a meeting with a particular official and obtaining press coverage. Sometimes it is difficult to know why the general objective was achieved; this is why specific, measurable results are important in justifying the coalition's continued existence.

While free riders are a problem intrinsic to coalitions, they were not a problem for the green diesel group. Presnick notes that this may have been because “major industry players will want to be in the room when objectives are being set.”

Inclusion of Chinese companies

The Green Diesel Initiative, along with several of its counterparts, has chosen not to include Chinese companies despite the strength these companies would seemingly offer the coalition. One major reason for this decision is that in fact, local and international companies have conflicting interests. For example, the international companies had the goals of achieving predictable, enforceable regulations, with the lower the emissions standard, the better. Though both local and foreign groups wanted diesel to remain a technology option, the stringent regulations the international companies preferred would hurt local competitors, who were unequipped to meet those emissions levels. Chinese companies also were either unable to afford the expense of hiring a third-party coordinator or did not view such an investment as worthwhile.

An approach whose time has come

The dynamic, uncertain, and opaque nature of the Chinese business environment will likely persist for the foreseeable future, despite the gradual opening that WTO entry should bring. Companies can mitigate the risks of this environment by working together on specific issues. Such cooperation can help improve understanding of the decisionmaking process in China—from the timing of decisions to identifying the agencies involved—and can, in some cases, affect this process. Even if future efforts take a different form than the coalitions that have emerged to date, the phenomenon clearly signals the start of a new phase in which foreign companies are able to communicate their interests to the Chinese government effectively through cooperative initiatives. 完

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China Business

Sales and Investment

JULY 16 – SEPTEMBER 15, 2001

Compiled by Dong Ke

The following tables contain recent press reports of business contracts and negotiations exclusive of those listed in previous issues. For the most part, the accuracy of these reports is not independently confirmed by *The CBR*. Contracts denominated in foreign currencies are converted into US dollars at the most recent monthly rate quoted in the International Monetary Fund's *International Financial Statistics*.

Firms whose sales and other business arrangements with China do not normally appear in press reports may have them published in *The CBR* by sending the information to the attention of the editor.

Advertising and Public Relations

INVESTMENTS IN CHINA

China Media Network Ltd., a subsidiary of ADV Group Ltd. (Australia); Tom.Centro Ltd., a subsidiary of Tom.com Ltd. (Hong Kong)

Will form an advertising company focusing on outdoor advertisement in China. (Australia:38%-PRC:62%). \$10.47 million. 8/01.

OTHER

Tom.com Ltd. (Hong Kong)/Chinese Gymnastic Association

Will be responsible for the advertising, marketing, and commercial activities of the Chinese National Gymnastic Squad. 7/01.

Agricultural Commodities and Technology

OTHER

United Nations/Government of the PRC

Will cooperate in experiments on sustainable land use in ten locations in China. \$6 million. 8/01.

Banking and Finance

CHINA'S IMPORTS

Entrust, Inc. (US)

Will supply the China Financial Certification Authority with enhanced Internet security solutions to enable online transactions for corporate banking customers and stock traders in China. 8/01.

Abbreviations used throughout text: ABC: Agricultural Bank of China; ADB: Asian Development Bank; BOC: Bank of China; CAAC: General Administration of Civil Aviation of China; CATV: cable television; CCB: China Construction Bank; CDB: China Development Bank; CDMA: code division multiple access; CEIEC: China National Electronics Import and Export Corp.; China Mobile: China Mobile Communications Corp.; China Netcom: China Netcom Corp. Ltd.; China Railcom: China Railway Communications Co., Ltd.; China Telecom: China Telecommunications Group Corp.; China Unicom: China United Telecommunications Corp.; CIRC: China Insurance Regulatory Commission; CITIC: China International Trust and Investment Corp.; CITS: China International Travel Service; CNOOC: China National Offshore Oil Corp.; CNPC: China National Petroleum & Gas Corp.; COSCO: China Ocean Shipping Co.; ETDZ: economic and technological development zone; ICBC: Industrial and Commercial Bank of China; MI: Ministry of Information Industry; MOFTEC: Ministry of Foreign Trade and Economic Cooperation; MOU: memorandum of understanding; NA: Not Available; PBOC: People's Bank of China; PetroChina: PetroChina Co., Ltd.; RMB: Renminbi; SEZ: Special Economic Zone; SINOCHEM: China National Chemicals Import-Export Corp.; SINOPEC: China National Petrochemical Corp.; SINO-TRANS: China National Foreign Trade Transportation Corp.; SDPC: State Development Planning Commission; UNDP: United Nations Development Program

NCR Corp. (US)

Will supply BOC with self-service technology for ATMs. \$13 million. 8/01.

