THE MAGAZINE OF THE US-CHINA BUSINESS COUNCIL MARCH-APRIL 2000 VOLUME 27 NUMBER 2

THE CHINA BUSINESS REVIEW

Internet Status Check

Backbone Basics
Legal Dos and Don'ts
Plus: Cisco in China

WTO

Financial Services after WTO: Why Opening is Inevitable
A Model for WTO Implementation: China's Aviation Standards

Special Report: The Environment

China's Market for Environmental Technology
An Environmental Protection Framework

Also:

Are Your Employees Ready for Teamwork?
Revamping the Oil and Petrochemical Sectors

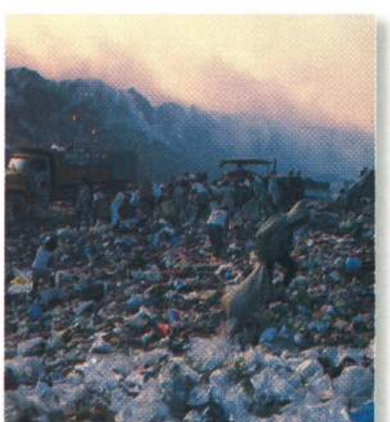
FOCUS: THE INTERNET

THE WTO

FEATURES

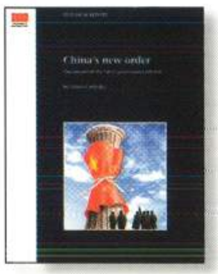
MANAGEMENT AND HUMAN RESOURCES

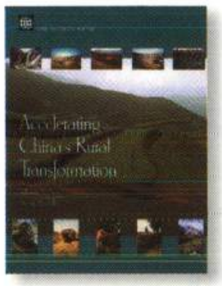
OIL AND PETROCHEMICALS



SPECIAL REPORT: CHINA'S ENVIRONMENT

DEPARTMENTS





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Letter from the editor

The Ghost of CCF

The CBR's bimonthly format would seem at first ill-suited to a discussion of the Internet. After all, the Internet is fluid by definition. Information gauging the size of the Internet is outdated almost before it's published. This goes as much for the threads of the web that reach into China as it does for the Internet globally. And more than just the Internet's vital statistics change quickly in China. The regulatory regime that guides China's information-technology (IT) development is just as amorphous.

We felt similarly vulnerable to obsolescence with last year's telecommunications focus (May-June 1999). We knew then as we do know that we must go to press with, and thus fix in time, analyses that might have to be revised depending on the outcome of the government's unresolved conflicts over IT-sector control.

Well, those analyses seem to have held up, but mostly because those conflicts are still playing out. The forces for protection of China's domestic companies and China's national security are still at it. The wrangle over the government's unexpected decision to force Unicom, China's second telecommunications company, out of its Chinese-Chinese-Foreign (CCF) investment arrangements with foreign companies dragged on for months. In another move that is still unfolding, late last year the government decided to tighten the reins on foreign products with encryption features (*see* p.61). Regulations on investment in Chinese Internet content providers may be out before this issue hits readers' desks.

The forces for openness and progress are also forging ahead. Chinese negotiators have agreed to adhere to the World Trade Organization's basic telecommunications and information technology agreements. This promises, as Stephen Anderson points out in his lead article, that PRC tariffs will fall on IT products and that IT development in China will have to take international practices into account. And some in the government are trying their best to draw foreign IT funds and talent to China, aware that the country's overall economic development now depends on whether it can compete in the new, fluid, information-based economy.

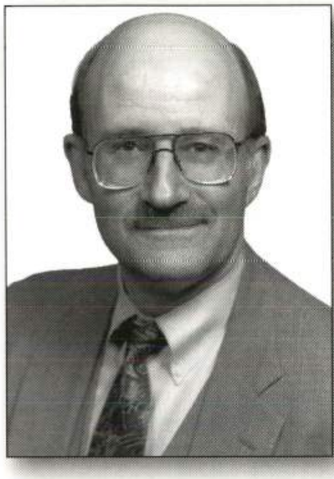
The ghost of CCF nevertheless hangs over foreign IT investors in China. The CCF case put foreign IT companies on notice that there would be some casualties among them before the battle for regulatory control was over. The fate of foreign investment in Internet content providers, for example, is far from clear.

And as *CBR* readers and China business watchers generally can attest, the IT sector is far from alone in falling victim to China's sudden policy shifts. Examples include the late-1995 sudden repeal of tax exemptions on capital-equipment imports (and subsequent reinstatements) and sudden crackdown on enforcement of previously lax foreign-exchange rules in 1998. In this context, is the enthusiasm of foreign investors for e-commerce in China naive?

Rather than wait until the outcome of the IT battle is settled, *The CBR* will again fix a point in time. And wait to see what happens next.

Cath Gelb

LETTER from the President



Robert A. Kapp

Cutting Through the Smoke on China PNTR

The claim that we can deny PNTR to China and still enjoy all the economic and commercial advantages that the other 133 WTO members will enjoy when China joins, thanks to our 1979 trade agreement with China that calls for reciprocal MFN, is both false and cowardly.

We are now far enough into the national debate about Congress's vote on Permanent Normal Trade Relations (PNTR) for China to be able to see the dimensions, the main arguments, of the discussion. Whether by intent or out of ignorance, a number of confusions remain—in the media, in the Congress, and perhaps in the public mind—about what PNTR is, what Congress's decision is, and what the implications of the outcome in the Congress will be. Let me try to address the main confusions.

1. Congress's vote on PNTR is *not* a vote on whether China becomes a member of the World Trade Organization or not. The 133 member countries and territories of the WTO decide that. Having concluded the impressive US-China agreement of last November, the United States will support China's access when China finishes its remaining bilateral WTO deals and the WTO accession process kicks in. **Since the vote is *not* on whether we "permit" China to enter the WTO or not, the vote is not a "gift to China."**

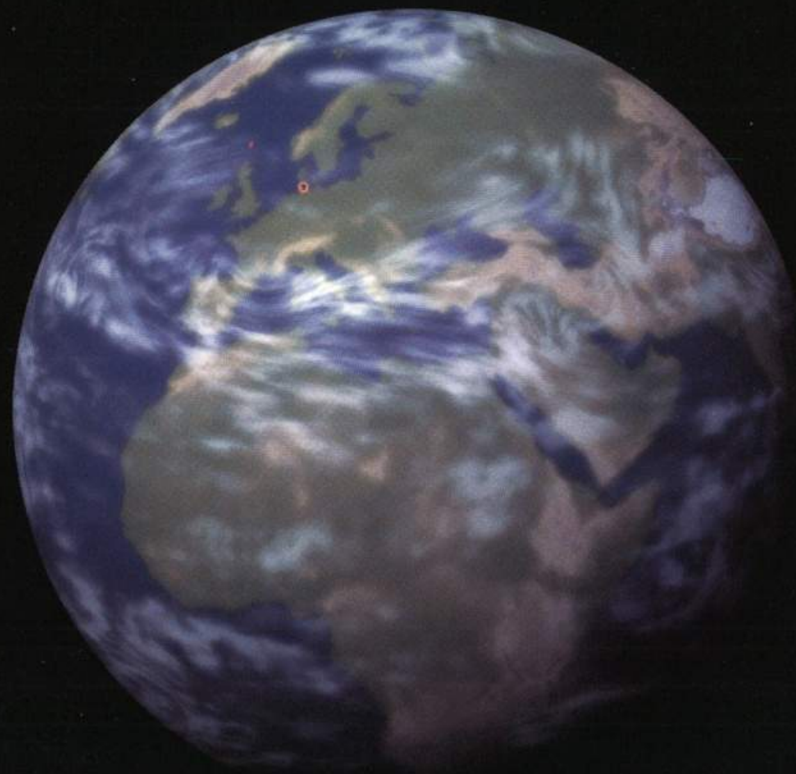
2. Establishing a different NTR for China than we provide to all other WTO members is discriminatory. WTO members may not discriminate in their treatment of one another. The United States treasures that core WTO requirement, because it prevents other countries from discriminating against our goods, services, and investments. *But if we discriminate against another WTO member, that member is entitled to discriminate against us.* All members of the WTO extend *permanent* unconditional NTR to all other members, and receive that treatment in return. US treatment of China in a different manner from the treatment of other WTO members will punish our workers, our producers, our farmers, our exporters, and even our consumers.

3. Failure to provide PNTR—full WTO member treatment—to China as it enters the WTO is unilateral American economic disarmament in favor of our global competitors. If the United States discriminates against China by establishing a different, non-permanent form of NTR for this one country, the US forfeits its right to avail itself of the massive economic and commercial concessions that China has agreed to—in *our* negotiation with the PRC—as conditions of China's entry into the WTO. China's commitments to open its markets, end discrimination against foreign goods and businesses, open hitherto closed sectors to international participation, and so on—*plus* its obligation to submit to WTO disciplines and binding WTO dispute resolution will be available to every WTO member *except* the United States if we walk away from our one obligation—to treat China like a WTO member when China enters the WTO.

4. The claim that we can deny PNTR to China and still enjoy *all* the economic and commercial advantages that the other 133 WTO members will enjoy when China joins, thanks to our 1979 trade agreement with China that calls for reciprocal MFN, is both false and cowardly. The 1979 US-China trade agreement, signed at the moment diplomatic relations began and before there was a significant US-China trade or investment relationship, is a couple of pages long. Its MFN provision deals only with reciprocal exchange of lowest standard tariffs, on goods. In China's upcoming WTO accession, lower tariffs are only one of many factors: the great bulk of the benefits China has agreed to provide to the world as it enters WTO are non-tariff related, and none of those, including WTO dispute-resolution processes, are available to the United States through the 1979 three-pager. **By this point in this debate, it is simply inconceivable that those who continue to peddle this "We get it all anyway" line don't know better; they are disingenuous in suggesting this to Congress, and Congress should know better, too.**

That line is also demeaning to the United States: "Let the Europeans and the Asians level the playing field for all of us by establishing PNTR with China themselves; we'll get the goods through the back door." Wrong on the merits, and wrong on what it implies about the United States in world affairs. Even if the statement were true, which it isn't, the United States should lead, not hide in the pleats of somebody else's skirts on issues involving global economic stability.

5. China's WTO accession does not spell automatic loss of US jobs, as PNTR's opponents say it does, any more than it automatically spells a gigantic expansion of US employment. Evocations of the "Great Sucking Sound" debate over NAFTA a few years ago will not wash. Leave aside the fact that China's WTO accession involves *no* US economic concessions at all, and leave aside the fact that NAFTA has bolstered employment in some US sectors. Even five min-



By this point in this debate, it is simply inconceivable that those who continue to peddle this "We get it all anyway" line don't know better; they are disingenuous in suggesting this to Congress.

utes' consideration will tell the youngest novice that the situation with China is not as simple as the "Sucking Sound" forces continue to suggest. Consider:

- Massive lowering of Chinese tariffs is likely to diminish the pressure to invest in-country that some foreign companies now face, simply to get their products into the Chinese market. If your product is no longer hit with tariffs that price you out of China's market, you may decide to ship into China from the United States, or from another production facility already operating somewhere else.
- The percentage of total production costs accounted for by labor varies from product to product. Most US investment abroad is rooted in calculations other than labor cost. If companies really consider low labor costs to be the sole factor in their decisions, they will move to many countries before they go to China. In fact, for the most part, US exports to the world do *not* consist of labor-intensive products, but rather of products of US technological strength, design and marketing skill, and production efficiency.
- Yes, China's investment climate for foreign firms is going to improve with WTO entry. For example, at US insistence, China has agreed to prohibit existing practices that require foreign firms to transfer advanced production technology or export a portion of their PRC-produced goods simply in order to be allowed to operate in China at all. But these very concessions that China has now made were until recently the cherished aims of the same US political forces that now insist on denying them to our own people. Would they rather, as will be the case if PNTR is not approved, that US firms continue to be forced to transfer technology and export their products from China? What does that do for US employment?
- As one astute Congressman noted in a PNTR hearing in mid-February, every trade agreement, like every technological innovation or product invention or change in market conditions, brings gains and losses. This is the real truth, but perhaps because it's a balanced view it gets short shrift in the assault on PNTR. No attempt to assess the implications of China's presence in the WTO should count the presumed negatives without taking account of the presumed positives stemming from enormous expansion of US market access in China.

6. The PNTR vote is simply *not about* US approval or disapproval of elements of China's internal behavior that some Americans find repellent. Saying that it is doesn't make it so. This notion that enacting a US policy to reap the benefits of a splendid trade agreement is somehow the same as stamping the seal of approval on objectionable political or government practices in China is just hopelessly wrongheaded. It is hard, sometimes, to believe that those making this case really fail to understand that PNTR is not a gift to China—it's a reward to the United States.

This argument seems to be particularly seductive in Congress, whose members must meet the aroused concerns of voters on a thousand issues and who are presumed to be able to do something about each of them. The fact is that neither China's WTO admission, in which Congress has no say, nor the establishment of full WTO-member trade relations between the US and China, in which Congress has *the* say, is likely to make a direct and short-term difference to the long menu of "hot button" US-China issues. Again, those who continue to argue that PNTR is some sort of US "approval" of injustice—and that denial of PNTR would be a fruitful way for the US to combat evil—ought to know better and, in my experience, in most cases usually do know better.

The meaning for China

On the other hand, let's look ahead a little, beyond this spring, beyond this November. The long-term implications for positive social and institutional change in China embedded in China's WTO agreement with the US are incalculably great, and have been ignored by both sides in the American debate—a debate which, as usual, paints China in fantasies of black and white.

Simply put, what China has agreed to at our insistence is the greatest single step in the direction of a market economy—with all the institutional reforms that this will demand—in the history of the People's Republic of China. Listen to the words of Pieter Bottelier, who, as the World Bank's Chief of Mission in China through much of the 1990s, came face to face every day with the immensity of China's challenges in shedding the burden of Soviet-style economics and reaching toward the market economy:

> *The bilateral US-China WTO accession agreement of November 1999 is a historic breakthrough in China's economic modernization drive. It marks the first time since the start of market reforms under Deng Xiaoping in 1978 (and probably the first time in Chinese history) that a comprehensive set of domestic reform targets became the subject of a formal international agreement with, when WTO membership kicks in, powerful multilateral legal sanction.*

The Americans who are the most dissatisfied with aspects of China's internal situation should be the most vigorous of all of us in insisting on full US involvement in the WTO-assisted evolution of China's economic and social systems.

The current debate in perspective

A century ago, the United States Congress was knee-deep in high-intensity debate over China. The issue then was closing American borders to immigrants from China, a policy first enacted

Continued on page 64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take off.
Every time a new Boeing aircraft leaves the U.S. for delivery in China, thousands of American companies and tens of thousands of American workers chalk up another success in that fast growing market.
Over the next 20 years, China's airlines will buy more commercial jets than any other nation outside the U.S. — an estimated 1,600 aircraft valued at $120 billion.
China recently agreed to open its market to a vast new range of U.S. goods and services. A vote for Permanent Normal Trade Relations with China is a vote for America's economic future.
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WTO

Financial Services and WTO: Opportunities Knock

Stephen M. Harner

WTO membership will ensure foreign access to key PRC financial services industries

The US-China agreement on China's accession to the World Trade Organization (WTO) provides abundant evidence that Chinese financial authorities have determined that greater foreign participation is not just useful for, but indispensable to, development of healthy and competitive domestic financial institutions and markets.

Though the agreement's provisions relating specifically to financial issues are few, there are some clear commitments. In banking, these include licensing all foreign banks to provide services in *renminbi* (RMB) and removing the current restrictions on doing business with domestic corporations and individuals. In insurance, China committed to issuing more licenses, removing narrow geographic restrictions, and allowing foreign insurers to offer group, health, and pension insurance products, as well as to insure large risks. In the asset-management and securities areas, foreign firms will be permitted to take minority positions in investment-management (mutual fund) companies. All of these commitments tend to have fairly elastic implementation schedules, generally within three to five years of accession (*see The CBR*, January-February 2000, p.20). Should China accede this year, the deadlines would fall between 2003 and 2005.

Given the flexibility built into the agreement, what will determine the actual timing and scope of financial-sector opening? The record to date suggests that opening to foreign institutions will proceed in pace with the strengthening of Chinese domestic institutions and their ability to compete with foreigners.

This is actually reason for optimism. Anyone observing Chinese financial institutions over the past few years will appreciate the progress already made in improving competitiveness. Bank services have vastly improved both for individuals and corporate customers—ATM machines and debit cards, and remittance and balance reporting services are now widely available. Banks have also improved their products, which now include lines of credit and overseas-study and housing loans. And securities companies are making huge strides in providing information, research, and settlement services. The insurance industry has remade itself through the introduction of the agent system, and is beginning to offer new products. All of these changes mark the steady evolution of Chinese financial firms.

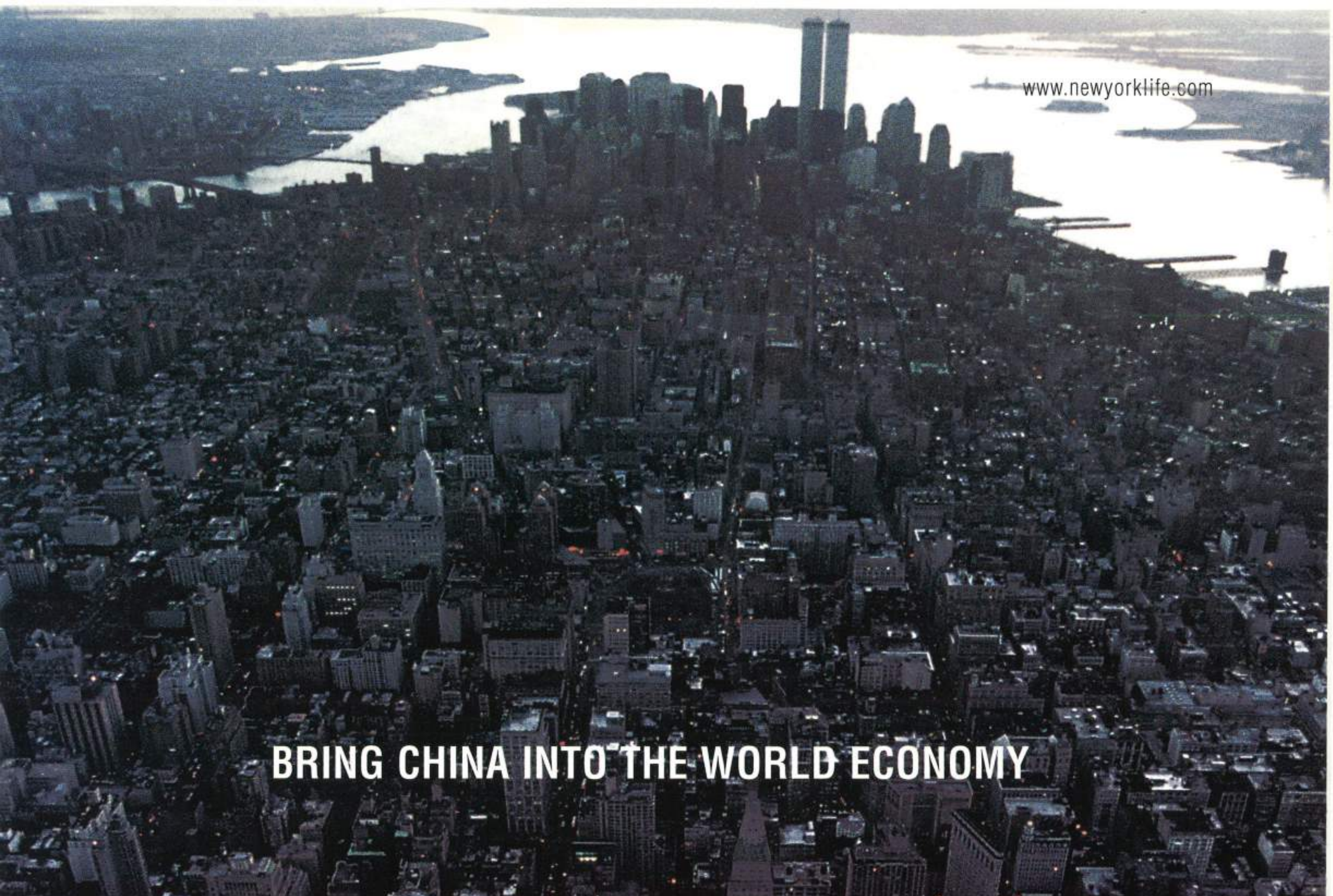
Apart from the organic strengthening of Chinese institutions, the key—and positive—factor will be the stance of China's regulators with regard to the structure and character of the domestic financial services marketplace. Here again, signs that China's regulators have begun to open the market to domestic institutions are encouraging. This new posture should both justify and encourage greater and faster foreign participation.