INVESTMENTS IN CHINA

Swiss State Secretariat for Economic Affairs (Switzerland)/CDB

Will set up a venture capital management firm, the Sino-Swiss Venture Capital Fund Management Co., Ltd., to establish and manage investment funds and provide consulting services. (Switzerland:33%-PRC:67%). \$1.2 million. 7/01.

OTHER

ABN Amro Bank (the Netherlands)/ICBC

Signed agreement to cooperate in trading financial derivative products. 8/01.

Goldman Sachs Group, Inc. (US), Merrill Lynch & Co., Inc. (US)/ABC

Signed agreements sanctioned by the International Swaps and Derivatives Association to facilitate financial-derivative product transactions. 8/01.

International Air Transport Association (IATA)/ICBC

Signed agreement to clear IATA's plane ticket proceeds in China. 8/01.

San Francisco State University (SFSU, US), China Ventures Inc. (Canada)

SFSU faculty will train Chinese bank employees. 8/01.

Manhattan Capital Group (US)/Shuguang Vehicle Axle Co., Ltd. (Liaoning)

Will provide Shuguang with financial and strategic advice. 7/01.

PTS Inc. (US)

Opened Shanghai office to develop trading platform in China. 7/01.

Sinobull Information Ltd., a subsidiary of Hartcourt Companies, Inc. (US)/Bank of Communications

Will jointly develop a variety of financial products for the foreign exchange trading market. 7/01.

Stern Stewart & Co. (US)

Opened an office in Shanghai to provide consulting services in corporate governance and financial management. 7/01.

Chemicals, Petrochemicals, and Related Equipment

CHINA'S IMPORTS

Spur Ventures Inc. (Canada)

Will distribute 1 million tons of diammonium phosphate (DAP) and nitrogen, phosphorous, potassium (NPK) fertilizers to a group of 12 Chinese fertilizer marketing and distribution companies in Anhui, Henan, Hunan, Liaoning, Shaanxi, Shandong, and Shanxi provinces and Guangxi Zhuang Autonomous Region. 7/01.

INVESTMENTS IN CHINA

Air Liquide Shanghai Co., Ltd., a unit of L'Air Liquide SA (France); Air Products and Chemicals (China) Investment Co., a unit of Air Products Chemicals Inc. (US)

Will form a joint venture, Wuxi-HiTech Gases Co., in Jiangsu Province, to manufacture liquid gases. (France:50%,US:50%). 8/01.

Bayer China Co., Ltd., a unit of Bayer AG (Germany)/Shanghai Chlor-Alkali Chemical Co.

Will form joint venture to build a polymer plant in Shanghai. (Germany:90%-PRC:10%). \$340 million. 8/01.

BP Chemicals Co., Ltd., a subsidiary of BP plc (UK)/Shanghai Petrochemicals Co., a subsidiary of Sinopec

Will establish joint venture to build a petrochemicals complex in Shanghai to produce ethylene. \$2.7 billion. (UK:50%-PRC:50%). 8/01.

Marubeni Corp. (Japan), Mitsubishi Rayon Co., Ltd. (Japan)

Will form joint venture, Nantong Rayon Chemical Co., Ltd., in Jiangsu Province, to manufacture acrylic resin pellets. (Marubeni:20%,Mitsubishi:80%). \$30 million. 8/01.

Consumer Goods

INVESTMENTS IN CHINA

British Sugar (Overseas) Ltd. (UK)/Wuxuan Sugar Mill (Guangxi)

Established sugar processing joint venture. \$7.6 million. (UK:70%-PRC:30%). 9/01.

Jusco Stores (Hong Kong) Co., Ltd., a subsidiary of Jusco Co., Ltd. (Japan)

Will set up retailing joint venture, Shenzhen Jusco Friendship Stores Co., Ltd. (Japan:65%-PRC:35%). \$6.65 million. 8/01.