China regulators: from conservatism to aggressive reform

In summer 1993, then-Vice Premier Zhu Rongji became governor of the central bank, the People's Bank of China (PBOC). China's financial system was on the brink of chaos, and to establish control Zhu implemented measures and issued regulations aimed at segmenting the financial system by products, markets, and institutions. He required banks to separate or divest themselves of their finance, leasing, trust, and securities companies and to cease lending to these companies. He required that insurance-company funds be invested only in government bonds and bank deposits.

This rigid system of compartmentalization and control was necessary then, but now clearly runs counter to global trends and China's needs in the medium (three-to-five-year) and long term. A number of late-1999 developments indicate that the process of financial-marketplace reform and integration has started to follow a more aggressive timetable. Securities companies and securities investment funds may now raise funds through interbank funding markets. And life insurance funds may flow into the securities market via investments in professionally managed securities investment funds. China is also allowing, on an experimental basis, insurance companies to offer a "participating" type, variable rate-of-return pension product—in which the insured selects premium investments and takes performance risk.

Stephen M. Harner
is president of S. M. Harner and Co., a Shanghai-based consulting firm. Harner was chief representative of Deutsche Bank AG in Shanghai from 1995 to 1998 and previously held positions with Citibank and Merrill Lynch in Asia. He is co-author of *China's New Political Economy* (Westview Press, 1999) and author of *Japan's Financial Revolution and How American Firms are Profiting* (M.E. Sharpe, 2000).



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In the next few years, the greatest opportunities for foreign institutions might be found in cooperating with and investing in second-tier domestic banking groups.

Learn from Asia—Especially Japan

The Asian financial crisis of 1997-99 imbued Chinese financial regulators with a more realistic view of China's needs and a sense of urgency about financial reform. Also behind PRC regulators' anxiety is the perception that financial institutions and markets around the world have entered a phase of rapid, dramatic evolution, and that China risks falling behind. This new mentality strongly favors faster market opening.

Chinese planners and regulators have often sought to emulate Japan's development model. Today's financial regulators—the People's Bank of China for the banks, the China Securities Regulatory Commission for the securities and asset-management industry, and the China Insurance Regulatory Commission for insurance—are paying attention to Japan's revolutionary "Big Bang" deregulation program, which is totally dismantling the system of financial-market and -institution segmentation prevailing since World War II. China is perhaps taking a lesson from Japanese regulators, who have concluded that conforming to global trends and accommodating, rather than blocking, foreigners are both essential to maintaining the competitiveness and systemic health of Japan's financial institutions and markets. The same concerns and conclusions occupy the minds of most senior Chinese regulators.

—*Stephen M. Harner*

2003-05: opportunities abound

In the context of China's ongoing institutional development, foreign firms are asking where, specifically, they will find greater access over the next few years. An assessment of today's trends, policy directions articulated by China's financial regulators, and the published views of industry advisors whose opinions have influenced policy development, suggests the following:

Banking

The earnest effort to reform, commercialize, and recapitalize China's four state-owned commercial banks—the Industrial and Commercial Bank of China, China Construction Bank, Agricultural Bank of China, and Bank of China—which together constitute some 80 percent of the deposit and credit market, is two years old (*see The CBR*, November-December 1999, p.16). These efforts including a recycling of statutory reserves into bank capital, enforcement of a loan-classification system, and establishment of asset-management companies to purchase bad loan portfolios, among other tactics—have achieved substantial progress. The pace of reform will undoubtedly quicken in the next three to five years.

● **Joint-venture banking** In the next few years, the greatest opportunities for foreign institutions might be found in cooperating with and investing in second-tier domestic banking groups. Commercial banking, while still highly restricted, is currently the sector most open to foreign competition. Within five years restrictions on foreign banks will have been largely removed, providing a level playing field with local banks. However, foreign banks are finding that competing head-to-head with the big four state-owned Chinese banks in providing commercial banking services is increasingly difficult, as the latter continue to improve their professionalism and service capabilities. The Chinese banks' natural home-market advantages are also likely to become more decisive in the future.

In addition to the four state-owned banks, China has 10 shareholder banks, including Everbright Bank, Bank of Communications, China Merchants Bank, Shanghai Pudong Development Bank (SPDB), China International Trust and Investment Corp. Industrial Bank, and Minsheng Bank, as well as a host of city cooperative banks (formerly urban credit cooperatives). Many new shareholder banks are likely to be established in China over the next few years, and some of them may join SPDB and Shenzhen Development Bank as domestically listed companies. SPDB raised roughly $482 billion in a very successful initial public offering (IPO) in the domestic A-share market in September 1999.

All of these banks will need capital and know-how to compete in a more open marketplace. Foreign banks could conceivably be sources of both. In September 1999 the International Finance Corp. of the World Bank paid some $22 million for a 5 percent stake in Bank of Shanghai, formerly the Shanghai City Cooperative Bank. Larger equity investments by foreign financial institutions in existing and new Chinese banking companies are likely to be permitted, and could make good strategic sense for foreign investors.

● **Consumer finance** China's nascent consumer-finance market appears to offer great long-term potential. Foreign firms are drawn to non-commercial banking areas like consumer finance, mortgages, and credit cards. Equity-based cooperation with a Chinese bank could provide foreign institutions with a valuable opportunity to gain experience in the Chinese marketplace before executing a long-term plan of independent operations.

An eventual open market will allow exceptional players like Citigroup Inc. and HSBC, which have successfully developed consumer franchises in other Asian markets, to eschew joint ventures and pursue a "go-it-alone" strategy.

Insurance

China's insurance premiums totaled $16.6 billion in 1999, up 10.2 percent from 1998. According to China Insurance Regulatory Commission (CIRC) Chairman Ma Yongwei, there are now 30 insurance companies operating in China—this figure does not include the 17 joint ventures with foreign insurance firms.

● **Property and casualty** In this sector, the state-owned People's Insurance Co. of China (PICC) holds some 80 percent of the market. Although geographic restrictions on foreign insurers will be lifted once the PRC joins the WTO, the business opportunity for foreign insurers is likely to be limited simply by small market size. In China, as in most countries, the greatest volume of non-life insurance written is auto insurance. But the stock of autos is small (there were an estimated 4.3 million privately owned cars in China in 1998, according to *China Business Update—Automotive*), PICC is entrenched in the state-owned sector, and there are many competitors.

● **Life** PRC demographics, shrinking state subsidies for social services (such as medical care), and rising incomes virtually guarantee huge market potential in life insurance and increasingly in pension and health insurance as well. Life insurance premiums now account for about 60 percent of total insurance premiums, a level similar to that of developed countries, and have been growing at triple-digit rates in recent years. Chinese firms, particularly state-owned China Life, dominate the market. But the experiences in Shanghai and Guangzhou of American International Assurance Co., Ltd., a life insurance operation of American International Group, Inc., show that foreign companies with innovative selling methods and products can achieve high growth rates and market shares. How to position themselves in a rapidly expanding market will be the key challenge for new foreign insurers in China.

China's life insurers, like its banks, need foreign capital and expertise. Beijing's pragmatic

China: A Commitment To Growth

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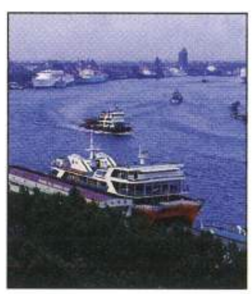

Phillips Petroleum is eager to explore new opportunities that will lead the way to accelerating development and maximizing growth in China.

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PRC authorities will also encourage foreign securities firms to take minority equity stakes in new or existing fund-management companies offering new funds. In return for their contributions of expertise, foreign investors will gain experience in the domestic A-share market, which will be open to the joint-venture funds.

approach to dealing with these needs has been to grant case-by-case approvals of foreign investment in Chinese life companies and new life insurance joint ventures. In October of last year, for example, Beijing-based Taikang Life Insurance won approval to sell up to 20 percent of its equity to foreigners. It was the second such "experimental-basis" approval. The most recent joint venture is between Sun Life Assurance of Canada and China Everbright Group. The 50-50 venture, capitalized at ¥200 million ($24.1 million), will begin operations this year.

Deregulation is granting life insurers broader scope to offer flexible investment-type products in addition to the fixed-rate, savings-type products that dominate the market today. In this area foreign firms have vast expertise. As Chinese financial-market deregulation continues, foreign investors can expect life insurance companies to begin providing active asset management, for example, for pension funds. The need to learn from foreigners will drive cooperation and likely result in the establishment of joint-venture asset-management companies, with foreigners restricted to minority positions.

RMB Convertibility: Helpful But Not Essential

A few years ago foreign financial practitioners tended to think that meaningful opening of China's financial market—and the resulting potential—would only be realized after the *renminbi* (RMB) became fully convertible. This view is now outdated.

Of course convertibility would be helpful. It could, if accompanied by enabling legislation, open the market for offshore funds and foreign-currency denominated products, for offer both to institutions and individuals. But the market opening and the rewards expected by 2005 do not depend upon full RMB convertibility. Though convertibility would facilitate foreign financial institutions' ability to intermediate between foreign investors and Chinese domestic issuers, these institutions have a greater desire to intermediate flows of Chinese domestic capital, and participate in China's fast-growing domestic issue market, a totally new market opportunity.

—Stephen M. Harner

Securities

Making sure that its capital markets continue to facilitate a steady flow of private investment into reforming state and non-state enterprises is among China's highest priorities. Upgrading the capabilities and professionalism of China's domestic securities industry is part of this process, as is nurturing an institutional investment industry.

The domestic securities industry, with over 450 licensed operators, is currently consolidating and rationalizing. To survive in a more competitive and open marketplace, securities firms must expand their capital bases. The registered capital of China's largest securities firm, Shanghai based Guotai Junan Securities, is some $450 million. Its total assets are only around $3.7 billion. Given the high profitability of the domestic securities business, leading firms will have no trouble raising capital. Better companies will likely raise equity from private placements and, in some cases, through IPOs on the domestic market.

Again, where foreign firms will be welcomed is in providing expertise, particularly to build an institutional investment industry. The China Securities Regulatory Commission's policy now focuses on increasing the number, professionalism, and performance of Chinese securities investment funds. These are listed mutual funds, which raise investment capital from the public. By December 1999, 20 such funds existed and were managed by specialized fund-management companies established by domestic securities and trust companies. The funds boasted portfolios valued at over $6 billion (up four-fold compared with year-end 1998) and contributed about 6 percent of the traded volume on China's two exchanges.

PRC authorities will also encourage foreign securities firms to take minority equity stakes in existing or new fund-management companies offering new funds. Foreign firms would do well to do so. In return for their contributions of expertise, foreign investors will gain experience in the domestic A-share market, which will be open to the joint venture funds.

- **Asset management** Apart from developing listed mutual funds, China needs and wants to expand and professionalize its asset-management institutions. Institutional managers, now generally securities firms and trust companies, take money from institutional investors, principally state-owned enterprises and listed domestic companies.

Regulators should begin allowing life insurance companies to develop professional asset-management departments or subsidiaries. Within the next five years, China will likely sanction the establishment of specialized asset-management and investment-advisory companies that can accept and manage client funds. There may also be a change in the current regulations, which prohibit social-security trust, housing, and other funds from entering the stock market. Some of these funds should eventually go to asset managers.

Over the next three to five years, qualified foreign financial institutions are likely to be given opportunities to participate in this sector. Since what the Chinese want most is foreign business intelligence, foreign participation will be limited to joint-venture arrangements. While foreign firms will be keen to gain experience in the domestic market, Chinese partners will be interested in learning about foreign firms' offshore capabilities, with an eye toward developing such activities themselves.

Lingering doubts

Blind faith is an inadvisable business approach for any market. It is appropriate for investors to harbor some skepticism about China's willingness or even ability to implement the market-opening reforms to which it has committed. Much more caution is justified in assessing prospects for opening that extend beyond such commitments.

Even if Chinese regulators are earnestly interested in attracting greater foreign participation, certain domestic interests will likely delay or complicate policy implementation. On the other hand, there will be countervailing influences from interests that will benefit from such policies. The dynamic observed in China's opening to general foreign investment, of domestic companies and localities competing to link up with foreign interests, should also prevail in the financial services marketplace.

Possibly more serious is the issue of "regulatory fatigue"—the capacity constraints of new, inexperienced, and understaffed regulatory agencies that must deal with incomplete or inconsistent regulatory guidelines in implementing a deregulation and market-opening program. The new China Insurance Regulatory Commission has encountered just such problems. The constraints of regulatory fatigue affect not just foreign companies, but the regulated industry as a whole.

Regulatory fatigue is not new to China's financial reform process. It is evident in both the slow pace of legal development (e.g., the long delay in passing the Securities Law); in the tentative, experimental approach to almost all regulatory innovation; and in slow, spotty, or inconsistent implementation of rules and regulations at the local level. Regulatory fatigue was severe during the period when basic legislation was missing altogether and regulatory structures were still undecided. Though this period has largely passed, regulatory fatigue is not expected to disappear as a constraint and concern in China. Nevertheless, the situation should improve, particularly in the 2003-05 period.

Long-term optimism

For foreign financial practitioners, the opening of China's financial services marketplace remains frustratingly slow and inadequate. Neither this sentiment nor the underlying reality will change dramatically in the next two to three years.

Looking further ahead, however, there is ample reason for optimism. China clearly sees greater opening of the financial marketplace as imperative for medium- and long-term development. With such a perspective, foreign investors can rely on PRC authorities to keep to their schedule of commitments and to force changes on reluctant domestic competitors. All this is good news for foreign financial institutions seeking to develop business in China.

A WTO Model: Setting Aviation Standards in China

Elizabeth Keck

Why I'm an optimist about WTO implementation in China

Immediately after the November signing of the US-China agreement on the PRC's World Trade Organization (WTO) accession, there was much speculation about whether or not China would implement the final WTO deal. Many people were pessimistic. But the track record of aviation standards-setting in China during the past decade provides a strong basis for optimism and a model that we should consider for other sectors in which the United States has a strong interest.

Aviation standards-setting in China dates back to the normalization of US-PRC relations, when China regained its seat in the International Civil Aviation Organization (ICAO), the international standards-setting organization for aviation. Aviation, like banking and telecommunications, is an industry without borders, and implementation of international standards is critical to the safety and efficiency of the system.

As is true of the WTO today, when China rejoined ICAO, there were many ICAO standards it did not meet. But over the past 25 years, the ICAO standards and recommended practices have clearly become the framework that guides China's aviation leaders.

Chinese government officials' reliance on ICAO standards came about as a result of a mixture of pressures. While the specific pressure points are likely to vary in other sectors covered by the WTO, the aviation standards-setting experience provides examples of the types of forces that can prompt change in Chinese standards and methods of governance.

Round one: commitment and cooperation

The aviation story illustrates that the success in this sector has involved strong leadership from the General Administration of Civil Aviation of China (CAAC), and its effective and consistent interaction with its US counterpart, the Federal Aviation Administration (FAA), as well as the US aviation industry.

Twenty years ago China, like many countries around the world, had a strong, nationalistic desire to develop its own air-transport manufacturing capability. In the 1980s it found a Western partner in the McDonnell-Douglas Co., which was seeking entry into this potentially lucrative market. The result was one of the largest technology-transfer deals in aviation history, which included the assembly of MD-82 aircraft in Shanghai.

But the deal hit a snag—it needed approval from the FAA, the US safety regulatory organization. If an American aircraft manufacturer was going to assemble aircraft overseas, the FAA insisted there be a competent safety oversight authority in that country that could provide surveillance.

This was a new concept for the CAAC, at that time organized along the Soviet-style central-planning model under which a single organization controlled all aviation functions. Regulatory safety standards did not exist, nor was there any independent, Western-style oversight of the industry. The regulatory and oversight concepts that the FAA required, while new to CAAC, were in fact based on those of ICAO.

The institutional changes that the FAA's requirements implied were no doubt highly controversial within China's aviation circles, as the structure that the FAA advocated meant fundamentally changing the relationship between CAAC and China's aircraft and equipment manufacturers. There is also no doubt that CAAC's ultimate success in building an aircraft-certification oversight organization from scratch was due to strong, visionary, and persistent leaders who were committed to establishing this new government-oversight system.

Credit also goes to the FAA, whose safety-regulatory leaders made a commitment to provide (CAAC-funded) technical assistance. Together, the FAA and CAAC devised a technical-exchange program through which CAAC developed a manufacturing-oversight capability meeting international standards. Both government and industrial collaborations were successful, and China assembled 35 MD-82s in Shanghai, some of which fly in the US fleet today. Most signifi-

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cantly, CAAC had taken its first major step toward organizational reform and implementation of internationally recognized standards.

To take the WTO standards from concept to implementation, we should encourage a policy that builds strong, long-term ties between US government regulatory organizations and their Chinese counterparts.