Malaya Glass Products Sdn. Bhd., a unit of Fraser & Neave Holdings Bhd. (Malaysia)/Tuopai Yeast Liquor Co. (Sichuan)

Established joint venture to manufacture glass products. (Malaysia:60%-PRC:40%). \$28 million. 8/01.

Tom.com Ltd. (Hong Kong)/China National Publications Import & Export (Group) Corp.

Established joint venture to help Tom.com identify prospective media partners and distribute its publications in China. \$604,000. (Hong Kong:70%-PRC:30%). 8/01.

OTHER

Wal-Mart Stores, Inc. (US)

Opened a branch store in Shenyang, Liaoning Province. 9/01.

Amway Corp. (US)

Opened a cosmetics counter at a shopping mall in Pudong, Shanghai. 8/01.

Toshiba Corp. (Japan)/Xiaoya Group (Shandong)

Will outsource washing machine production to Xiaoya Group. 8/01.

Carrefour SA (France)

Will set up a procurement and distribution center in Shenzhen, Guangdong Province. 7/01.

DuPont-Hongji Films Foshan Co., Ltd., a joint venture between DuPont Teijin Films Ltd. (US) and Foshan Plastics Group Co., Ltd. (Guangdong)

Opened a branch in Ningbo, Zhejiang Province. 7/01.

Wal-Mart Stores, Inc. (US)

Opened a branch store in Kunming, Yunnan Province. 7/01.

Electronics and Computer Software

CHINA'S IMPORTS

eBridge Software Inc., a subsidiary of Bridge Information Systems Inc. (US)

Won contract from China Merchants Bank to build financial web site. 8/01.

INVESTMENTS IN CHINA

Digital Angel Corp., a subsidiary of Applied Digital Solutions, Inc. (US)/Shenyang Du'ouyuan Digital Communications Net Corp. (Liaoning)

Will establish joint venture to manufacture, market, and distribute Digital Angel Technology in China. 8/01.

Hon Hai Precision Industry Co., Ltd. (Taiwan); World Wiser Electronics Inc., a subsidiary of United Microelectronics Corp. (Taiwan)

Will form joint venture in Beijing to manufacture mobile phone components. 8/01.

Kingston Technology Co., Inc. (US)/China Great Wall Computer Shenzhen Co., Ltd. (Guangdong)

Will establish joint venture, Kingston Technology Electronics (Shanghai) Co., Ltd., to supply US multinational companies in China with memory modules. (US:80%-PRC:20%). 8/01.

Prodeo Technologies Inc. (US)/Shenzhen Electronics Group Co., Ltd. (Guangdong)

Will establish joint venture to manufacture semiconductor processing equipment in Shenzhen, Guangdong Province. 8/01.

Exide Technologies, Inc. (US)/Shenyang Dongbei Storage Battery Co., Ltd. (Liaoning)

Will establish joint venture, Exide Shenyang Industrial Battery Co., Ltd., to produce medium and large network batteries. (US:65%-PRC:35%). \$25 million. 7/01.

Matsushita Battery Industrial Co. (Japan), Matsushita Electric Industrial Co. (Japan)

Set up joint venture to produce nickel-cadmium batteries. \$48.25 million. 7/01.

Tokai Carbon Co., Ltd. (Japan), SGL Carbon AG (Germany)

Will form joint venture in Shanghai to manufacture and market graphite electrode used for steel production in China. 7/01.

OTHER

AsiaInfo Holdings Inc. (US)

Won contract from China Netcom to provide convergent billing software to expand its data network. 9/01.

Sun Television Cybernetworks Holdings Ltd. (Hong Kong)/Sina.com (Beijing)

Will merge with Sina.com by selling 29% of its shares. \$8 million. 9/01.

Alcatel SA (France)

Will cooperate with elong.com, linktone.com, netease.com, sina.com, and sohu.com to provide content for users of its wireless application protocol. 8/01.

Cirrus Logic, Inc. (US)/Central Semiconductor Manufacturing Co., Ltd. (Jiangsu)

Signed five-year foundry manufacturing agreement in China. 8/01.

Dalian BHR Consultancy Services, a unit of PSA Corp. (Singapore); iPlanet E-Commerce Solutions (US)

Signed MOU to establish an e-commerce competency center in Dalian, Liaoning Province. 8/01.