Round two: carrier oversight

For nearly a decade, the application of international standards was primarily limited to aircraft manufacturing—until new circumstances in China again challenged CAAC's traditional way of governing. The decentralization of air carriers that began in 1988, combined with rapid growth of the aviation system, resulted in a problem other countries have faced in times of rapid expansion—a poor safety record. By 1994, a series of Chinese air-carrier accidents had resulted in some 400 deaths.

China's leaders were again forced to react. As a first step, CAAC's leaders used a patchwork of administrative guidance to bring the accident rate under control, though these measures had very limited enforcement authority. CAAC looked inward and determined that China needed to craft a new organization to oversee air carriers.

CAAC, remembering its positive experience working with the FAA and US industry in the manufacturing area, began looking for international partners to tackle this new problem. In addition to seeking assistance from US industry, CAAC invited an FAA team to China to help evaluate its current airline-oversight capabilities and lay out a plan for the future. Again, the standards used were not those of the FAA, but those of the ICAO.

By 1996, CAAC had made progress in writing a new air-carrier oversight regulation based on ICAO standards. An example of an important ICAO standard that CAAC adopted was China Civil Aviation Regulation Part No. 121, implemented in 1998, which provides the operational safety standards for China's 27 commercial air carriers.

Chinese air carriers vehemently resisted CAAC implementation of these new standards, as it meant putting in place procedures that would be subject to CAAC scrutiny. But at the same time a new pressure emerged: Chinese carriers were demanding greater access to the US market. To expand, FAA regulations required that CAAC base oversight of its air carriers on ICAO standards. If PRC air carriers were to have the market access they desired, they had no choice but to implement the new ICAO-based regulations and allow CAAC inspectors to review their operating and maintenance procedures extensively.

That desire for international market access broke the impasse. Today CAAC continues its work of implementing these standards with all of its airlines, the result of which has been a safer aviation system.

This partnership has served American interests well. Most important, it has resulted in a safer aviation system for the 60 million people who fly in China each year. The use of ICAO standards has also benefited US aviation manufacturers and suppliers competing for business in the China market.

The International Civil Aviation Organization

Every International Civil Aviation Organization (ICAO) signatory commits to implementing ICAO's standards and recommended practices. With more than 180 countries as members, including the United States and the PRC, ICAO represents a broad consensus on air safety and standards. US Federal Aviation Administration (FAA) standards must and do meet the ICAO principles.

In working with PRC counterparts, FAA officials have emphasized ICAO standards because they are principles that have been developed with input from many countries, not just one. The FAA would not have fared well in its international relationships if it had advocated only its own set of rules and regulations. And everyone benefits when countries strive to meet the standards that have been arrived at through international consensus.

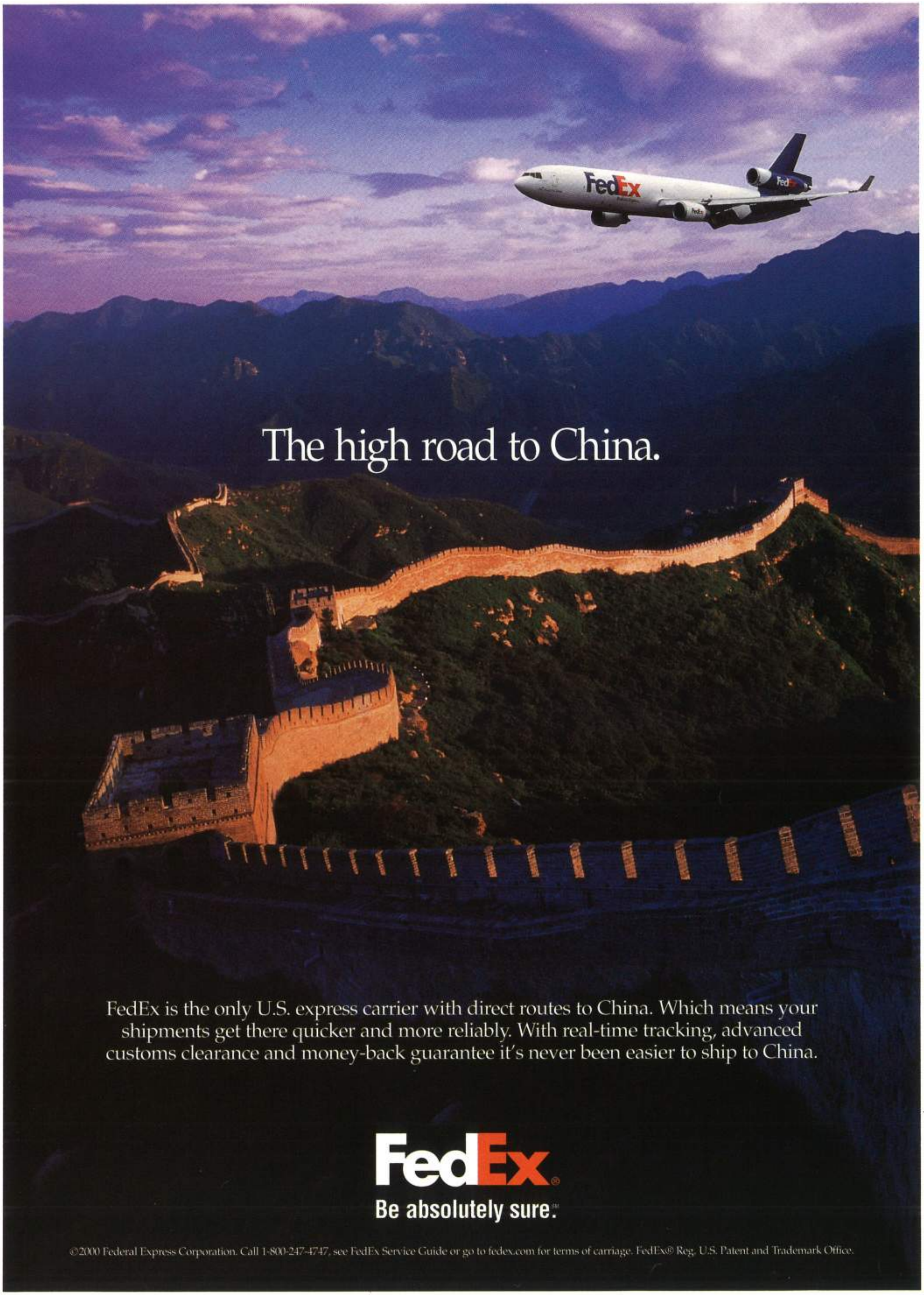
—Elizabeth Keck

Lessons for WTO implementation

As we look toward developing the architecture of the US-China economic relationship in the WTO framework, we should take advantage of the lessons learned from our success in the aviation sector. For China to devise modern tools and policies for governing under WTO rules, it will need input from a variety of sources. The US insurance industry, among many other well-organized US sectors, already provides advice to the Chinese government bureaucracies that govern its PRC operations.

However, our aviation experience suggests that we should also encourage a policy that builds strong, long-term ties between US government regulatory organizations and their Chinese counterparts. To take the WTO standards from concept to implementation, Chinese regulators need role models, coaching, and advice from colleagues who have faced similar policy challenges.

And as we have seen with the aviation relationship, when the bureaucratic pressures emerge, a trusted partnership between US and Chinese technical governmental bodies can be helpful in brokering solutions and moving the international standards-setting agenda forward—which is in all of our interests.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China's Widening Web

Stephen J. Anderson

China's Internet is expanding, but is hampered by more red tape than foreign investors would like

China's rapidly growing Internet businesses have been attracting the attention of foreign ventures with the necessary technological and financial resources to enter the market. Commercial Internet businesses in China face major difficulties, however. Slow network connections, rising expenses, regulatory uncertainty, and competition from the telephone monopoly are among the most damaging obstacles. The earliest Internet service providers (ISPs) in particular have been subject to price controls that have chipped away at their profits. But many firms still hope to benefit from China's potential as a leading Internet market. The Chinese language may someday be the medium of communication for the largest number of Internet users worldwide, and in the judgment of many foreign investors, this alone offsets the extensive risks.

Penetrating China's Internet-related markets requires patience and a set of focused approaches. If a firm approaches the market with the view that long-term involvement is crucial, then investment in China is a strategic move. In contrast to the current uncertain legal environment surrounding Internet-service and -content provision, high-end software and hardware products, made especially for customized servers and equipment used in large systems, are legal and in demand. Such products will need intensive after-sales service and technology support from a foreign representative office or foreign-owned enterprise for the foreseeable future.

China's Internet infrastructure

The global Internet-related markets depend upon an infrastructure of national domain registrars and network organizations. China has a single registrar for ".cn" domains, the China Internet Network Information Center (CNNIC). Six network organizations, regulated by Ministry of Information Industry (MII) officials, operate international telecommunication circuits and network facilities: China Public Computer Network (CHINANET), China Golden Bridge Network (CHINAGBN), Unicom's UNINET, China Netcom (CNCNET), Chinese Science and Technology Network (CSTNET), and China Education Network (CERNET) (*see* p.21 and Table 1). These networks form China's Internet backbone, and connections to this backbone can make up 80 percent of the costs of Internet businesses.

China's Internet backbone infrastructure runs at increasingly high speeds. According to CNNIC, China had a combined international bandwidth of 351Mbps (million bits per second) by December 1999. This is a healthy increase from the 143Mbps of January 1999, but is dwarfed by the 622Mbps speeds of OC-12/STM-4 bandwidth of the US Internet backbone.

Each network organization is constructing new infrastructure that will further improve access speeds. Speed of access is a nationwide problem in part because most ISPs use modems with only 56Kbps (thousand bits per second), even though their direct digital networks connect with network organizations at speeds ranging from 256Kbps to 4Mbps. But bandwidth is still a problem, with the key networks between big cities generally only supporting 64Kbps-8Mbps, and only parts of these networks reaching 155Mbps.

Government limits service offerings...

MII-issued permits enable CHINANET, CHINAGBN, UNINET, and CNCNET to support business operations on the Internet. These four network operators are thus defined as national business networks providing commercial connections to the Internet. MII has also approved them for trial use of Internet Protocol (IP) telephony. The government has banned foreign investment in these four companies, and forced Unicom and its subsidiary UNINET in particular to unwind its numerous arrangements with foreign investors under the so-called "Chinese-Chinese-Foreign" (CCF) model (*see The CBR*, May-June 1999, p.16). Unicom recently took steps to improve damaged relations with 23

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foreign investors, but the CCF controversy was a sobering lesson for telcom-related businesses.

China officially does not allow cable companies to offer telephony, but some experiments with Internet services are under way. Though the State Council, through the State Leading Group on Informatization chaired by Vice Premier Wu Bangguo, seeks to ban cable networks from offering telecom services, including Internet access, local pilot projects continue. Qingdao, Shandong Province, and Guangzhou and Shenzhen in Guangdong Province, have launched cable television networks offering experimental broadband Internet access. As cable modems and other means of high-speed access become available, competition on both price and quality are likely to intensify.

...and tries to regulate, strictly

The constant changes among Internet businesses, such as new approvals by provincial authorities and numerous experiments with new technologies, have prompted MII and other authorities to revise regulations for both ISPs (in which foreign investment is limited) and Internet content providers (ICPs), in which regulations are unclear. Between October 1999 and January 2000, the State Leading Group on Informatization issued directives, and MII considered regulations, to organize the Internet industry and address broad issues about content, operations, and encryption (*see* p.61).

The effects of these and other regulations have varied. Chinese officials state that one of MII's main tasks is to support and develop information sources, and to provide information on the highest quality ISPs and ICPs. MII regulation to date is also based on earlier regulations for the Internet and value-added telecommunications services. Despite efforts by some government officials to protect national and economic security through the exclusion of all foreign participants, the future Internet legal framework will likely evolve under the umbrella of World Trade Organization (WTO) rules. This does not mean that foreign companies will see a total opening of China's Internet market after the country becomes a WTO member. Rather, Chinese officials will likely seek a smooth and orderly progression based on licenses and strong legal and regulatory oversight.

MII licenses are currently required for production and sale of all types of telecom-related equipment including wired, wireless, hardware, and software products. MII has authorized telecommunications administrations to issue network-access licenses and identification marks, which are placed on the licensed products. The sale, use, or advertisement of unlicensed telecom products in China is prohibited. Violators are warned and then fined for continued non-compliance.

In 1999, the Chinese government approved more than 300 ISPs. Among them were 53 companies approved by MII for nationwide services, and more than 250 firms approved by provincial governments and post and telecommunications authorities (PTAs) for province-wide services. The MII Telecommunications Administration Bureau's Division of Market Management monitors recent industry developments for such Internet businesses and oversees the permit approval process.

China does not regulate approval of ICPs, which MII estimates at more than 600 nationwide, but this situation may change. Among other value-added telecom and information services, MII recognizes at least 2,744 companies that had operation permits as of the end of 1998. This figure includes 1,808 paging companies,

Foreign companies should not expect a total opening of China's Internet market after the country becomes a WTO member. Rather, Chinese officials will likely seek a smooth and orderly progression based on licenses and strong legal and regulatory oversight.

China's Major ISPs

CHINANET (*www.chinanet.cn.net*), operated by China Telecom, has become the country's dominant Internet provider and offers services in all major cities in China. At the end of 1999, CHINANET had total bandwidth of 291Mbps (million bits per second), or 83 percent of Chinese connections to the global Internet backbone. Though China Telecom itself is the dominant Internet service provider (ISP) for CHINANET, a few small ISPs operate by leasing CHINANET resources from China Telecom. But China Telecom's high leasing fees have effectively prevented these small ISPs from becoming significant players in the ISP business.

CHINAGBN (*www.gb.com.cn*) is operated by Jitong Communication Co. Ltd. In January 1994, the state-owned Jitong was founded to operate the network, but did not launch its CHINAGBN services until September 1996 (nine months after CHINANET). Jitong is also the main ISP for CHINAGBN and offers IP telephony and other Internet services.

UNINET (*www.uninet.com.cn*) is run by China Unicom, China's second telephone operator, and has developed extensive cellular and paging services. In southern China, Unicom is using its IP network UNINET for IP applications such as Voice over IP and Fax on IP, but plans to offer Internet-access services on UNINET in 100 cities sometime this year.

CNCNET will be run by China Netcom Corp. Netcom is largely in the planning stages, but this new telecom operator will base its network on connections to existing broadcasting and railway networks, and it will offer wholesale broadband access as well as local Internet service in major Chinese cities.

CSTNET, the China Science and Technology Network (*www.csnet.net.cn*) offers its services to the public, but the majority of its users are provincial- and local-government agencies and state-owned enterprises. Though some of these enterprises have Internet access, CSTNET is not primarily a business-related network.

CERNET (*www.cernet.edu.cn*) is the Ministry of Education's campus network, linking China's major education and research institutes. Along with CSTNET, CERNET provides mainly scientific research and educational information.

—Stephen J. Anderson

US dominance in Internet-related technology gives American firms an edge in China.

China's Internet users

China Internet Network Information Center (*www.cnnic.net.cn*) recently released its official 1999 Internet survey results. Last year, the number of Internet subscribers in China rose from 2.1 million to 8.9 million, China's domain addresses increased to 48,695, and the estimated number of websites jumped from 5,300 to 15,153. Because the sharing of Internet accounts is widespread, preliminary estimates indicate that the actual number of Internet users in China may be as high as 20 million by the end of 2000.

Profiles of CNNIC respondents nevertheless show that usage is increasing at home, that Windows prevails despite challenges from Linux-based operating systems, and that information and e-mail are key services offered by China's Internet businesses. When choosing an ISP, respondents consider three factors most: speed (43 percent), service (24 percent), and price (24 percent).

The 1999 CNNIC survey also investigated the methods and purposes of Internet access (*see* Table 2), though the geographic limits of growth are apparent. For the most part, the Internet remains a tool for residents of Beijing, Guangdong, and Shanghai, where 50 percent of total .cn domain names are located (*see* Table 3). Nevertheless, the number of users is expected to continue to climb rapidly, and foreign firms are eager to tap this new and potentially lucrative market.

—*Stephen J. Anderson*

some seeking to become ISPs or ICPs and using their subscriber base to develop related networking businesses. MII has drafted new regulations on both ISP and ICP management that are not yet published, and in January 2000, the State Leading Group on Informatization issued further directions to organizations charged with protecting state secrets.

This regulatory activity had become apparent, in Shanghai, by February 2000. On February 2, the Shanghai News reported that authorities had closed 127 illegal Internet cafes and seized their computers. The report emphasized that 777 legal cafés continued to operate. Other reports that work units would have to register Internet use appeared to focus only on the Huangpu District, where Shanghai's government offices are located.

China's new regulations are likely to require ISPs to obtain a permit to do business and may require ICPs with servers in mainland China to comply with procedures set by MII, local PTA, and police authorities. As *The CBR* goes to press, the jurisdictions and organization are still in flux.

In practice, regulating Internet businesses will be a daunting task. Government authorities can make access expensive and can ensure that content is channeled through selective prosecutions and the resulting self-censorship. But the control and monitoring of distributed IP networks will prove a challenge given the government's commitment to growth in the information industry.

Competitive strategies: US companies...

US dominance in Internet-related technology gives American firms an edge in China. Local companies operate established sales channels to import and distribute all leading US information technologies and products, with Hong Kong as a major transit port (*see The CBR*, January-February 2000, p. 64). Most major US technology firms—including Cisco Systems, Inc. (*see* p.28), Compaq Computer Corp., Dell Computer Corp., Hewlett-Packard Co., IBM Corp., Intel Corp., Microsoft Corp., Oracle Corp., and Sun Microsystems—have established subsidiaries in China.

Many have also formulated sophisticated strategies for working with universities to develop research and development facilities to customize products for the China market. These strategies include plans for long-term involvement in the development and contributions of Chinese engineers, as well as monitoring emerging technologies in China.

In Internet-related investments, American investors in leading Chinese ICP portals may be the most prominent new trend. Sohu.com attracted Intel, Dow Jones & Co., International Data Group (IDG) and the Massachusetts Institute of Technology (MIT), while China Infohighway has formed an alliance with Microsoft. Sina.com and China.com count Dell Computer and America Online, Inc. (AOL), respectively, among their backers. These investments and partnerships are only a few of the vast number of relationships between American-based firms and the Chinese entrepreneurs engaged in Internet business.

...third-country products...

Taiwan companies, Japanese firms such as Matsushita Electric Works, Ltd., and Korean firms such as Lucky Goldstar (LG) are large investors in China. Of all the foreign challengers in mainland Internet markets, Taiwan companies have offered the most competitive products and services. They only compete in older technologies, however, which they are able to offer at lower prices.

...and foreign-PRC cooperation

Chinese firms are seeking to develop indigenous capacities and cooperate with others on products such as Internet television set-top boxes, which lack word-processing and spreadsheet software. Legend Computer Group, Hai'er Group Co., Beijing Stone Group Co., TCL Communication Equipment Share Co., Ltd., Beijing Yuxing Infotech Holdings, Ltd., and Shanghai Guangdian Electric (Group) Co. Ltd. are all producing Microsoft's set-top box, Venus. Leading Chinese firms aiming to become international brand names are seeking to learn about new standards and technology related to their

Table 1
Major PRC Networks and Bandwidth (millions of bits per second [Mbps])

ISP Firm Name	Oct. 1997	Jul. 1998	Jan. 1999	Jul. 1999	Jan. 2000
CHINANET	18.8	78.0	123.0	195.0	291.0
CHINAGBN	2.3	2.3	8.3	18.0	22.0
China UNINET	—	—	—	12.0	20.0
CSTNET	2.1	2.1	4.0	8.0	10.0
CERNET	2.3	2.3	8.0	8.0	8.0
Total	25.4	84.6	143.3	241.0	351.0

SOURCE: China Internet Network Information Center (CNNIC)
NOTE: — Not available

strengths in consumer electronics and personal computers. In some of these markets, Chinese manufacturers have made substantial gains.

Domestic production: not yet high tech

Domestic production remains limited to the assembly of final products and the manufacture of products like PCs, monitors, computer accessories, modems, and some ISDN equipment. China still lacks the technology to manufacture high-tech hardware profitably. The Chinese government is using its influence to encourage foreign companies to localize production and introduce their newest technologies in Special Economic Zones, which offer tax and other investment incentives. As a result, and despite the risks, many US companies have set up wholly foreign-owned or joint-venture manufacturing and R&D facilities in China.

Because of China's high import duties and preferences for locally made products, once domestic production of a particular product begins, imports may be driven out of the market unless their quality is significantly superior. The still-undecided battle over set-top box dominance is a prime example. Microsoft's Windows CE-based Venus project has recently been challenged by the Chinese Nuwa brand and other Internet-access boxes.

China's buyers

Network operators, which are subject to central planning and headquartered in Beijing, are the biggest buyers of Internet-related products. While central-government control over network planning remains, regional branches are making more and more of their own purchasing decisions. ISDN, DSL, cable modem, web-based e-mail, and IP telephony are also being purchased in the provinces, as well as at Beijing headquarters.

Government and state-owned enterprises are the next big buyers, as "Government Online" projects have led to new purchases. Central and provincial governments are mandating budgets for bringing the government agencies and key state-owned enterprises to the World Wide Web and e-mail.

Foreign access to China's Internet market

American information technology companies have witnessed a number of recent improvements in access to China's markets, attributable at least in part to their strengths in businesses related to the Internet. While the memory of past problems—including Unicom's CCF debacle—lingers, progress on investment, piracy, tariffs, and collective action is moving the industry forward. Nonetheless, US companies face a number of uncertainties in the following areas:

- **Foreign investment** Ambiguity over the legality of foreign investment in Internet businesses increases risks. The ban on foreign investment in ISPs has been explicit, while the practices toward ICPs are slightly more flexible. Exactly how WTO accession and forthcoming regulations will address, or even craft, exceptions for existing businesses, or new ventures in the three main cities, is still unclear. After China joins the WTO, its regulations will change, but broad questions remain about the timing and implementation of these changes.

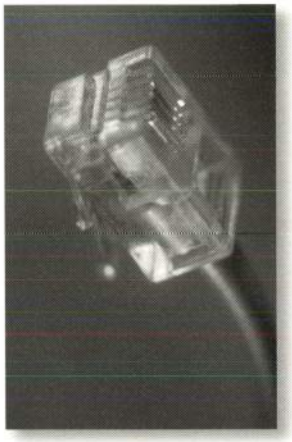
To protect their interests, some US information technology companies are building up, rather than reducing, their China presence. For example, even though a large percentage of the networking software currently in use in China is pirated, Novell (China's largest network software provider) continues to offer training courses for its Network Certified Administrator test—building a market for its legal products.

- **Tariffs** In bilateral agreements on its WTO accession, China agreed to the Information Technology Agreement (ITA), which calls for the gradual elimination of tariffs on IT products in the first few years after accession. From operating systems to web browsers, and from servers to applications, tariffs will drop on software products. If China joins in 2000, most tariffs will be eliminated by 2003, though some will remain until 2005.
- **Intellectual Property Rights** Piracy is a fundamental issue for any US technology company

Table 2
Why Users Access the Internet (percent)

Service	Jan. 1999	Jul. 1999	Jan. 2000
E-mail	94.0	90.9	71.7
Search engine	35.0	65.5	50.4
Software downloading or uploading	77.0	59.6	44.2
Research	95.0	54.0	39.3
Chat	42.0	29.2	25.5
IP telephony/paging	19.0	22.8	20.9
Newsgroups	—	—	17.0
Bulletin board services	—	—	16.3
Entertainment & games	35.0	15.8	13.6
Free personal website hosting	—	—	13.5
Stock trading and research	2.0	9.7	8.5
E-business/Internet shopping	15.0	3.5	7.8
Online payment	—	—	1.8
Other	—	0.9	0.2

SOURCE: China Internet Network Information Center (CNNIC)
NOTE: — Not available



hoping to enter, or already invested in, the Chinese market. Chinese consumers frequently consider purchasing legitimate software an unnecessary expense because cheap, pirated versions are widely available. Despite significant PRC government efforts to shut down manufacturers and retailers of pirated software, piracy continues to be a serious problem, and has yet to become a top priority among Chinese officials. As all sides acknowledge, the development of a safe and mature software market will be a long process.

One encouraging development is that Chinese software firms increasingly support anti-piracy efforts. Eighteen well-known companies, including Legend, Founder Group, and China National Computer Software Service and Technology Corp., support the China Software Alliance (CSA, or *Zhongguo Ruanjian Lianmei*), which seeks to address software piracy. CSA Secretary General Zou Bian reports that the organization's resources are limited, however, and until substantial resources are found for these efforts, both Chinese and foreign firms will suffer.

For an individual company interested in entering the Chinese market, popular products require protections. As a handful of US firms are well aware, user-friendly products proliferate quickly, whether or not the producer has a representative in China and whether or not the producer is being properly paid for its product. To protect their interests, some US information technology companies are building up, rather than reducing, their China presence. For example, even though a large percentage of the networking software currently in use in China is pirated, Novell (China's largest network software provider) continues to offer training courses for its Network Certified Administrator test. Using this creative approach, Novell has begun to establish itself as the industry standard for network software—and to build a market for its legal products.

Table 3
China's Four Million Internet Subscribers by Region (percent)

Beijing	21.2
Guangdong	12.9
Shanghai	11.2
Jiangsu	5.9
Shandong	5.2
Zhejiang	4.5
Liaoning	4.3
Hunan	3.4
Hubei	3.3
Sichuan	3.0
Others	25.0

SOURCE: China Internet Network Information Center (CNNIC)
NOTE: Total does not add up to 100 percent due to rounding.

The e-commerce grail

Though the CNNIC profile of Internet subscribers is one gauge of usage levels, and indicates limits on electronic commerce, China is already using the Internet for business. Because there are many more actual users than paid subscribers, accurate surveys remain difficult to come by. To date, many surveys—including CNNIC's—have relied on voluntary responses from subscribers or are completed by marketing firms that ask few questions about the Internet.

Because of its prospects for rapid development, electronic commerce is perhaps the most attractive business for foreign information technology companies. Companies are confident that the millions of young, urban, debit-cardholding Chinese—which some estimate will reach 100 million within the next several years—will shop online. In April 2000, China will focus its government and business trade-show efforts on e-commerce, in the form of the Fourth Annual E-Commerce Summit in Beijing, organized by MII

Unclear delineation of jurisdictions over encryption, standards, payment and delivery methods, and other sticky technical issues mean that the development of e-commerce will progress with difficulty in China.

and the State Economic and Trade Commission. Together with IDG's Comdex 2000, the summit will bring added attention to the participating firms and their products. Despite these high profile events, unclear delineation of jurisdictions over encryption, standards, payment and delivery methods, and other sticky technical issues mean that the development of e-commerce will progress with difficulty in China.

Experiments and well-funded projects will nonetheless advance Internet business. Companies seeking business-to-business and electronic data interchange (EDI) applications, such as those used in Shanghai banking and ports projects, have made significant headway in creating testbed efforts for e-commerce applications. However, these projects illustrate that China must resolve the issues of jurisdiction for ISP and ICP regulation and for security-related matters of licensing and encryption technologies. For information technology businesses, China holds both promises and perils that will likely develop as fast as the Internet's influence spreads.

Table 4
Best Sales Prospects for Internet-Related Businesses

Services	VoIP, web-based e-mail, search engines, yellow pages, tourism directories, and e-commerce
Software	VoIP, e-mail, web browser, cache, search engine, instant messaging, and e-commerce
Hardware	Servers, routers, fiber-optic cable, VoIP gateways, ISDN modems, cable modems, cable set top boxes, xDSL, and information appliances

SOURCE: US and Foreign Commercial Service, Industry Sector Analysis, October 15, 1999

www.China

www.bis.org/publ/index.htm

The Bank for International Settlements has posted a paper on strengthening China's banking system in the policy-paper section of its site. The paper is based on a conference held in Beijing in March 1999, and may be viewed online or downloaded as an Adobe Acrobat (PDF) file.

www.tdc.org.hk/mktprof/china.htm

The Hong Kong Trade Development Council offers market profiles of the Chinese mainland as a whole, and of individual provinces and municipalities, on its free site. Each profile features basic economic statistics, as well as information on industry, market conditions, trade, investment, and development zones.

www.abc88.com/english

The World Publication Information Network, established by Beijing Jinze Co. Ltd. and administered by the Chinese Institute of Publishing Science, carries news and information about the publishing industry in China and around the world. The site also contains information on copyrights, bestseller lists, a used book exchange, and an experts forum, where visitors can access articles by Chinese experts in the publishing field.

www.gallup.com/poll/reports/china.asp

Visitors may now access at no cost a summary of Gallup's *1997 Survey: The People's Republic of China Consumer Attitudes and Lifestyle Trends.*

www.ermchina.com

ERM China, part of the US-based Environmental Resources Management Group, is the first privately operated and managed joint-venture corporation providing environmental, health, and safety consulting services in China. Its website features reports and information on ERM's services.

www.cnn.com/ASIANOW

CNN's Asianow page rounds up general, business, sports, and entertainment news from *Time* and *Asiaweek* as well as CNN sources. The site also features travel and weather information for those planning business trips.

www.beijingscene.com

Beijing Scene, a weekly publication aimed at expatriates in Beijing, features information on events, entertainment, restaurants, and bars in China's capital. It also carries columns on local popular culture, language tips, and advice—all delivered with a youthful, irreverent zing.

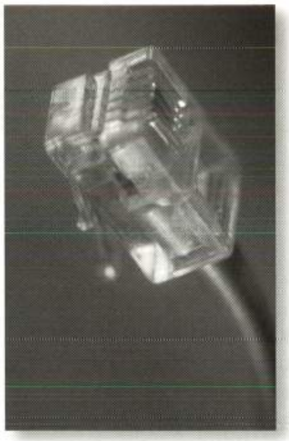
SITES IN CHINESE

www.chinatax.gov.cn

The website of China's State Administration of Taxation (SAT) features brief bios of its top managers, an explanation of the organization's structure, tax news, links to provincial and municipal tax bureaus, and the full text of certain tax laws. Visitors can also email SAT from the site for advice.

www.mii.gov.cn

The Ministry of Information Industry's (MII) site features an explanation of MII's structure, industry news, and the complete text of certain laws and policies. This free site also outlines telecom fee structures and has an extensive section on the Y2K bug, where visitors will find links to Y2K papers from various Chinese ministries and other sources.



Legal Dos and Don'ts of Web Use in China

Daniel Arthur Laprès

China's emerging legal framework for the Internet is strict—but vague

Recent events illustrate the difficulty China's government is experiencing in creating a coherent and stable legal framework for the local Internet. On the one hand, Chinese leaders clearly recognize that the Internet can contribute to the country's economic development. On the other hand, they want to protect relatively weak local operators from foreign competition. They also fear that the Internet, because it facilitates the circulation of information, may intensify political debate and opposition.

To address this fear, Beijing has issued a barrage of new rules governing the use of the Internet (*see* Table). Under regulations issued by the State Council in October 1999, any entity engaged in the research, manufacture, or sale of encryption codes, as well as all users of encryption codes, had to register with the State Encryption Management Commission by January 31, 2000 (*see* p.61). Some thousand enterprises, mostly Chinese, have already complied. Even software in general use, such as Microsoft's Internet Explorer or Netscape's Internet browser, seems subject to the regulations.

Yet another official initiative has apparently prohibited websites from disseminating reports not previously disclosed through official news agencies, thus outlawing news collection through their own "cyber-reporters." And regulations announced in January 2000 by the State Bureau of Secrecy, if actually enforced, could require prior approval of chat room exchanges and seriously stunt the growth of the vibrant local "intertainment" market.

The ground rules

More generally, businesses would do well to remember that China's public security organs have the authority to pursue individuals and organizations using the web to spread pornography, to commit an array of political offenses—which are not always well defined in Chinese law—or to commit Internet-specific offenses, such as "harming other people's information systems and network security." According to the Ministry of Public Security's Computer Information Network and Internet Security, Protection, and Management Regulations, no unit or individual may use the Internet to create, replicate, retrieve, or transmit information that

- Incites violation of the Constitution or laws, or resistance to the implementation of administrative regulations;
- Incites the overthrow of the government or the socialist system;
- Incites division of the country, or otherwise harms national unification;
- Incites hatred or discrimination among nationalities or otherwise harms the unity of the nationalities;
- Makes falsehoods, distorts the truth, spreads rumors, or disrupts social order;
- Promotes feudal superstitions, sexually suggestive material, gambling, violence, or murder;
- Promotes terrorism, encourages criminal activity, openly insults other people, or distorts the truth for purposes of slander; or
- Injures the reputation of state organs.

Net endusers' responsibilities

According to State Council December 1997 regulations (articles 6 and 11), Internet users must

- Obtain proper approval (from the Ministry of Public Security) before using computer networks or network resources;
- Complete and return to their Internet service provider (ISP) a form designed by the local public security office (under article 12, the ISP must transmit the information in this form to the public security office within 30 days);
- Refrain from entering computer information networks or using the resources of the network without permission;
- Refrain from changing network functions (*gong neng*) or adding or deleting information without prior permission;
- Refrain from adding to, deleting, or altering the information stored, processed, or transmitted through the network without prior permission;
- Refrain from deliberately creating or transmitting [computer] viruses; and
- Refrain from all activities that harm the network.

ISP and corporate intranet operator responsibilities

The 1997 regulations (articles 10 and 13) also require ISPs and corporate intranet operators to

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avocat (France), barrister and solicitor (Canada), is co-editor and co-author of *Business Law in China: Trade, Investment and Finance*, (ICC Publishing, 1997). The website of Laprès & Associates (*www.gyoza.com/lapres*) features his other publications on business and law in China.

- Establish a management system for network security and protection;
- Implement security techniques and protection measures;
- Provide security education and training for network users;
- Inspect the content of information released on behalf of someone else and register the unit or individual on whose behalf the information was released;
- Establish a system for registering users and managing the information of electronic bulletin boards;
- Report violations of the regulations within 24 hours of their discovery to the local public security office;
- Remove web addresses and directories and close servers as required by regulations;
- Establish a system for registering users of public accounts; and
- Refrain from lending or transferring accounts.

Outside China, regulations aimed specifically at Internet use are primarily administered by civil authorities or economic branches of government—not the police.

How China's regulations compare

The general regulations protecting state security, at least on the surface, conform with the rules imposed by other countries to protect state secrets and suppress subversion. But it is application of the Chinese rules in individual cases that raises concerns.

Most of China's Internet-specific regulations mirror provisions likely to be found in the laws of other countries. Still, some are specific to China, for example, the prohibition of "promoting feudal superstitions." And the Chinese regulation "to refrain from lending or transferring accounts" appears extreme by international standards, but it is also difficult to imagine how the Chinese police will enforce this prohibition.

Other aspects of the Internet-specific regulations raise more serious concerns. Most important, outside China, regulations aimed specifically at Internet use are primarily administered by civil authorities or economic branches of government—not the police. Unlike China, most democratic countries do not require ISPs to establish a system for registering users with the police, though ISPs will generally maintain such registries, not only for marketing purposes, but sometimes to comply with local tax laws, as well as to minimize the risk of being suspected of collusion with criminal elements.

Outside China, ISPs are generally not expected to review information before posting it to the web or to monitor communications. The Chinese regulations could be applied to hold ISPs responsible for their unwitting dissemination of illegal information. As a matter of fact, many of the leading China portals, including some headquartered outside China, self-censor to avoid running afoul of Chinese authorities.

The most recent measures to protect state secrets go far beyond what would be considered standard practice elsewhere. Requiring that any user of software containing encryption be registered with anyone, let alone the police, is unusual. But whether the Chinese authorities will succeed in obtaining mass filings, not to mention full and honest disclosure of the information they seek,

Continued on page 64

E-edgeball, anyone?

With China's World Trade Organization (WTO) accession pending, foreign investors can hardly be criticized for venturing into the interstices of China's web regulations, especially considering the ways in which Beijing practices its own version of "distinctions without differences" to allow, indeed to encourage, experimental promotion of electronic commerce on a limited scale. Even after the China United Telecommunications Corp. debacle (*see The CBR,* May-June 1999, p.16), foreign players remain willing to invest in agreements on the margins of applicable legal texts. These agreements, though sometimes approved at local levels, are often exposed to subsequent correction by central authorities.

For instance, just as Ministry of Information Industry (MII) head Wu Jichuan was publicly insisting that the prohibition of foreign investment in telecom ventures applied to foreign investors in Internet content providers, Yahoo! executives were announcing in Beijing the opening of their China joint venture.

Though Wu has been quoted as considering telecommunications "value-added" services off-limits to foreign investors, MII has reportedly granted a business license to a joint venture with 50 percent US ownership to provide online trading between Chinese brokers. For its part, Shanghai has authorized foreign investment by "sole investors in an information-service enterprise if they have achieved a certain fame, have total equity of at least $1 million, and operate a technology-development institution in Shanghai."

Since the US-China WTO agreement grandfathers arrangements existing at the time of accession, some operators may even be allowed to maintain positions more favorable than those agreed to in the accession process. Such bonuses for testing the limits of the regulations are hard to resist.