DragonVenture, Inc. (US)/Digiark Information Technology Corp. (Beijing)

Signed agreement to provide customer service and source partners for Digiark. 8/01.

Institut Mémoires de l'Édition Contemporaine (Belgium)/Chongqing Microsystems Science Co., Ltd.

Signed MOU to cooperate in training Chinese technicians and developing technical achievements. 8/01.

Power Technology, Inc. (US)

Opened branch office in Beijing. 8/01.

Video Display Corp. (US)/Chunghwa Picture Tubes (Fuzhou) Ltd. (Fujian) Openwave Systems Inc. (US)

Won contract from Jitong Network Communications Co., Ltd. to provide its Openwave™ E-mail Mx solution. 7/01.

Engineering and Construction

CHINA'S EXPORTS

China International Enterprise Cooperative Corp.; China National Machinery and Equipment Import and Export Corp.

Won contract from the Government of Congo to build a hydropower plant on the Congo River. \$220 million. 8/01.

CNPC

Won contract from Bitumenes Orinoco, SA, a subsidiary of Petroleos de Venezuela, SA, to build a 6.5 metric ton Orimulsion plant in Venezuela. \$300 million. 7/01.

CHINA'S IMPORTS

Kvaerner ASA (Norway)

Won contract from Hang Yang Air Liquide Co., Ltd., a joint venture between L'Air Liquide SA (France) and Hangzhou Hangyang Group (Zhejiang), to build an air separation plant and a production plant to manufacture liquid oxygen and nitrogen in Wuxi, Jiangsu Province. \$20.23 million. 7/01.

Morgan Construction, Inc. (US)

Constructed a high-speed rod mill at Hangzhou Iron & Steel Group Co., in Zhejiang Province. 7/01.

OTHER

Government of Kuwait

Will extend long-term credit for the construction of an airport in Panzhihua, Sichuan Province. \$30.87 million. 8/01.

Environmental Technology and Equipment

OTHER

ADB

Will provide technical assistance to combat desertification in western China, particularly Gansu Province. \$610,000. 8/01.

Food and Food Processing

INVESTMENTS IN CHINA

Vin Alcools et Spiritueux de France, a subsidiary of Castel Group (France)/Yantai Changyu Pioneer Wine Co., Ltd. (Shandong)

Will establish joint venture, Yantai Changyu-Castel Wine Co., Ltd., in Yantai, Shandong Province. (France:30%-PRC:70%). \$5 million. 8/01.

Vin Alcools et Spiritueux de France, a subsidiary of Castel Group (France)/Yantai Changyu Pioneer Wine Co., Ltd. (Shandong)

Will establish joint venture, Langfang Castel-Changyu Wine Co., Ltd., in Langfang, Hebei Province. (France:51%-PRC:49%). \$3 million. 8/01.

OTHER

McDonald's Corp. (US)

Plans to set up 100 franchises each year in China from 2003 to 2013. 8/01.

Medical Equipment and Devices

INVESTMENTS IN CHINA

GE Medical Systems, a unit of General Electric Co. (US)

Established an industrial park in Beijing Economic and Technological Development Area to develop, manufacture, and market medical diagnostic equipment. \$26 million. 9/01.

Metals, Minerals, and Mining

CHINA'S EXPORTS

Baoshan Iron and Steel Co. (Shanghai)

Supplied Fiat S.p.A., in Italy, with 750 tons of sheet steel for automobiles. 9/01.

CHINA'S INVESTMENTS ABROAD

Companhia Vale do Rio Doce (Brazil)/Shanghai Baosteel Corp.

Will form mining joint venture to explore iron ore mine in Brazil. (Brazil:50%-PRC:50%). 8/01.

INVESTMENTS IN CHINA

Pasminco Ltd. (Australia), Lee Kee Group Ltd. (Hong Kong)

Established joint venture to build a zinc alloy plant in Ningbo, Zhejiang Province. (Australia:40%, Hong Kong:60%). \$1.5 million. 8/01.

OTHER

Tin Technology, Inc. (US)/Yunnan Tin Corp.

Will cooperate in technology transfer and market development in China. 8/01.

Vietnam Mineral Corp./China National Non-ferrous Metals Import and Export Corp.