—Daniel Arthur Laprès

China's Internet-Related Regulations

Regulation	Issuing Body	Date
Regulations for the Protection of Computer Software	State Council	June 1991
Interim Provisions on the Approval and Regulations of Businesses Engaging in Opened Telecommunications Services	Ministry of Post and Telecommunications (now part of Ministry of Information Industry)	September 1993
Measures on the Regulation of Public Computer Networks and the Internet	Ministry of Information Industry	April 1996
Computer Information Network and Internet Security, Protection, and Management Regulations	Ministry of Public Security (*Gong An Bu*)	December 1997
Revised Provisional Regulations Governing the Management of Chinese Computer Information Networks Connected to International Networks	State Council	May 1997
Commercial Use Encryption Management Regulations	State Council	October 1999
International Computer Information System Network Security Regulation	State Bureau of Secrecy (*Guojia Baomi Ju*)	January 2000

SOURCES: Daniel Laprès, *China Law and Practice*, Virtual China (*www.virtualchina.com/home.html*), and Chinalaw Web (*www.qis.net/chinalaw/index.html*)

COMPANY SPOTLIGHT

Cisco in China

Cisco capitalizes on China's thirst for networking hardware

With its aggressive, and so far successful, efforts to position itself as a leading networking solutions provider worldwide, it is no surprise that Cisco Systems, Inc. has established a strong presence in China. The company, which by early 2000 was ranked third in the world in terms of market capitalization, has grown more than 50 percent a year in China since 1994. Cisco has brought some of its key business strategies to the PRC as part of a broader push into Asia. In March 1999, the company announced a $40 million expansion program in Asia involving a 40 percent increase in staff over 12-18 months.

Powering the Internet

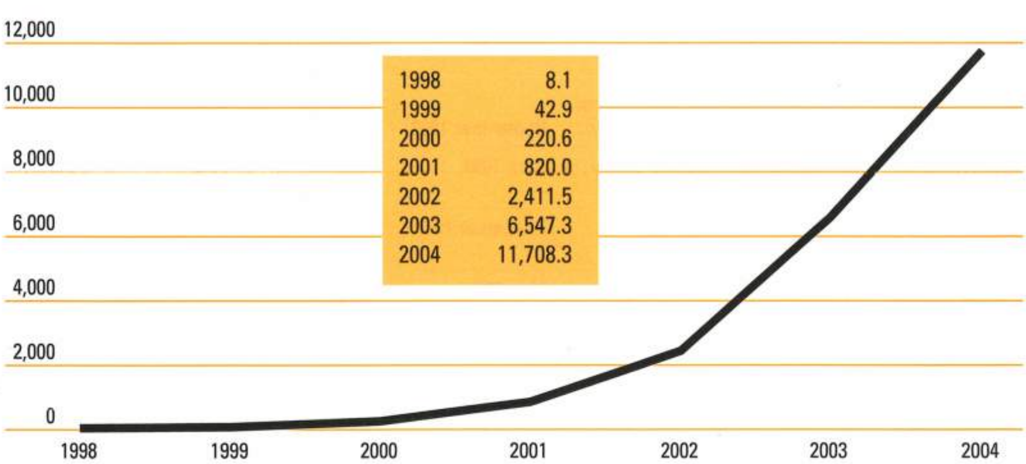
Cisco provides the hardware that powers the Internet. Its routers, hubs, switches and increasingly, full networking solutions compete with the products and services of a range of information technology companies, including 3Com, Lucent Technologies, and Nortel Networks, to name a few. Some analysts even measure Cisco against leading business-to-business and e-commerce firms such as Amazon.com. A regular diet of acquisitions over the past few years has expanded its reach and won it a reputation as a model of successful mergers-and-acquisitions strategy.

In China, the company sells routers and switches for local-area and wide-area networks, and operates one of its four technical-assistance centers worldwide out of Beijing. Other operations include a wholly foreign-owned enterprise in Beijing and bonded warehouses in Beijing, Guangzhou, Shanghai, and Shenzhen. Its distribution channels are similar to those it uses globally—Cisco has arrangements with foreign companies such as Hewlett-Packard Co. (HP) and Ingram Micro Inc., for example. But in China Cisco also distributes through the Chinese hardware giant Legend Group and Xiao Tong Electronic Co., China's largest domestic seller of networking systems, according to Jiabin Duh, president of Cisco Systems (China) Networking Technology Co., Ltd.

Duh, formerly president of Microsoft Corp.'s China subsidiary, travels constantly around the country meeting with partners and ensuring that Cisco China meets its weekly sales goals. But sales are only one part of Cisco's mission in China, according to Duh and Thomas Lam, vice president and general manager of enterprise operations. Education is another goal—to overcome cultural and other biases that stand in the way of reliance on the Internet for key operations. Lam cited a University of Texas study, which found that 90 percent of electronic commerce is generated in the United States, as evidence that Europe and Asia both face cultural barriers to e-commerce. Information-sharing is crucial to Internet growth worldwide, but Lam notes that getting people really to trust and start using the Internet will take time.

Older business and government leaders are uncomfortable with computers, much less the transparency that the Internet demands. Even learning how to enter Chinese characters on a computer keyboard can be a trial for some. Cisco must "evangelize," as Duh puts it, about the advantages of using the Internet to connect nationwide operations of an enterprise or organization.

Internet Spending in China ($ million)



SOURCE: International Data Corp., Internet Commerce Market Model, January 2000

Assisting China's vanguard

Some Chinese firms are catching on, however. Cisco says that several of its partners have passed through a step-by-step initiation into the world of the Internet. In the first phase, these companies develop their own information networks, including e-mail and up-to-the-minute inventory tracking, so that they can keep tabs on their nationwide operations. Once they have set up this system, the next step is finding out how to connect with downstream resellers, not necessarily to have them place online orders (at least not yet) but merely to make information available to their partners. These are all companies that offer a wide range of products and want to provide product descriptions and availability status as quickly and easily as possible. The third step is online payment, with some form of pre-arranged financing or credit limit. Eventually, these companies will sell online directly to consumers, but Cisco says this final step is still a few years away.

Leading by example

That end, says Hanh Tu, vice president of service-provider operations, is aided by the company-wide strategy of testing "the latest and greatest first" internally before deploying new products. Cisco conducts all of its China sales on the Internet, for example, and enables customers to complete an online sale in four hours. Cisco customers, once they have had exposure to Cisco's own internal solutions, often ask for advice on how to adopt similar configurations.

Cisco also had plans to install Internet Protocol (IP) phone services this year, as a precursor to offering IP telephony to customers worldwide. Voice over IP (VoIP) demand in China is already outstripping supply, according to Cisco. After the recent regulations separating cable and phone services, it is not clear whether the company's assertion that "in five years, voice will be free" will be the case in China.

An Internet educator

Like other foreign companies, particularly in technology sectors, Cisco's educational investments are a significant element of its China strategy. The company invited both Cisco customers and outsiders to its fourth annual Networkers conference in Beijing last September. The more than 1,000 attendees were able to obtain Cisco certification at the two-day event—and to learn about Cisco's vision of an Internet future for China. The company has set up 15 branches of its global Networking Academy program in Chinese universities, including Qinghua, which offer basic training and certification.

Cisco's strategies seem to be working, if last year's deals with China Telecom, the Civil Aviation Administration of China (CAAC), and agreements with local and national network providers are any indication. Cisco will unify CAAC's three different platforms into a single, IP-based system. And Cisco will supply its 12000 series Gigabit Switch Routers (GSRs) to China Telecom's CHINANET backbone, and to the Guangdong and Dalian provincial cable television operators. Last year Cisco supplied ATM switches to the third phase of China's National Financial Network, which links eight of the country's financial institutions, including the central bank, across 200 cities. Cisco has supplied equipment to the network throughout its construction, which began four years ago.

Cisco's practice of forming strategic relationships with the leading US technology firms is winning business in China. The Hunan Post and Telecommunications Bureau selected a Cisco-HP partnership last summer to upgrade its connection to CHINANET. Cisco and HP will construct a 14-city subscriber network, with Cisco providing the routers and related software and China Hewlett-Packard supplying the servers and designing and servicing the system through its local Chinese partner, Yinhua Bangxun.

Fixed line vs. wireless

Cisco's global competitors, not to mention local firms, are surely working just as hard as Cisco to make their presences felt in China. But some analysts point out that Cisco's fiercest competitor could eventually be not other fixed-line-focused companies, but wireless technology itself. In a developing country like China, which lacks extensive fixed-line infrastructure, leapfrogging to wireless technology can be an attractive option.

It may be too soon to tell, in China's fluid IT sector, which technologies will win out. But China's conservative Ministry of Information Industry is likely to protect the interests of the local telephone monopolies, not to mention the dominant China Telecom. And these institutions' enthusiasm for fixed-line solutions ensures that fixed-line networking equipment, and its providers, will continue to be mainstays of China's Internet market for some time to come.

—Catherine Gelb

Catherine Gelb is editor of *The CBR*.

Madeforchina.com

Madeforchina.com (MFC, *www.madeforchina.com*) appears to be holding its own in the PRC's dynamic Internet market. Founded in 1997 by Byron Constable and Micah Truman, MFC, specializing in interactive online marketing and e-commerce, has logged some key successes in its first few years of operation. The company has worked on over 500 projects and now has more than 40 employees, mainly bright, young, Internet-savvy Chinese with marketing talent.

Starting out

In its early days, MFC was a two-man team that paid the bills by designing and producing marketing materials for foreign firms. Though MFC still offers print marketing services, it now thrives on Internet-related work. Its Internet business took off when it secured contracts to create China-based websites for major corporations such as Ford Motor Co., Hewlett-Packard Co., IBM Corp., Motorola Inc., and United Airlines, Inc. Motorola's China website, for example, garnered more than 180,000 hits a day after just one week of promotion. MFC uses competitions, surveys, and games, among other strategies, to bring the viewer in touch with the company or product being promoted. MFC also broadcasts special events online. IBM chose MFC to manage its chairman's first online broadcast from China—a job that was soon followed by more contracts.

51go.com

MFC aims to bring as many Chinese as possible in touch with the Internet. In May 1999, the company launched 51go.com (*www.51go.com*), an entertainment-based site that targets Chinese aged 18-28. The 51go.com site features information on events, games, music, and nightlife, among other sources of entertainment in China's major cities. Through its NetPass system, registered users can customize 51go's Internet services and access product deals. NetPass cardholders are also privy to special discounts and VIP access to businesses, restaurants, and clubs around the country.

—Darlene M. Liao

Darlene M. Liao is assistant editor of *The CBR*.

To Team Or Not To Team?

Xiangming Chen and Warren Barshes

Understanding the determinants of teamwork in China is integral to developing a people-first PRC strategy

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Are Chinese willing to work in teams? What factors will drive them toward or away from teamwork? The answers to these questions reveal the changes that have occurred in PRC management practices and employee relations in recent years. At the heart of these changes is Chinese employees' acceptance, to varying degrees, of Western management principles and practices.

US companies at home and elsewhere practice teamwork widely, especially in the form of self-directed teams, in which employees themselves are responsible for managing their groups and their work, and for making production-related decisions. By the mid-1990s, around 70 percent of *Fortune* 1,000 companies were relying on teams and planning to expand such usage, according to a study by the American Productivity and Quality Center in Houston, Texas. Companies organized around work teams have reported a number of benefits, including better productivity, higher-quality output, less absenteeism, less employee turnover, leaner plant structures, and substantial improvements in production-cycle time.

Chinese employees: ready for teamwork?

Whether US companies can successfully transfer the concept and practice of teamwork to China is another question. Motorola Inc. is one company that has taken the lead in introducing teamwork in China—80-90 percent of the 10,000 or so employees at its Tianjin plant work on teams, as John Sheridan reported in *Industry Week*. The plant fielded four entries among the 24 teams at the worldwide finals of Motorola's Total Customer Satisfaction competition in 1998.

Beyond the success of one company, however, there is little evidence of how teamwork is generally perceived and received in China's distinct national and business cultures. US-based human resources executives and China-based expatriate managers stand to benefit from knowing whether and to what extent Chinese culture and work attitudes either facilitate or impede teamwork in US-invested enterprises (USIEs). The findings of a recent large-scale survey on the determinants of teamwork in USIEs offer some practical implications and applications for foreign ventures in China.

The study

A 1998 study of the factors that determine the success of a team-based structure in the People's Republic of China was both timely and enlightening not just for USIE managers, but for the study of cultural influences on teamwork in general. Chinese culture, on one hand, encompasses a collectivist orientation that emphasizes the importance of group structure and values. This orientation may support crucial aspects of teamwork such as a common purpose and cooperative effort. The importance of relationships in a collectivist society may also prompt individuals to place group (e.g., work team) interests ahead of their own. Thus traditional Chinese values may be expected to facilitate teamwork, especially when teams are formed by managment and have strong appointed leaders.

On the other hand, the very elements of Chinese culture that create and sustain group attachment and conformity also support a rigid social hierarchy. Top-down control contravenes the principle and practice of true teamwork. During the Maoist era, the Communist system of workplace control reinforced other Confucian cultural and social traditions, such as highly centralized decisionmaking, poor horizontal communication, suppressed individual initiatives, and mistrust of and lack of cooperation among coworkers. To the extent that these Confucian and Communist influences linger today, they could undermine the give and take necessary for successful teamwork.

Yet China is changing in ways that make acceptance of Western management practices likely. With the loosening of state control over people's lives, and the move toward a more market-driven economy, new attitudes are developing. Younger and better-educated employees, who constitute the bulk of the workforce in USIEs, may be more individualistic and less political than older generations and thus more receptive and adaptable to US management styles. Such a departure from traditional collectivist culture may, paradoxically, may be conducive to teamwork. The study's goal, then, was to take a hard look at employee attitudes toward cultural and work-related issues, in an attempt to identify which factors contribute to or undermine Chinese employees' propensity for teamwork.

The analysis

Four USIEs in southern and central China participated in a 1998 survey on the presumed conditions and likely outcomes of teamwork. The first purpose of the study was to investigate the extent to which Chinese employees are team oriented. Although none of the USIEs in the study are organized around work teams, employees revealed during interviews that they had been introduced to the general concept of teamwork and identified loosely as a team according to their functional units (e.g., manufacturing, marketing) or their work sections. They tended to view teamwork more as a general principle or spirit than as an effective management practice.

Because Chinese employees in most USIEs, like the study participants, probably have only limited experience with teamwork, the study sought to determine attitudes toward teamwork by analyzing the response patterns to seven questions and statements that reflected the extent of a teamwork orientation (*see* Table 1).

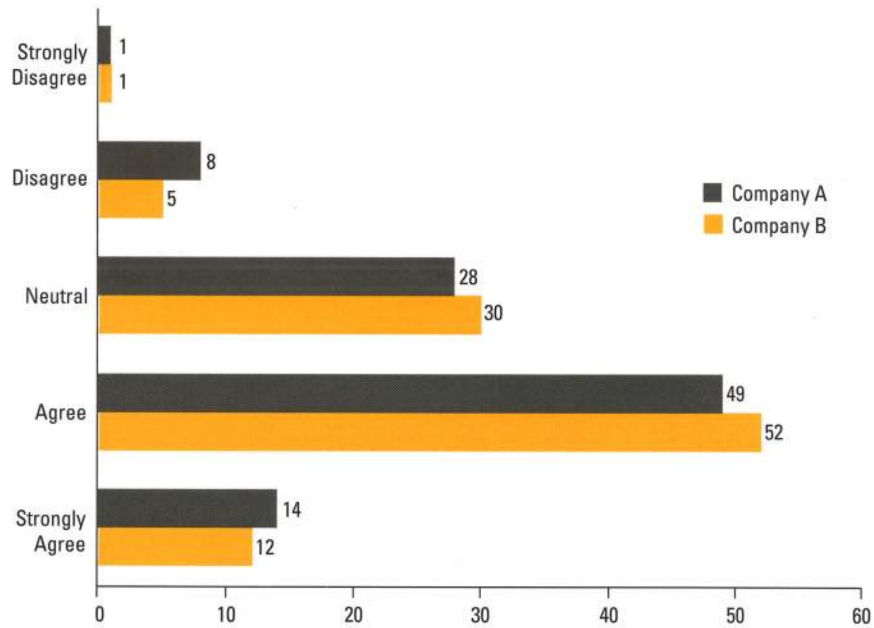
The second purpose of the study was to examine whether a preference for teamwork among Chinese employees could be predicted by China's collectivist culture, or whether other factors were more influential. US-based research has shown that task interdependence, role conflict, cooperation, communication within a group, satisfaction with coworkers, leader-member exchange, and perceived organizational support are, to varying degrees, related to team commitment. Instead of assuming that these relationships would necessarily hold in China, the study sought to reveal the relative influence of four categories of factors on teamwork: demographic and background characteristics, cultural influences, work-related conditions, and organizational support.

The respondents

Though a total of 700 employees in four USIEs (labeled A, B, C, and D) were surveyed, this article focuses only on the results for Company A and Company B—284 and 226 surveyed employees, respectively. Fifteen percent of the respondents in both companies said they had worked in temporary, project-based teams in their companies. The demographic characteristics of the respondents in companies A and B are sufficiently different to warrant a comparative analysis (*see* Table 2). Nearly two-thirds of Company B employees were under 25, compared to less than half of Company A.

Most respondents in Company A were born in southern China, which could indicate a slight bias in the results. Because regional variations are so strong in China, Company A's results may more accurately reflect the views of southern Chinese than those of Chinese employees overall. Almost half of Company A employees surveyed were born in Guangzhou (the capital of Guangdong Province), nearly a third were born elsewhere in the province, and the remaining fifth were born in other provinces. All worked in the company's Guangzhou facilities. The bias in Company B results may be less pronounced, as the corresponding distributions were roughly a third each. Company B employees surveyed came not only from the company's Guangzhou-

Preference for Teamwork



SOURCE: Xiangming Chen

NOTE: The results are based on the responses to the seven questions/statements outlined in Table 1.

Table 1
Identifying Preference for Teamwork (percentage of total respondents)

Question/statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am eager to be working with other employees on a team	1.0	16.9	43.8	6.3	31.9
I feel comfortable working with other employees on a team	0.4	5.2	24.5	11.6	58.8
I fully accept doing things with other employees in teams	0.4	3.2	28.0	9.5	58.8
I resist working with other employees on a team	13.7	57.7	19.5	1.2	8.0
I support the use of teams in this company	1.0	2.6	28.4	18.1	50.0
If given a choice, I would prefer to work as part of a team	1.0	4.6	30.8	14.5	49.1
I find that working as a member of a team increases my ability to perform effectively	0.8	6.7	26.8	14.3	51.3

SOURCE: Xiangming Chen
NOTE: Totals may not add to 100 percent because of rounding.

Table 2
Respondent Characteristics (Percent)

Characteristic	Company A (284 respondents)	Company B (226 respondents)
Average age		
	27.4	25.4
Gender		
Female	27.1	72.3
Male	72.9	27.7
Marital status		
Married	46.2	24.5
Education		
Below primary school	1.5	0
Primary	0.8	0
Junior high	12.8	5.5
Senior high	49.8	35.5
Vocational	18.5	11.9
Two-year college	11.3	22.9
College	4.5	22.0
Graduate school	0.8	2.3
Job type		
Manager	1.9	9.2
Supervisor	3.8	15.6
Engineer	1.9	13.3
Technician	19.8	0
Clerical	13.0	17.0
Operator	50.8	39.0
Other	8.8	6.0

SOURCE: Xiangming Chen

Task interdependence is the most powerful predictor of teamwork—its positive effect is both direct and indirect through satisfaction with coworkers and willingness to cooperate.

based headquarters but also its Beijing and Shanghai branches. A similar diversity of work histories also made these two companies worthy of comparison.