Signed MOU to mine bauxite in Dac Nong District of Dac Lac in Vietnam. 7/01.

Miscellaneous

INVESTMENTS IN CHINA

Ondeo Services, a subsidiary of Suez SA (France)

Won contract from Government of the PRC to acquire and manage an existing water production facility in Shanghai. \$4.40 million. 7/01.

SPH Mediaworks Ltd. (Singapore), Jade Media Works (Hong Kong)

Established joint venture to develop television programs in China. (Singapore:50%,Hong Kong:50%). \$9 million. 7/01.

OTHER

AOL Time Warner Inc. (US)

Will broadcast full-time, Chinese-language channels in Guangdong Province. 9/01.

News Corp., Ltd. (Australia)

Will broadcast full-time, Chinese-language channels in Guangdong Province. 9/01.

Pacific Century Cyberworks Ltd. (Hong Kong)/China Unicom Yellow Pages Information Co., a subsidiary of China Unicom

Signed agreement to cooperate in China's yellow pages market. 8/01.

Petroleum, Natural Gas, and Related Equipment

OTHER

Agip China BV, a unit of ENI S.p.A. (Italy)/Qinghai Oil Corp., a unit of PetroChina

Will conduct seismic surveys in the Sebei prospect of the Qinghai oil field in Qaidam basin, Qinghai Province. 8/01.

Chevron Australia Pty Ltd., a subsidiary of Chevron Corp. (US)/CNOOC International Ltd., a unit of CNOOC

Signed MOU to explore the feasibility of acquiring gas interests in the Gorgon Area, Australia, and to develop China's gas market. 8/01.

Husky Energy Inc. (Canada)/CNOOC

Will carry out oil exploration in the Pearl River Basin of the South China Sea. 7/01.

Pharmaceuticals

INVESTMENTS IN CHINA

Hutchison Whampoa Ltd. (Hong Kong)/Shanghai Pharmaceuticals Co., Ltd.

Will form joint venture to develop and produce drugs based on traditional Chinese medicines. \$13.29 million. 8/01.

OTHER

Peregrine Pharmaceuticals Inc. (US)/Medipharm Biotech Co., Ltd. (Shanghai)

Will cooperate in product development of tumor necrosis therapy. 9/01.

Ports and Shipping

INVESTMENTS IN CHINA

PSA Corp. (Singapore)/Guangzhou Harbor Bureau (Guangdong)

Established joint venture to manage and operate the container terminal at Huangpu Xingang, in Guangdong Province. (Singapore:49%-PRC:51%). 7/01.

Power Generation Equipment

INVESTMENTS IN CHINA

Ameromag Corp. (US)/Qingdao Wind Energy Generation Equipment Works, Ltd., LLC (Shandong)

Established joint venture, Qingdao Ameromag Wind Energy Equipment Works, Co., Ltd., in Shandong Province, to manufacture wind turbine generators. 8/01.

Property Management and Development

INVESTMENTS IN CHINA

China Overseas Land and Investment Ltd. (Hong Kong)

Will acquire shares in Beijing Centergate Building. \$23 million. 7/01.

CHINA'S IMPORTS

LM Ericsson AB (Sweden)

Won contract from China Mobile to supply second phase of its GPRS network to over 50 cities in nine province-level areas, including Chongqing, Guangdong, Guangxi, Hebei, Heilongjiang, Hubei, Jiangsu, Shandong, and Shanghai. 9/01.

Motorola Inc. (US)

Won contracts from China Unicom to expand the GSM 900 and 1800 networks in Fujian, Guangdong, Hunan, Jiangxi, and Shanxi provinces and Shenzhen, Guangdong Province. \$260 million. 9/01.

Agere Systems, Inc. (US)

Won contract from Huawei Technologies Co., Ltd., in Guangdong Province, to supply programmable network processors and protocol independent switch fabric products to develop systems for optical networks. 8/01.

Alcatel SA (France)

Won contract from Sichuan Telecom Co., a subsidiary of China Telecom, to install a DSL network in Sichuan Province. 8/01.

Alcatel SA (France)

Won contract from Tibet Mobile Co., a unit of China Mobile, to expand the GSM network in the Tibet Autonomous Region. 8/01.