Employees prefer teamwork—in theory

The response patterns indicate that Chinese employees are generally ready for teamwork, and offer guidance to companies interested in team development. When asked whether they had been exposed to the general concept of teamwork, for example, half of Company A respondents answered in the affirmative, as compared with less than a third of Company B respondents. Interestingly, the majority in both companies said they hoped to have teamwork experience at their current jobs.

The responses to the survey's questions, rated on a five-point scale, reveal other striking similarities between preferences in the two companies (*see* figure). Half of the respondents in both companies chose "Agree" to the statement that indicated the extent of their teamwork orientation, while only a small percentage of them chose "Strongly Agree." And though both response distributions suggested an overall preference for teamwork, nearly one-third of the respondents expressed a neutral attitude.

Thus despite some considerable differences between the two companies regarding the respondents' demographic and background characteristics, their employees expressed a remarkably similar and fairly strong preference for teamwork. This suggests that employees will be generally receptive to the implementation of teamwork. However, it is possible that while the idea of teamwork is appealing, actual practice might be less satisfying than employees expect. It would be useful for future studies to focus on the actual effects of team-based systems.

Drivers of teamwork

One of the basic aims of the study was to examine the relationship between a collectivist culture and teamwork, and to find out how China's collectivist tradition fares against today's rapid modernization and rising individualism. Though the responses indicate a preference for teamwork, there are three interesting differences. First, almost 25 percent of the respondents in both companies chose the "Strongly Agree" category in answering eight questions that tap the degree of collectivist orientation, double the same response to the seven teamwork preference questions. Second, 19 percent and 29 percent had a neutral attitude toward collectivism and teamwork, respectively. Third, an average of 15 percent of the respondents expressed a non-collectivist or more individualist orientation, higher than the proportion of those not preferring teamwork.

Given the basically similar response distributions for teamwork and collectivism, it is not surprising that the two variables are positively correlated, with the more collectivist-oriented employees more likely to prefer teamwork. Whether and how collectivism matters to teamwork when other factors are taken into account is the next question.

Three other categories of factors are introduced in a multivariate analysis for predicting their relative effects on teamwork (*see* Table 3). Although age and education are positively correlated with teamwork, neither have an effect on teamwork in conjunction with other predictors.

Collectivism remains a solid determinant of teamwork. Four work-related factors are correlated with a preference for teamwork. A stronger perception of task interdependence leads to stronger teamwork orientation, confirming US-based research conducted by James Bishop, Dow Scott, and many others. Both the level of communication within a group and willingness to cooperate also contribute to teamwork. Satisfaction with coworkers, which measures perceived competencies of colleagues and willingness to get along with them, also fosters teamwork. This suggests that Chinese employees' willingness to work in teams depends on both their professional and personal evaluations of coworkers.

Finally, it is worth noting that both supervisory and organizational support, which have been shown to predict team commitment by US-based research, do not predict teamwork in China. This indicates that some predictors of teamwork in China are different from those that predict teamwork in the United States.

Separate analyses for Company A and Company B largely confirm the general pattern, with only one exception—namely, that communication within a group is not a predictor.

The overall evidence suggests that culture is important, but only as one of a series of work-related factors. The relative effect of collectivism on teamwork preference among both companies ranked only third, behind willingness to cooperate and task interdependence (only slightly ahead of satisfaction with coworkers and communication within a group).

The study also revealed how the factors themselves are related to one another in determining teamwork predisposition. Satisfaction with coworkers, willingness to cooperate, and task interdependence were still positively related to preference for teamwork. Task interdependence, however, not only contributes directly to teamwork, but also leads to both satisfaction with coworkers and willingness to cooperate, which in turn lead to teamwork. The direct and indirect effects of task interdependence reveal a pragmatic attitude among Chinese employees toward teamwork, which is based on an integrated assessment of workplace conditions.

By this analysis, then, Chinese appear to identify collectivism with the more pragmatic factors of task interdependence and cooperation in the workplace, and not necessarily with teamwork directly. The study shows that, contrary to prevailing views, just being collectivist is not sufficient to predispose Chinese workers to teamwork, as those who label China collectivist might expect. It may be that Chinese employees' belief in and understanding of collectivism might have weakened or changed to such an extent that cultural values seem to take a back seat to several critical work-related attitudes, in fostering teamwork in China.

Practical management implications: more than just culture

To summarize the findings, a majority of Chinese employees prefer teamwork. Although older and better-educated employees are slightly more team oriented, age and education do not make a difference when cultural and work-related factors are taken into account. The determinants of employees' preference for teamwork include both cultural and work-related factors. A more rigorous analysis, however, has shown that collectivism functions primarily as a cultural backdrop. Collectivism can be linked positively with teamwork when combined with willingness to cooperate. Among work-related factors, task interdependence is the most powerful predictor of teamwork—its positive effect on teamwork is both direct and indirect through satisfaction with coworkers and willingness to cooperate.

The findings of this study carry several implications and lessons for USIEs in China, especially for their expatriate general managers and human resources managers. A key lesson is that long-term growth and success in China depends on how companies initiate and manage an important, inevitable shift from a business-based to

The determinants of employees' preference for teamwork include both cultural and work-related factors. A more rigorous analysis, however, has shown that collectivism functions primarily as a cultural backdrop.

Table 3
Factors Related to Preference for Teamwork

Factor	Company A	Company B	Combined
Individual factors			
Age	no relationship	bivariate*	bivariate*
Education	bivariate*	bivariate*	bivariate*
Cultural factor			
Collectivism	multivariate**	multivariate**	multivariate**
Work-related factors			
Task interdependence	multivariate**	multivariate**	multivariate**
Willingness to cooperate	multivariate**	multivariate**	multivariate**
Satisfaction with coworkers	multivariate**	bivariate*	multivariate**
Communication within a group	bivariate*	bivariate*	multivariate**
Supervisory support	bivariate*	bivariate*	bivariate*
Organizational factor			
Organizational support	bivariate*	bivariate*	bivariate*

SOURCE: Xiangming Chen
* Bivariate analysis (in which no other factors are taken into account) found a relationship between this factor and teamwork preference.
** Multivariate analysis (taking other factors into account) found a relationship between this factor and teamwork preference.

Chinese employees are generally team ready. USIEs should be fully aware of this existing orientation and determine how, not when, to introduce team-based initiatives.

a people-oriented approach. As many USIEs focus on maximizing financial resources and turning a profit, they may neglect the effective organization and utilization of human resources. Business management tends to take precedence over cultural and personnel management. The team-based structures that have proven successful in many US companies may also be effective mechanisms in China. The following recommendations for fostering teamwork in USIEs are based on the study results:

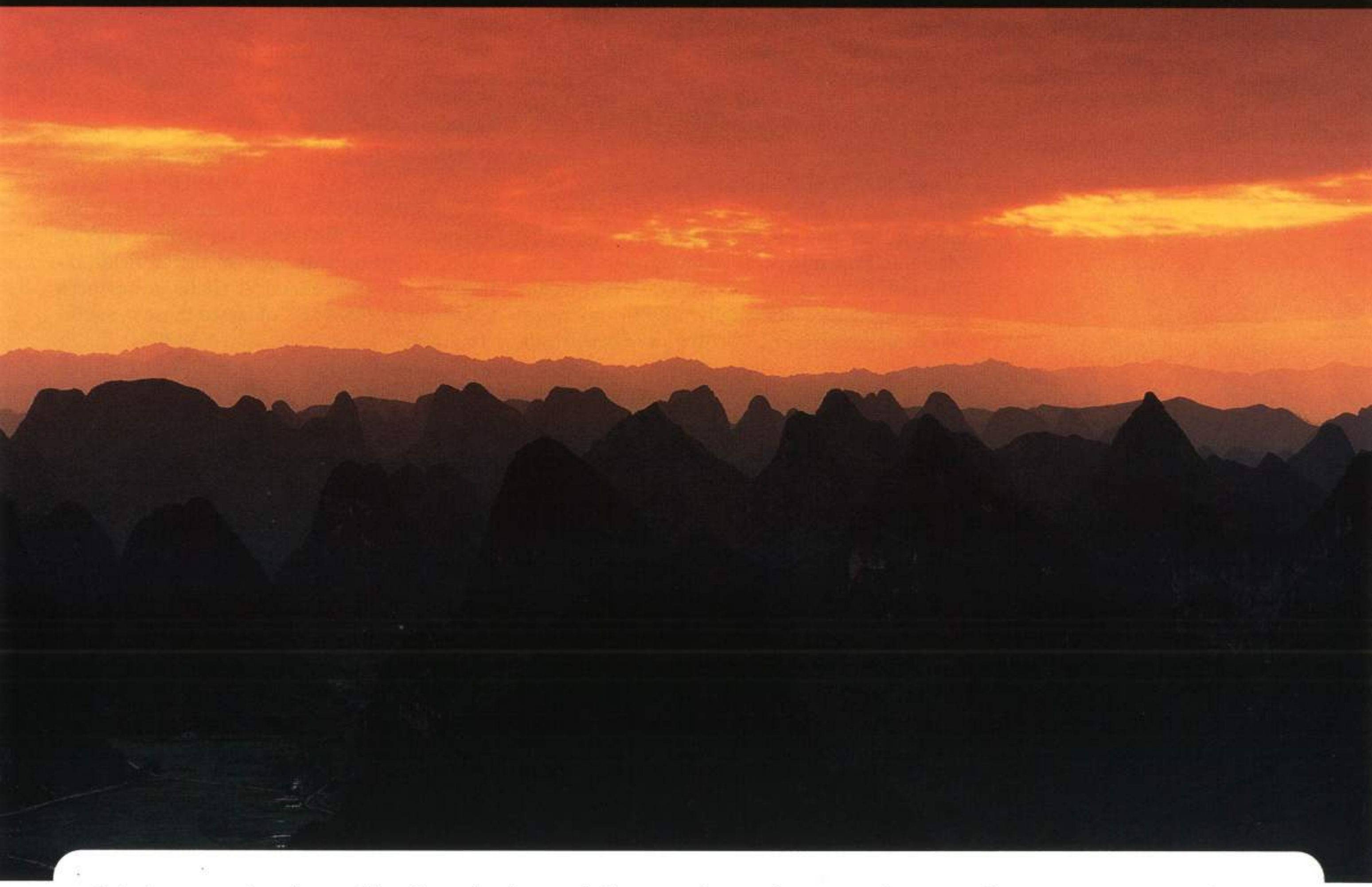
- **Chinese employees are generally team ready.** USIEs should be fully aware of this existing orientation and determine how, not when, to introduce team-based initiatives. They may need to begin with company-wide training on the best practices and benefits of teamwork to convince the entire workforce, not just the two-thirds shown in this study, of the value of working in teams.
- **Culture matters, but only in a limited way.** While the collectivist culture is important for teamwork, it does not itself foster teamwork. But because both traditional culture and past political ideology are resilient, collectivism will continue to provide a favorable environment for teamwork among Chinese employees. USIEs can rely on this sustained, team-conducive context.
- **Task interdependence is the key.** USIEs should focus on enhancing the understanding among staff of the interdependence of tasks, as it is the critical mechanism for promoting teamwork. Although the degree of task interdependence may vary among companies across or even within industries, management should use regular training to instill an acute understanding among employees that administration, production, and distribution form an interconnected and interdependent process.
- **No cooperation, no teamwork.** Promoting a cooperative attitude is integral to implementing teamwork. While cooperation horizontally among employees within groups and units is basic, strengthening cooperation among groups or formal units, which has been generally lacking in Chinese companies, will go a long way toward eliminating traditional divisive turf battles and promoting acceptance of a team-based approach.
- **People prefer to team with colleagues they like.** Finding ways to increase the level of employee satisfaction with colleagues will benefit teamwork structures. Because Chinese employees tend to need to appreciate one another's competencies and become comfortable with their fellow workers before they are willing to work in teams, organizing teams around people who get along well would be a worthwhile experiment. An important step in achieving this begins with matching candidates' personal attributes and cultural values, as well as skills, education, and experience, to the existing workforce when recruiting and hiring.
- **Communication within a group facilitates teamwork.** USIEs will find it easier to implement teamwork if they successfully encourage open communication among employees in small groups. Since the traditional lack of interpersonal communication in the workplace bred mistrust and indecision, getting employees to share information and ideas promptly and openly will strengthen mutual trust, which is critical to teamwork.

Since teamwork is more directly influenced by work-related factors than by cultural factors and even less by individual and organizational factors, USIEs have a solid practical ground on which to develop teamwork among Chinese employees. However, with China still in the beginning stages of corporate governance development, it may be too early to transfer American-style, self-directed teamwork with peer-based control and decisionmaking by individual team members to China. Effective strategies should be adopted to create, nurture, and synthesize the team-conducive factors identified by this study. This will ensure that a style of teamwork that fits China will evolve over time and produce benefits for both employees and companies.

ENTRY INTO THE WORLD TRADE ORGANISATION WILL

OPEN NEW FRONTIERS

FOR THOSE WHO CAN FIND THEIR WAY



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An Update on China's Oil Sector Overhaul

Sy Yuan and Yi-kun Chen

Industrial restructuring will make China's key oil and petrochemical corporations more efficient and competitive

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To promote competition and more-effective development of China's oil and petrochemical industries, Beijing recently reorganized the China National Petroleum (Group) Corp. (CNPC) and the China Petrochemical (Group) Corp. (SINOPEC) into two independent, fully integrated oil companies. Each will undertake both upstream—oil exploration and production—and downstream—refining, petrochemical, and distribution—activities. CNPC traditionally engaged essentially only in upstream work, while SINOPEC focused on downstream activities.

The 1998 restructuring of China's industrial bureaucracy otherwise had little effect on China's oil and petrochemical industries, since they had been operating as national corporations for many years. Neither did the restructuring affect the China National Offshore Oil Corp. (CNOOC), which is tasked with exploring and developing petroleum resources offshore—waters over five meters in depth (*see* box). Although the final organization and staffing details of these two organizations are still under discussion, it is possible for foreign oil and chemical companies seeking to participate in these industries to gain some understanding of China's oil and petrochemicals corporations and where they are headed.

As part of the 1998 restructuring, the Chinese government abolished all industrial ministries and set up corporations, withdrawing itself entirely from the day-to-day operation of industrial enterprises. It also designated the State Economic and Trade Commission (SETC) under the State Council as industrial policymaker and regulator. Sheng Huaren, formerly president of SINOPEC, became SETC chairman at this time. The State Petroleum and Chemical Industry Bureau, under SETC and headed by former Vice Minister of the Ministry of Chemical Industry (MCI) Li Yongwu, regulates all corporations in the petroleum and chemical industries.

Wu Bangguo, vice premier in charge of economic reform, has indicated that the current reorganization is the most thorough reform of the oil sector since 1983, and that it is regarded as a pivotal part of China's overall economic reform. PRC leaders hope that the reorganized oil and petrochemical sectors will help sustain economic growth.

CNPC vs. SINOPEC

The reorganization of CNPC and SINOPEC involved reassigning some of SINOPEC's downstream assets to CNPC and some of CNPC's upstream assets to SINOPEC (*see* Tables 1 and 2). CNPC ended up with most of the oil fields, refineries, and petrochemical plants in northern China, while SINOPEC obtained those in southern China. Hence CNPC and SINOPEC are often referred to colloquially as the "Northern" and "Southern" companies, respectively. Before the reorganization, the two corporations had only limited rights to conduct foreign trade, but now can trade freely and independently in both the domestic and international markets. With assets totaling $57.2 and $45.8 billion, respectively, CNPC and SINOPEC rank among the world's top 500 industrial enterprises.

CNPC retained nine oil fields and companies, which together produce roughly 67 percent of China's total petroleum and 66 percent of national natural gas output, and acquired 19 facilities from SINOPEC. The Jilin Chemical Group Corp. and the Jilin Petroleum Group Co., Ltd. (originally under MCI and the Jilin provincial government, respectively) and 13 other provincial, regional, and municipal petroleum marketing companies were also transferred to CNPC. CNPC now employs 130,000 people and owns and operates 7,000 km of pipeline, 14.8 million cubic meters (m^3) of storage capacity, and 5,000 gas stations nationwide.

SINOPEC kept 26 refineries and petrochemical plants, but also gained 12 CNPC oil fields and organizations. These fields produce roughly 22.5 percent and 10.7 percent of China's petroleum liquids and natural gas, respectively. The restructuring also transferred 22 provincial, regional, and municipal petroleum marketing companies to SINOPEC, creating a nationwide sales network. SINOPEC's employees total 1.19 million.

The organizational structures of CNPC and SINOPEC oil fields, refineries, petrochemical plants, and other regional offices remained as they were. Regional service organizations such as research institutes, design institutes, and computer centers kept their affiliations with individual oil fields, refineries, or petrochemical plants, and together either remained intact or were transferred to SINOPEC or CNPC. At the central level, several prominent institutes formerly under MCI were reassigned to other organizations. For example, the Beijing Chemical Research Institute recently joined SINOPEC, further enhancing SINOPEC's downstream research capabilities. Central-level service organizations were to remain with their original parents.

SINOPEC will retain its edge in downstream research and design capabilities. Such world-class institutes as the Research Institute for Petroleum Processing, the Beijing Design Institute, the Beijing Petrochemical Engineering Co., and the Petrochemical Planning and Engineering Institute remained with SINOPEC. These elite groups are responsible for the development of most domestic processing technology, the assimilation of most foreign processing technology, and the design and technical supervision for the construction of all of China's refineries and petrochemical plants. CNPC essentially has no downstream research and design institutes, and it will take years, if not decades, for CNPC to build up expertise to match that of SINOPEC. Even though SINOPEC's research and design organizations may be available to CNPC on a contract basis, such collaboration would be awkward—it would be similar to BP Amoco relying on Chevron Corp. to conduct its research and design work.

Conversely, CNPC will retain its own advantages in upstream research and design expertise. For example, it kept its Research Institute for Petroleum Exploration and Production, the Seismic Data Interpretation Computer Facility, and various core- and well-testing laboratories. SINOPEC will be unable to build up comparable expertise in these areas anytime soon.

Branching out with IPOs

Following the lead of several SINOPEC subsidiaries, including Shanghai Petrochemical Corp., Zhenghai Petrochemical Corp., and Yanshan Petrochemical Corp., in 1999 CNPC, SINOPEC, and CNOOC decided to finance future modernization and expansion plans by partially privatizing and offering stocks in both the domestic and international markets. Listings require that these organizations undergo further reorganization, asset valuation (including inground oil and gas reserves), and debt reorganization, much of which has been completed or is well under way. Stock companies—CNPC Group Ltd., SINOPEC Group Ltd., and CNOOC Ltd.—have been established to serve as operating entities. Parent corporations CNPC, SINOPEC, and CNOOC will become holding companies with no less than 51 percent of the shares of the oper-

SINOPEC will retain its edge in downstream research and design capabilities. CNPC essentially has no downstream research and design institutes, and it will take years, if not decades, for CNPC to build up expertise to match that of SINOPEC.