AsiaInfo Holdings Inc. (US)

Won contract from Yunnan Telecom Co., a subsidiary of China Telecom, to expand its network capacity. \$4 million. 8/01.

Caripac.com Holdings Ltd. (Hong Kong), Oy Nokia AB (Finland)

Won contract to supply Jilin Telecom Co. with high-speed broadband network equipment. 8/01.

Nortel Networks Corp. (Canada)

Will update China Telecom's multiservice backbone networks in several cities throughout China. \$8 million. 8/01.

Oy Nokia AB (Finland)

Signed agreement to supply Fujian Telecom Co. with Nokia's D50e broadband access solution. 8/01.

Oy Nokia AB (Finland)

Won contract from Guangdong Telecom Co., a subsidiary of China Telecom, to supply broadband DSL equipment to expand Guangdong Telecom's existing network. 8/01.

Oy Nokia AB (Finland)

Won contract from Shandong Telecom Co. to expand broadband DSL network coverage in Jinan and Qingdao in Shandong Province. 8/01.

Redback Networks Inc. (US)

Will supply Suzhou Cable TV station, in Jiangsu Province, with the platform to provide broadband Internet service. 8/01.

Siemens AG (Germany)

Won contract from China Mobile to install 750 base stations and a new switching system to expand the networks in Shanghai and Inner Mongolia Autonomous Region. \$128 million. 8/01.

Siemens AG (Germany)

Won contract from China Unicom to install new base stations and switching systems. \$68 million. 8/01.

Telson Electronics Co., Ltd. (South Korea)

Will supply mobile phone handsets to Konka Telecommunication Technology Co., in Guangdong Province. \$102.1 million. 8/01.

Vertel Corp. (US)

Sold license of its telecommunications management network software product suite to Shanghai Datang Mobile Communications Equipment Co., Ltd. for Datang's CDMA equipment. 8/01.

Vodatel Networks Holdings Ltd. (Macao)

Won contract from Yantai China Telecom Co., in Shandong Province, to supply multiservice networking equipment to enhance Yantai's Broadband ATM/Frame Relay networking capability. 8/01.

Alcatel SA (France)

Won contract from Ningxia Unicom Co., a unit of China Unicom, in Ningxia Hui Autonomous Region, to supply an optical transmission system. 7/01.

AsiaInfo Holdings Inc. (US)

Won contracts from China Telecom to build broadband networks in Shandong and Heilongjiang provinces. \$2 million. 7/01.

Cisco Systems, Inc. (US)

Won contract from China Unicom to expand its voice-over-IP network by supplying routers, switches, and access servers. \$40 million. 7/01.

Oy Nokia AB (Finland)

Will provide Zhejiang Unicom Co. with equipment to expand its GSM 1800 network. 7/01.

Nortel Networks Corp. (Canada)

Won contract from Guangdong Telecom Co. to supply an optical backbone network covering Dongguan, Guangzhou, Huizhou, Shantou, and Shenzhen in Guangdong Province. \$10 million. 7/01.

Pantech Co., Ltd. (South Korea)

Won contract from Soutec Inc. in Guangdong Province to supply parts for 500,000 mobile phones. 7/01.

Redback Networks, Inc. (US)

Won contract from Gansu Telecom Co. to provide its short message service platform. 7/01.

OTHER**Qualcomm Inc. (US)**

Granted license to Eastern Communications Co., Ltd. to manufacture next-generation CDMA wireless networking equipment. 9/01.

Alcatel SA (France)/Intrinsic Technology Inc. (Shanghai)

Set up a laboratory in Shanghai to test wireless communications. 8/01.

Korea Telecom Corp. (South Korea)

Opened a representative office in Shanghai. 8/01.

Siemens AG (Germany)/Legend Holdings Ltd. (Beijing)

Will jointly develop wireless handheld devices in China. 8/01.

EnReach Technology, Inc. (US)

Established partnership with Great Wall Broadband Network Service Co., Ltd. (Guangdong). 7/01.

Flextronics International Ltd. (Singapore)/PTIC Information Industry Corp. (Beijing)

Will cooperate in sales, manufacturing, and R&D plans for the Chinese communications market. 7/01.

Hyundai Group (South Korea)/Soutec Inc. (Guangdong)

Will jointly manufacture "Soutec-Hyundai" CDMA and third generation cell phones. 7/01.

New T&T, a subsidiary of Wharf Group (Hong Kong)

Signed direct fiber interconnection agreement with China Netcom, China Telecom, and China Unicom. 7/01.

Shin Satellite plc (Thailand)

Will lease about 20 percent of the capacity of its iPSTAR satellite to China Railcom. \$800 million. 7/01.

Vyyo Inc. (US)/Wuhan Research Institute of Posts and Telecommunications (Hubei)

Signed agreement for Vyyo to supply broadband fixed wireless systems on an original equipment manufacturer basis and for the Wuhan Research Institute to serve as a system integrator for service providers in China. 7/01.

Wi-LAN Inc. (Canada)

Signed two distribution agreements with Sunbeam Technologies Development Corp., in Beijing, and Spectrum Communications Systems (US), a Chinese distributor based in California. 7/01.

Transportation**CHINA'S IMPORTS****The Boeing Co. (US)**

Won contract from the Government of the PRC for 36 jetliners. \$2 billion. 9/01.

Celarix Inc. (US)

Will supply COSCO with logistics software to automate the contract, tariff, and pricing activities of its shipping companies. 8/01.

Nissan Diesel Motor Co., Ltd. (Japan)

Will supply Dongfeng Chaoyang Diesel Co., a unit of the Dongfeng Automobile Corp., in Liaoning Province, with components and assistance for assembling 3,153cc diesel engines. 8/01.

INVESTMENTS IN CHINA**ABC-NACO Inc. (US)/Zhuzhou Rolling Stock Works (Hunan)**

Will form joint venture to manufacture and sell ABC-NACO design suspension systems and related components to the Chinese market. 8/01.

China Airlines (Taiwan), EVA Airways Corp. (Taiwan), Far Eastern Air Transport Corp. (Taiwan), Taiwan Airport Services Co./Government of Xiamen (Fujian)

Will establish an air cargo terminal joint venture in Xiamen International Airport. (Taiwan:49%-PRC:51%). \$27 million. 8/01.

Council Bulletin

Event Wrap-Up

Council Co-Hosts Dinner for PRC Minister of Foreign Affairs Tang Jiaxuan

The US-China Business Council welcomed Minister Tang Jiaxuan at a dinner in Washington, DC, on September 20, hosted in cooperation with The National Committee on US-China Relations. Tang met with President George W. Bush, Secretary of State Colin Powell, and other US leaders during his visit. His trip had been planned as an opportunity to discuss President Bush's visit to China in October, but the events of September 11 reportedly shifted official talks to US-China cooperation against terrorism. About 200 guests attended the Thursday evening dinner, after which Tang delivered his only major public remarks in Washington, DC.

Tang expressed sympathy for the American people and pledged that China will provide all necessary assistance in the international fight against terrorism. He noted that the United States and China currently have an opportunity to improve bilateral relations, particularly through the meetings between President Bush and PRC President Jiang Zemin during the Asia-Pacific Economic Cooperation summit. Tang highlighted China's successful 2008 Olympic bid and impending World Trade Organization membership as positive steps for China, and spoke at length about China's "one China" policy with regard to Taiwan. He also mentioned that China's most important economic reforms in the next five years will in-

clude industrial restructuring, information-technology application, western China's development, and sustainable development.

Washington

September

Dinner Honored PRC Minister of Foreign Affairs Tang Jiaxuan (*see left*)

October

Briefing: China's WTO Accession Featured Jeffrey Bader, assistant US trade representative for China, Hong Kong, Taiwan, and Mongolia

Issues Luncheon: Is There a "China Threat?"

And If There Is, What Are Its Policy Implications?

Featured Dr. Robert Suettinger, Mayer Brown & Platt, and Dr. Robert Sutter, Georgetown University

Beijing

October

Luncheon: APEC and US-China relations

Featured Council President Robert Kapp

Hong Kong

October

Luncheon: APEC, US-China relations, and China's commercial climate

Featured Council Vice President John Foarde and Director of China Operations Patrick Powers

Upcoming Events

Forecast 2002

January 31, 2002
Washington, DC

China Business 2002

February 4, 2002
Chicago, IL

February 6, 2002
Los Angeles, CA

see page 54

China Airlines (Taiwan)

Will purchase 25% of the shares of China Cargo Airlines in Shanghai. 8/01.