Other Key Players in China's Oil and Petrochemical Industries

In addition to CNPC and SINOPEC, several other major organizations are involved in oil and petrochemical activities in China:

- **China National Offshore Oil Corp. (CNOOC)** CNOOC operates 17 oil and 2 gas fields producing 16.28 million tons a year of petroleum liquids, and 4.05 billion m^3 a year of natural gas. Considered the most Western-oriented among the industry giants, CNOOC has signed more than a hundred contracts with 68 companies from 18 countries and regions. Among its projects are a fertilizer (urea) facility in Hainan Province and a natural gas pipeline between Qinghai and Gansu provinces.
- **China National Oil Development Corp. (CNODC)** A subsidiary of CNPC, CNODC's original mandate was to work with foreign oil companies to explore PRC onshore petroleum resources on a "risk contract" basis. This activity has now been transferred to the Foreign Cooperation Department of CNPC. CNODC now contracts with foreign companies and governments to explore for petroleum in other countries on behalf of CNPC.
- **Ministry of Land and Natural Resources (MLNR)** This ministry was created from the old Ministry of Geology and Mineral Resources (MGMR), the State Land Administration, the State Oceanography Bureau, and the State Bureau of Surveying and Mapping. MNLR is headed by Zhou Yongkang, formerly CNPC president. Like the US Geological Survey, MLNR was to map out China's mineral resources, including petroleum, but not develop them. But through MGMR's China National Star Petroleum Corp., MLNR was involved in the development of oil and gas fields it discovered (such as the Pinghu Offshore Gas Field near Shanghai) until China Star was merged into SINOPEC in December 1999.
- **China National Chemical Import and Export Corp. (SINOCHEM)** Established under the Ministry of Foreign Trade and Economic Cooperation, SINOCHEM was previously the only organization that could import and export crude oil and petroleum products. It has also invested in refineries and petrochemical plants, including the Nanhai Project and the Dalian West Pacific Refinery. SINOCHEM is a partner with CNPC in China United Oil Corp. (CHINAOIL), and with SINOPEC in United International Petroleum and Chemical Corp. (UNIPEC). These two joint ventures are both authorized to trade crude oil, petroleum products, and chemicals in the international market. During the 1998 reorganization, SINOPEC bought out part of SINOCHEM's share in UNIPEC. With a 70 percent share, SINOPEC now controls UNIPEC's day-to-day operations.

—Sy Yuan and Yi-kun Chen

ating companies. Negotiations are under way with banks to convert any debts and obligations of the parent corporations into shares of the operating companies. The remaining shares will be offered on the Shanghai, Shenzhen, Hong Kong, and New York stock exchanges. All of CNPC, SINOPEC, and CNOOC social-service organizations will remain under the holding companies so as not to increase the financial burden of the operating companies.

In 1999 CNPC, SINOPEC, and CNOOC decided to finance future modernization and expansion plans by partially privatizing and offering stocks in both the domestic and international markets.

CNOOC planned to make an initial public offering (IPO) on the Hong Kong stock exchange in the fall of 1999, but withdrew because of slack demand in a generally depressed market. All three companies are expected to complete their IPOs this year. CNPC will reportedly be the first to list on a Western stock exchange, under the name PetroChina Co., Ltd.

Foreign players get in the game

CNPC and CNOOC have been raising foreign capital, through "risk contracts" and commercial loans from foreign financial institutions, to develop offshore and onshore joint-venture oil fields. And CNOOC and several SINOPEC refineries are in the process of establishing joint-venture operations with various international oil companies. CNOOC and the Royal Dutch/Shell Group will partner in China's largest petroleum and petrochemical joint venture. The Nanhai Project in Huizhou, Guangdong Province, scheduled to begin production in 2003, will produce 800,000 million tons of ethylene per year. SINOPEC and BASF AG plan to set up their joint venture in Nanjing by this June. When op-

Table 1
China National Petroleum Group Corp. (CNPC)

Management		
President	Ma Fucai	
Vice Presidents	Huang Yan, Wu Yaowen, Ren Chuanjun, Yan Shanzhong	
Retained oil fields and related organizations		
Bohai, Hebei Province		
Dagang, Hebei		
Daqing, Heilongjiang Province		
Liaodong, Liaoning Province		
Qaidam Basin, Qinghai Province		
Renqiu, Hebei		
Tarim and Junggar Basins, Xinjiang Uygur Autonomous Region		
Yuemen, Gansu Province		
Total proven reserves		
Petroleum	70.2% of national total	
Natural gas	73.0% of national total	
Annual production		
Petroleum	107 million tons per year	67.0% of national total
Natural gas	14.8 billion m^3	66.3% of national total
Refineries, petrochemical plants, and other facilities transferred from SINOPEC		
Dalian Petrochemical Corp., Liaoning Province		
Dalian West Pacific Petrochemical Co., Ltd., Liaoning		
Daqing Petrochemical Works, Heilongjiang Province		
Dusanzhi Refining and Petrochemical Plant, Xinjiang Uygur Autonomous Region		
Fushun Petrochemical Corp., Liaoning		

eration starts in 2004, the plant will produce 600,000 million tons of ethylene a year. SINOPEC also signed a letter of intent with BP Amoco to build an ethylene plant in Shanghai. And Exxon Mobil Corp., Dow Chemical Co., and some Saudi interests may work with SINOPEC on a giant joint petrochemical project.

CNPC and SINOPEC will likely undergo further consolidation and gradual downsizing to cut costs. To facilitate modernization plans and improve efficiency, CNPC and SINOPEC may become more receptive to foreign participation in plant modernization or even adaptation of foreign management methods and operating practices.

The report card

The consensus view of the top management personnel of CNPC, SINOPEC, and SETC is that the reorganization initiated in 1998 has generally been successful. Financial performance has recovered from the disruption caused by the reorganization (*see* Table 3). For 1999, CNPC is projecting a net profit of ¥15 billion ($1.8 billion) and SINOPEC a net profit of ¥7.3 billion ($881.6 million). The estimated total refinery output of CNPC and SINOPEC are now 84.4 and 95.6 million tons, respectively, according to *China Petroleum Monthly* and other Chinese publications. China will import 50 million tons of crude oil this year, of which SINOPEC's share will be 46 million.

To facilitate modernization plans and improve efficiency, CNPC and SINOPEC may become more receptive to foreign participation in plant modernization or even adaptation of foreign management methods and operating practices.

CNPC and SINOPEC now compete in the petroleum-product and petrochemical markets. CNPC and SINOPEC gasoline stations can be

Refineries, petrochemical plants, and other facilities transferred from SINOPEC *(continued)*
Harbin Refinery, Heilongjiang
Jinzhou Petrochemical Corp., Liaoning
Jinxi Refinery and Chemical Plant, Liaoning
Lanzhou Chemical Industry Corp., Gansu Province
Lanzhou Refinery and Petrochemical Works, Gansu
Liaoyang Chemical Fiber Co. (includes Anshan Refinery), Liaoning
Linyuan Refinery, Heilongjiang
Ningxia Chemical Plant, Ningxia Hui Autonomous Region
Qianguo Refinery, Jilin Province
Urumqi Petrochemical Works, Xinjiang

Other
SINOPEC Marketing Co. at Baoji, Shaanxi Province
SINOPEC Marketing Co. at Harbin, Heilongjiang
SINOPEC Marketing Co. at Jilin, Jilin
SINOPEC Marketing Co. at Shenyang, Liaoning
SINOPEC Marketing Northwest Co., Shaanxi

Capacity	Millions of tons per year	Percent of national total
Total refinery throughput capacity	107.0	45.6
Total ethylene capacity	1.3	41.0
Total synthetic resin capacity	1.2	30.5
Total synthetic rubber capacity	0.2	39.2
Total capacity for synthetic fiber raw materials	0.3	11.3
Total synthetic fiber capacity	0.5	57.3
Total chemical fertilizer (urea) capacity	2.8	40.9

SOURCE: CNPC Annual Report

found in the same cities, for example. However, there is an imbalance in supply and demand—CNPC has more than enough refining capacity and crude resources to supply its market in the north, whereas SINOPEC cannot fulfill the needs of its larger market in the south. SINOPEC produces one-third of the crude-oil it needs and purchases the rest from CNPC and foreign oil companies. The two firms have worked out wholesale contracts to supply each other's unfulfilled demand.

There is an imbalance in supply and demand—CNPC has more than enough refining capacity and crude resources to supply its market in the north, whereas SINOPEC cannot fulfill the needs of its larger market in the south.

Even though they will both be integrated oil companies, CNPC will continue to be stronger in the upstream area and SINOPEC in the downstream area for some time to come. CNPC's advantage in upstream functions will strengthen further for two reasons. First, CNPC has been actively exploring the largely untapped northwest for some time. And as of September 1999, CNPC had signed 47 contracts with foreign companies to engage in various upstream onshore activities in China and other countries, including Canada, Kazakhstan, Sudan, and Venezuela. SINOPEC has little upstream experience and has not signed any foreign contracts.

CNPC's advantage in the upstream area will be an even more important competitive factor for the foreseeable future, as SINOPEC must depend on CNPC or imports for a good part of its crude oil needs until it becomes self-sufficient. SINOPEC imported 22 million tons of crude, whereas CNPC, with more than enough supply, exported almost 5 million tons in 1998.

China has taken steps to address this imbal-

Table 2
The China Petrochemical Group Corp. (SINOPEC)

Management	
President	Li Yizhong
Vice Presidents	Chen Tonghai, Wang Jiming, Mou Shuling, Zhang Jiaren

Oil fields and related organizations transferred from CNPC
Anhui Petroleum Exploration and Development Co., Anhui Province
East China Pipeline Management Bureau, Shanghai
Henan Petroleum Exploration Bureau, Henan Province
Jianghan Petroleum Management Bureau, Hubei Province
Jiangsu Petroleum Exploration Bureau, Jiangsu Province
Shengli Oil Field and its operator, the Shengli Petroleum Bureau, Shandong Province
Shengli Petroleum Transportation Co., Shandong
Southwest Petroleum Exploration Bureau, oil and gas fields in Sichuan, Guizhou, and Yunnan provinces, and Guanxi Zhuang Autonomous Region
Xiangfan Petroleum Transportation Co., Hubei
Xingxiang Petroleum Transportation Co., Henan
Zhongyuan Petrochemical Co., Ltd., Henan
Zhongyuan Petroleum Exploration Bureau, Henan

Reserves and production		Percent of national total
Estimated total reserves of petroleum liquids	—	24.4
Total petroleum production	36.0 Millions of tons per year	22.5
Total natural gas production	2.4 billion m^3 per year	10.7

Retained refineries and petrochemical plants
Anqing Petrochemical Works, Anhui Province
Baling Petrochemical Corp., Hubei Province
Beijing Yanshan Petrochemical (Group) Co. Ltd., Beijing
Cangzhou Refinery, Hebei Province
Fujian Refining & Chemical Co., Ltd., Fujian Province
Gaoqiao Petrochemical Corp., Shanghai
Guangzhou Petrochemical Works, Guangdong Province
Jinan Refinery, Shandong Province

ance. In December 1999, the China National Star Petroleum Corp. merged with SINOPEC to enhance SINOPEC's upstream capabilities. And in a move to improve CNPC's downstream business, Yan Shanzhong, a former assistant director of the State Petroleum and Chemical Industry Bureau and SINOPEC vice president, became a CNPC vice president.

But the reorganization of the oil and petrochemical industries is an ongoing process, with further streamlining expected after the newly restructured organizations have been operating for a period of time. At the very least, China's accession to the World Trade Organization is placing the industry under unprecedented pressure to become ever more efficient, in order to compete against imports.

China's accession to the World Trade Organization is placing the industry under unprecedented pressure to become ever more efficient, in order to compete against imports.

Retained refineries and petrochemical plants *(continued)*
Jinling Petrochemical Corp., Jiangsu Province
Jingmen Petrochemical Works, Hubei
Jiujiang Petrochemical Works, Jiangxi Province
Luoyang Petrochemical Works, Henan Province
Maoming Petrochemical Corp., Guangdong
Nanjing Chemical Corp., Jiangsu
Qilu Petrochemical Corp., Shandong
Shanghai Petrochemical Co. Ltd., Shanghai
Shijiazhuang Refinery, Hebei
Tianjin Petrochemical Corp., Tianjin
Wuhan Petrochemical Plant, Hubei
Yangzi Petrochemical Corp, Jiangsu
Zhenghai Refining & Chemical Co., Ltd., Zhejiang Province

Other
Chongqing Yiping High Grade Lube Oil Corp., Chongqing
The Great Wall High Grade Lube Oil Corp., Beijing
Hubei Chemical Fertilizer Plant, Hubei
Sichuan Vinylon Plant, Sichuan Province
Yizheng Synthetic Fiber Corp., Jiangsu

Capacity	Millions of tons per year	Percent of national total
Total refinery throughput capacity	117.9	52.1
Total ethylene capacity	2.2	55.0
Total synthetic resin capacity	2.8	37.3
Total synthetic rubber capacity	0.4	—
Total capacity of raw materials for synthetic fibers	2.0	37.3
Total synthetic fiber capacity	0.2*	67.0
Total chemical fertilizer (urea) capacity	3.4	50.0

SOURCE: SINOPEC Annual Report
NOTES: — not available
* does not include capacity of Yizheng Synthetic Fiber Corp.

China's Strategies for Oil and Gas Development

The State Petroleum and Chemical Industry Bureau (SPCIB), designer of the industry's development strategy for the Tenth Five-Year Plan (FYP) (2001-05), puts a priority on improving production efficiency of oil and natural gas. Coal no doubt will continue to dominate China's energy supply mix for the foreseeable future, but the Tenth FYP is expected to focus on expanding offshore exploration, stabilizing onshore production, setting up overseas ventures, and pushing ahead with natural gas pilot projects.

Raising onshore oil and gas output

Many of the country's largest onshore fields have reached, or are nearing, their peak production levels. Roughly two-thirds of remaining available onshore crude reserves have high water-content levels that require advanced oil-recovery processes. The China National Petroleum (Group) Corp. (CNPC) has already begun to use an oil polymer-driven technology that was expected to raise annual crude production by 10 million tons in 2000.

Beijing plans to develop six onshore oil and gas fields in China between now and 2010, when production capacity per field could be 50 million tons. Oil fields targeted for development in the Northeast are the Songhua and Liaohe Basins, the Bohai Basin in the East, and a fourth field in western China. Natural gas production from Sichuan Province in the southwest, the Xinjiang region in the northwest, and the Shaanxi-Gansu-Ningxia region is expected to climb to 50 billion cubic meters (m^3) by 2010.

Beefing up offshore exploration

China National Offshore Oil Corp. (CNOOC) officials, in their efforts to promote offshore oil and gas reserves in China's energy mix, will depend on foreign cooperation to tap the estimated 22.5 billion tons and 14 trillion m^3 of offshore oil and gas reserves, respectively. Currently, proven offshore oil and gas reserves account for roughly 5 percent of China's total estimated energy resources. Beijing hopes that beefing up offshore natural gas centers in the South China, Bohai, and East China seas will help meet rising energy demand in Shanghai and Guangdong, Fujian, Zhejiang, and Jiangsu provinces—China's booming coastal regions.

Looking for overseas ventures

As a result of low oil prices in the last few years and production constraints at home, Beijing has been encouraging Chinese oil companies to explore overseas production opportunities in the Middle East, Russia, and Central Asia as a means of diversifying oil supplies. China's annual oil imports are expected to reach 142 million tons by 2010, compared with 35 million tons in 1997. Production in existing domestic oil fields in the north and northeast are leveling off. Recoverable reserves in discoveries in the west and northwest have been disappointingly low, and high transportation costs continue to plague the industry.

Facilitating natural gas development

Two specific projects will jump start Beijing's plans to raise the use of natural gas. The Guangdong liquefied natural gas (LNG) project, approved in December 1999 and a priority in the Tenth FYP, will set the standard for subsequent LNG projects, inviting foreign investment in the receiving station, pipeline, and power plants. The transnational natural gas pipeline project is particularly important, since the lack of adequate

Table 3
Performance of China's Main Oil and Petrochemical Companies

Indicator	CNPC	SINOPEC	CNOOC
Operational			
Crude oil production (million tons)			
1998	109.3	35.3	16.3
1997	143.7	—	16.3
1996	141.4	—	15.0
Natural gas production (billion m^3)			
1998	15.5	2.3	3.9
1997	0.2	—	4.0
1996	16.4	—	2.7
Crude oil throughput (million tons)			
1998	68.2	80.6	—
1997	22.2	124.9	—
1996	18.2	118.0	—
Distillate product output (million tons)			
Gasoline			
1998	14.8	16.5	—
1997	5.8	25.2	—
1996	4.6	24.3	—
Diesel			
1998	21.5	23.2	—
1997	6.8	37.8	—
1996	5.3	34.5	—
Ethylene output (million tons)			
1998	1.3	2.3	—
1997	0.3	2.8	—
1996	0.2	2.5	—
Output (million tons)			
1998	2.6	4.6	—

pipeline infrastructure to link natural gas sources in the central and western regions to the main consumption bases along the southeastern coast has long been one of the top impediments to wider use of natural gas in China.

Pollution concerns, new investment incentives, and the drafting of a national natural gas policy also promise to aid expansion of natural gas in China. During its March meeting, the National People's Congress will reveal amendments to the Law on Prevention and Control of Air Pollution consideration (*see* p.48). These amendments, if passed, would require that natural gas replace coal in cities for which air pollution fails to meet certain quality standards. Beijing recently revived a lapsed effort to reduce air pollution by encouraging residents to use gas instead of coal, particularly for heating during the winter.

PRC authorities are also working on preferential finance, pricing, and tax policies, and regulations to encourage investment in natural gas. Among these policy initiatives are plans to deregulate natural gas prices; a reduction of the value-added tax on natural gas—13 percent compared with 17 percent for crude oil; categorization of natural gas-related construction projects as funding priorities; and the drafting of a national natural gas utilization plan by SDPC.

SDPC reportedly asked for US government assistance early last year in constructing a national natural gas policy. Infighting primarily between SDPC and the State Economic and Trade Commission delayed the process, but there are new indications that Beijing is now moving forward. As part of the bilateral US-China Oil & Gas Industry Forum, a team of US government and industry experts will travel to Beijing early this spring to discuss natural gas policy.