Degao Co., Ltd. (Singapore)/Beijing Jinjian Taxi Co.

Will set up joint venture to provide taxi service in Beijing. \$29.76 million. 8/01.

SNC-Lavalin Inc. (Canada)/Beijing No. 5 Subway Investment Corp.

Established joint venture to cooperate in funding the construction of the No. 5 subway in Beijing. (Canada:37.5%-PRC:62.5%). \$12 million. 8/01.

Man AG (Germany)/Zhengzhou Yutong Coach Manufacturing Co. (Henan)

Will form 50-50 bus manufacturing joint venture. \$36 million. 7/01.

OTHER

Renault SA (France)

Established Renault 3S service center in Shenzhen, Guangdong Province. 8/01.

Mitsubishi Corp. (Japan), Mitsubishi Logistics Corp.

(Japan)/Transportation Bureau of the Beijing Municipal Government

Established joint venture in Beijing to build a 15,000 m² warehouse in a Beijing suburb. (Japan:74%-PRC:26%). \$21.84 million. 7/01.

NV Bekaert SA (Belgium)

Won contract from the Government of the PRC to supply a fence system for the Beijing-Guangzhou railway project. \$4.40 million. 7/01.

Toyota Motor Corp. (Japan)

Set up investment and marketing company, Toyota Motor (China) Investment Co., Ltd., in Tianjin. \$3 million. 7/01.

CLASSIFIED

POSITIONS WANTED

A mgr with 18 years' experience in int'l business dev., sales, mkt & distribution dev. & trade in industrial & consumer products. Built 2 JVs, 1 wholly-owned entity, sales/mkg/distribution org in China. US MBA & executive mkt education. Mandarin/Shanghainese/English Spkr. Seek a senior mgmt position. Contact: James Mao. Tel/Fax: 920.451.9561, E-mail: jianhua_james_mao@yahoo.com

THE US-CHINA BUSINESS COUNCIL

INVITES YOU TO ATTEND

FORECAST 2002

A MEMBERS-ONLY EVENT

EVENING RECEPTION, CAPITOL HILL
Wednesday, January 30, 2002

MEETING

Thursday, January 31, 2002: 8:30 am to 2:30 pm

The St. Regis Hotel, 923 16th and K Streets, NW, Washington, DC

PANEL ONE: MACRO-TRENDS

Hu's on First: China's New Leaders

Cheng Li - Hamilton College

Change or Continuity in China's Foreign Policy: Prospects for US-China Relations

Robert Ross - Boston College

China's Economy: Silver Lining or Tough Times Ahead?

Fred Hu - The Goldman Sachs Group, Inc. (invited)

PANEL TWO: MARKET OPERATIONS

The Business Climate

Patrick Powers - The US-China Business Council

Market Opening and Competition: How to Navigate the IT Landscape

Ken DeWoskin - PricewaterhouseCoopers

New Entry and Exit Strategies

Nicholas Howson - Paul, Weiss, Rifkind, Wharton & Garrison

China in the WTO: Getting Down to Business

Dan Price - Powell, Goldstein, Frazer & Murphy

NEXT STEPS FOR THE UNITED STATES AND CHINA

Luncheon Address

Registration fee by Jan. 4: \$350 – includes reception, meeting, reports, and luncheon; \$100 luncheon only
Registration after Jan. 4: \$450 – entire program; \$150 luncheon only

Hotel Accommodations for Wednesday, January 30: Please call The St. Regis (www.stregis.com) at 800.562.5661 or 202.879.6911 for reservations at a special group rate: \$199 single/double + tax. Indicate that you are with the US-China Business Council Forecast 2002 meeting. **The cut-off date for this rate is Wednesday, January 9.** All reservations must be guaranteed with a major credit card or accompanied by a first-night room deposit.

For more information, or to register, contact: The US-China Business Council
Gloria González-Micklin, Director of Programs, Tel: 202.429.0340, Fax: 202.775.2476; or visit our website:
www.uschina.org/members/programs/upcomingevents.html

CHINA BUSINESS 2002

A members and prospective Council members* event

Chicago: Monday, February 4

* For information on China Business 2002 and Council membership company qualifications, please visit our website: www.uschina.org

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