Output (million tons) *(continued)*			
1997	0.1	6.2	—
1996	0.1	5.8	—
Synthetic fiber output (million tons)			
1998	0.3	0.9	—
1997	—	0.7	—
1996	—	0.6	—
Financial (millions of RMB)			
Sales revenue			
Jan.-Oct. 1999	—	321,730	—
1998	270,309	281,840	11,680
1997	164,950	218,343	14,905
1996	145,736	223,440	—
Gross profit			
Jan.-Oct. 1999	—	5,950	—
1998	4,757	3,493	2,098
1997	10,223	6,674	3,221
1996	9,008	7,424	—
Net profit			
1998	885	1,608	—
1997	6,190	4,658	—
1996	5,647	5,509	—
Total assets			
1998	506,929	427,550	32,670
1997	405,052	315,598	31,834
1996	343,524	314,180	—

SOURCES: CNPC, SINOPEC, and CNOOC annual reports
NOTE: — not available or not applicable

Oil, gas, and the WTO

The bilateral US-China World Trade Organization (WTO) agreement will benefit the oil and gas industry in several ways. Trading rights will be phased in within three years of accession, except for certain crude-oil and processed-petroleum commodities that will remain controlled by authorized state trading companies. The United States Trade Representative negotiated a broad definition of distribution, which covers commission agents, wholesaling, retailing, and franchising rights. Geographic, quantitative, and certain equity restrictions on distribution rights will be phased out within three to five years of accession.

Tariffs on oil- and gas-related products and equipment will also fall. All tariff reductions will be phased in by 2005, though tariff reductions for some products will occur sooner. The average tariff rates for oil and petrochemicals, and oil and gas field equipment, tubing/casing, and drill and line pipes will drop by as much as 50 percent by 2005.

By pledging commitments for upstream service activities, China has set a precedent as few, if any, WTO members have made upstream oil and gas commitments. Though these commitments appear to maintain the status quo, they lock China into a process of negotiating periodic upgrades of its commitments, as mandated by WTO rules—challenging other countries to follow.

—Ann M. Weeks

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China's Green Markets

Foreign companies are finding opportunities in China as the country takes aim at its environmental problems

Pamela Baldinger

For some 20 years, foreign analysts have raptly studied China's remarkable economic transformation. Now, they are paying increasing attention to the downside of this speedy development: environmental degradation. Foreign interest in China's environmental policies has jumped as the impact of China's development strategy on the country itself and the rest of the world grows impossible to ignore. Much of the news is grim. Consider

- At least half of the world's 10 most polluted cities are in China.
- Respiratory disease, chiefly from air pollution, is the leading cause of death in China.
- 700 million Chinese drink water that is at least partially polluted.
- Forested area covers only 14 percent of China, well below the world average of 25 percent. Nearly 28 percent of China's landmass is now denuded, thanks to extensive logging and soil erosion.
- 15-20 percent of China's wildlife species are under threat of extinction.
- Less than half of the 20-40 million tons of hazardous waste China generates every year is treated or re-used.
- China is expected to overtake the United States as the world's largest emitter of greenhouse gases, a major cause of global warming, within 25 years.

According to the World Bank, pollution costs China the equivalent of 8 percent of GDP annually. And with its GDP growth rate now hovering around 7 percent, China's present economic development strategy clearly is inefficient and unsustainable.

On the positive side, Chinese leaders are no longer denying or ignoring the extent of the country's environmental deterioration. The last two years have seen a significant shift in central-government attitudes toward environmental protection, with top leaders publicly and routinely stressing the need to improve environmental management. Though progress has been slow and markedly uneven, the lifting of the veil of secrecy regarding environmental data and the recent upgrading of China's State Environmental Protection Administration (SEPA) to ministerial status are nonetheless important first steps in the process of halting, and eventually reversing, China's environmental degradation.

Foreign companies and China's environment

Foreign businesses are affected both directly and indirectly by China's environmental policies. At the macro level, Chinese behavior has an impact on the global environment—China is currently the world's largest producer of ozone-depleting substances and the second-largest producer of greenhouse-gas emissions. Environmental and resource issues will also affect regional and bilateral relations between China and other countries, including the United States, particularly as China becomes more engaged in the drafting of international environmental treaties and protocols.

At the micro level, environmental policies directly affect foreign companies conducting business in China. Foreign exporters may find that increasingly stringent PRC environmental standards open the door to imports of more sophisticated technology. Foreign investors in China, meanwhile, must comply with a complex, rapidly changing regulatory environment (*see* p.48). Multinational companies also are finding that the dense smog cloaking many Chinese cities can make it difficult and costly to post both expatriates and local Chinese citizens in certain parts of the country.

Along with such obstacles, however, come opportunities. China is embarking on an ambitious program to alleviate the impact of development on its natural resources, and foreign participation in this program will be critical to its success. For example, to meet all of the environmental objectives listed in the Ninth Five-Year Plan (FYP, 1996-2000), China will have to spend in excess of $50 billion, though final spending may not quite reach this target. The Tenth FYP (2001-05), which is currently in the drafting stages, will undoubtedly require even larger amounts of technology, expertise, and funds.

Total government spending on environmental projects is approaching 1.5 percent of GDP, and is even higher in locations such as Shanghai, where the figure already exceeds 2 percent and will reportedly hit 3 percent this year.

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While most environmental infrastructure projects will continue to utilize domestic equipment and be funded locally, the PRC government is counting on receiving about 20 percent of total funding from foreign sources—multilateral development institutions, bilateral government programs, non-governmental organizations, and the private sector. The World Bank and Asian Development Bank in particular are devoting considerable funds to environmental protection and infrastructure projects, participation in which may provide companies with valuable experience and contacts for future business activities.

Given China's hard-currency constraints, some firms have decided that direct investments are the only way they can effectively tap China's vast market. Such firms face the same challenges as investors in other Chinese sectors (i.e., protection of intellectual property), but usually develop a better feel for the market and customers than firms selling from overseas. Nevertheless, foreign investment in the environmental protection technology sector is still quite low.

Where the opportunities lie

Firms interested in export sales, technology transfer, and investment have flocked to the China market to investigate its potential, and competition to provide environmental services and equipment will be fierce in coming years. Key opportunities should emerge in the following areas:

- **Monitoring and analytical equipment** In 1993, China established a national environmental monitoring network, which it plans to update by the end of 2000. New features are to include monitoring networks to support priority environmental protection plans in major water bodies and monitor air quality in major cities; pollution in key polluting enterprises and polluted areas; treatment plants; ecology; and a 47-city air-quality forecasting system.

According to SEPA, the project will require $30 million in imports of monitoring equipment, with an average expenditure of $600,000 per city. The US and Foreign Commercial Service in Beijing estimates that China imported over $50 million in monitoring equipment and analytical instruments in 1996; US equipment captured about 10 percent of the total, while Japanese and European manufacturers split the rest.

- **Biodegradable packaging materials** Cities all over China seek to reduce "white pollution" caused primarily by foam lunch boxes. Affordable, biodegradable packaging for food products in particular is highly sought after.
- **Non-traditional energy sources** The government seeks to reduce reliance on coal, even though it will continue to remain China's primary energy source for decades to come. Opportunities may exist to develop natural gas supply and downstream applications, as well as in cogeneration, district heating, and utilization of coalbed methane. Electricity generated from wind power is also slated to grow significantly; installed capacity should triple over the next decade, according to official estimates. Much of the financing for renewable-energy projects will come from multilateral and bilateral sources.
- **Water treatment** Water supply and wastewater treatment are now top priorities of China's environmental protection and infrastructure development policies. Water shortages, caused by imbalance in natural distribution, inefficient use, and contamination, affect some 300 cities in China to varying degrees, resulting in the loss of ¥120 billion ($14.5 billion) in industrial output annually. To combat these problems, the Chinese government is adjusting water tariffs to rationalize consumption and help fund wastewater treatment. According to Allen & Overy attorney Mitchell Silk, China must increase capacity by 25 percent to meet its water needs; that is the equivalent of several hundred additional medium-sized and large plants. Silk estimates that foreign involvement in this sector from 1990-98 totaled around $842 million in 20-25 projects.

While most environmental infrastructure projects will continue to utilize domestic equipment and be funded locally, the PRC government is counting on receiving about 20 percent of total funding from foreign sources—multilateral development institutions, bilateral government programs, non-governmental organizations, and the private sector.

Foreign interest in water projects is high, though US participation lags behind European countries such as France and the United Kingdom, as well as Hong Kong. In 1999, the central government approved a build-operate-transfer (BOT) water-supply project in Chengdu, Sichuan Province, the third BOT project to date (the other two were in the power sector). Other investments have utilized traditional joint-venture vehicles or offshore infrastructure holding companies.

The key issues for potential investors are the water tariff and rate of return. Fees must be high enough to cover operating expenses, debt service, and generate a return (which must be convertible to hard currency). Many US firms complain that the returns to be earned in China (usually no higher than 12 percent) do not warrant the risk of investment. Most potential investors are seeking a return of 15-18 percent, which is high by Chinese standards. Equity investment funds would demand even more, and thus have not yet become active in this sector. Wastewater projects have attracted fewer foreign investors than water supply/treatment projects, as tariffs are too low to make operations commercially viable in the eyes of most foreign firms.

Many US firms are frustrated and skeptical of finding genuine business opportunities. Despite the enticing prospects and glowing rhetoric, foreign companies interested in China's environmental sector find that the country's hard-currency constraints, unrealistic pricing policies, high import taxes and tariffs, and inadequate or incomplete policy support all combine to make it a very difficult market to penetrate on any significant scale.

Even foreign-invested municipal water projects rely largely on domestic technology; 20-30 percent of the equipment in such projects might be imported. According to one engineer with experience in such projects, US water-equipment suppliers offer competitive prices and quality, but their financing terms generally are not as good or flexible as those offered by Europeans.

- **Waste management** China's Solid Waste Law, passed in 1996, mandates responsible treatment of waste. Local governments have yet to devote the finances or policy support to live up to the spirit of the law, however. This situation may soon change, as several new regulations that will clarify enforcement responsibility are in the offing. Moreover, municipalities are now beginning to charge waste-disposal fees to help fund the creation and operation of new disposal sites.

According to a US Department of Commerce (DOC) study, China generates 110 million tons of municipal solid waste and 750 million tons of industrial solid waste. Less than 20 percent is treated. Alarmingly, urban domestic waste is increasing an average of 9 percent a year, and even faster in coastal cities. The Chinese government is encouraging construction of incinerators on the coast, and landfills in the interior, reports Dong Baoshu of the Commission of Solid Waste Treatment and Recovery at the Chinese Association of Environmental Protection Industry.

This building spree could result in a jump in imports of related equipment of around 18 percent by the end of this year, to $140 million. DOC expects US firms to capture one-quarter of the market, mainly in waste-collection and transfer vehicles with compacting and auto-unload features, and incinerators. Converting incinerator waste or landfill gas into electricity is also an option, though companies with experience in this area indicate that the revenue generated by electricity sales will typically be too low to pay for the operation of the facility.

According to environmental consulting firm ERM, most of China's 20-40 million tons of hazardous waste stays on site or is disposed of in general waste disposal facilities. Several new sites are currently being built to handle toxic waste, mostly in coastal cities. A series of new regulations dealing with the transport and classification of hazardous waste, as well as the construction of facilities, may boost enforcement of existing laws and result in greater investment in hazardous-waste treatment facilities.

- **Emission-control equipment:** As vehicle emissions are now the leading source of air pollution in several major Chinese cities, the government has turned its attention to reducing the impact of the country's rapidly growing vehicle population. All new vehicles, local or imported, now must be equipped with fuel injection systems and emissions-control equipment. Existing vehicles, meanwhile, will have to be scrapped or undergo retrofits in order to satisfy the new rules. China will have to set up a national monitoring network to ensure compliance with the new standards. The US and Foreign Commercial Service in Beijing estimates that the market for imported technologies in these areas could grow 16 percent, to $270 million, by 2001.

Aside from tightening emissions standards, Beijing has established a leading group of 12 or so individuals from various ministries and bureaus to examine the feasibility of alternative fuels for motor vehicles, including liquefied

China's Domestic Environmental Protection Equipment Industry

China's indigenous environmental protection equipment industry is composed largely of small, inefficient manufacturers churning out fairly low-tech and low-quality products. According to Jiang Xiaoyu, deputy secretary general of the China Association of Environmental Protection Industry, by 1997 there were more than 9,000 manufacturers of environmental protection equipment in China, of which 80 percent could be considered small scale. Only 10-20 record annual sales of ¥100 million ($12 million) or more, and only around 1 percent of these firms have any foreign investment. According to a report by the US embassy in Beijing, only around 4 percent of domestically made equipment meets international standards.

China's environmental protection equipment market evolved to meet the needs of specific industries, and was basically unregulated until recently. The central government started paying attention to the sector in the late 1980s, and issued a directive in 1990 that the environmental equipment industry should be developed and included in national plans. Now, despite the clear mandate to develop environmental technologies, funding for development and marketing is limited. Moreover, responsibility for developing the industry is still unclear given the large number of sectors and bureaucracies it straddles. The central government, therefore, has created a leading group of officials from the State Economic and Trade Commission, the State Development Planning Commission, the Ministry of Science and Technology, the Ministry of Construction, and SEPA to coordinate planning.

Although much of China's domestic environmental equipment may not be as well-made or advanced as that of foreign technologies, it will continue to dominate the market because of its cost competitiveness and local protectionism (many manufacturers are actually subsidiaries or have ties to local environmental protection bureaus or design institutes). Foreign manufacturers seeking to penetrate the Chinese market, therefore, may find that investing in local assembly or manufacturing operations improves their competitiveness.

—Pamela Baldinger

petroleum gas (LPG), compressed natural gas (CNG), and electricity. Chengdu, Sichuan Province; Harbin, Heilongjiang Province; Shenzhen, Guangdong Province; and Xi'an, Shaanxi Province, and Beijing, Shanghai, and Chongqing municipalities have all established demonstration LPG and/or CNG filling stations, and are also testing LPG- or CNG-fueled taxis and buses. Beijing and Shanghai have announced plans to convert thousands of taxis and public buses to LPG or CNG over the next two years. Some of the huge cost of implementing these ambitious programs may come from a new fuel tax.

- **Air-pollution control equipment** According to the Chinese press, more than ¥100 billion ($12 billion) is to be spent over the next 10 years to combat sulfur emissions and other types of air pollution in 34 major cities. As part of this effort, China is expected to construct several hundred coal-washing facilities. Desulfurization equipment is to be required on all new power plants and industrial facilities located in designated sulfur-dioxide and acid-rain control zones (primarily in southern and northeastern China and around Chongqing).

Financing blues

Interviews conducted with US firms indicate that many are frustrated and skeptical of finding genuine business opportunities. Despite the enticing prospects and glowing rhetoric, foreign companies interested in China's environmental sector find that the country's hard-currency constraints, unrealistic pricing policies, high import taxes and tariffs, and inadequate or incomplete policy support all combine to make it a very difficult market to penetrate on any significant scale.

Many companies report that the amount of time required to pursue opportunities in China is excessive compared to the potential return, especially when compared with other markets. The large numbers of projects proposed for foreign investment make identifying the few that might be commercially viable tantamount to searching for the proverbial needle in a haystack. The constantly changing and unpredictable regulatory environment, meanwhile, makes it difficult to know when new policies that might affect market conditions will actually come to fruition. This, in turn, hinders efforts to staff operations and plan for the future.

The greatest challenge, however, is usually financial in nature. While China's desire for foreign technology is great, its purchasing ability is limited. Funds for most environmental infrastructure projects in China come primarily from the local or provincial levels, but as yet there are no municipal bond markets to finance the construction of these new facilities. As a result, most projects rely on domestic providers to keep costs down and because they can be paid in local currency. In some cases, government policies may also require the purchase of domestic equipment. Officials prefer to fund foreign purchases with monies obtained from multilateral financial institutions and bilateral concessionary finance programs.

As a result, many US companies lose out to European and Japanese firms backed by soft loans and more consistent, supportive government policies. It comes as little surprise then that US firms hold a comparatively small share (less than 10 percent in 1997) of China's environmental technologies market. The US Export-Import Bank's Clean Energy Program, which will provide $100 million to back sales of US technology in specially designated areas, may help boost US sales this year.

Possibilities after WTO

China's entry into the World Trade Organization (WTO), however, should help foreign equipment suppliers compete in China, as international competitive bidding procedures will be mandated for government procurement, and national treatment rules will preclude preferential policies for domestic equipment suppliers. Foreign manufacturers will also gain the right to distribute and service their own equipment (*see The CBR*, January-February 2000, p.17).

Continued on page 55

China's entry into the World Trade Organization should help foreign equipment suppliers compete in China.

China's Addiction to Soft Loans

Most government aid programs funding environmental projects in China belong to OECD members. According to OECD rules, soft financing is limited to projects that are not commercially viable. As environmental projects often are unable to generate sufficient funds to cover operational costs and service debts at market terms, they generally fit this categorization. Bilateral aid for environmental projects in China reportedly exceeded $1 billion between 1993-96.

Bilateral assistance to China generally comes in the form of training programs, feasibility study grants, and soft loans. Typically, loans and grants are tied to equipment and services from the donor country. Soft loans usually involve a 35 percent grant element, but terms may vary from project to project and country to country. Japan's loan terms are extremely generous—interest rates can be as low as 0.75 percent over 40 years.

Regardless of who is offering the terms, Chinese bureaucrats have become "addicted" to concessionary finance, in the words of one diplomat. That fact puts US firms at a disadvantage to many of their fiercest competitors, since the US Export-Import Bank does not offer concessionary finance (with the exception of a "war chest" with which it can match offers from other countries. These funds are difficult to draw on, however, and do not realistically offset other countries' programs.) Japan and Germany have the largest bilateral aid programs in China, while the US has one of the smallest. China uses the bulk of concessionary finance for water-treatment projects. Though foreign soft-aid programs may advance a country's broad policy goals (such as the improvement of China's environment), they also serve a commercial purpose by subsidizing sales of the donor country's products and services.

These subsidies distort China's environmental technology market, as procurement decisions often are made on the basis of soft financing, rather than the most suitable technology. Moreover, soft loans may thwart the development of entrepreneurial management skills and realistic pricing mechanisms vital to any project's long-term viability. A consultant who surveyed EU soft-funded wastewater-treatment plants in China, for example, discovered that many either were not working at all or were operating at less than 50 percent capacity, due to their inability to generate operating revenues. Despite such problems, soft financing is a fact of life in China's environmental protection sector, and lending levels may even increase in the future.

—Pamela Baldinger

China's Environmental Framework 2000 and Beyond

With a spate of new regulations, taxes, and tariffs planned for the coming year, China shifts its environmental policy framework into high gear

Jim Stover

Many multinational companies in China wonder just how serious the Chinese leadership is about environmental protection. By most indications, the government is serious about it at the highest levels. Beijing continues to pass or upgrade laws and regulations, and is also developing new tax and tariff structures. And efforts to establish domestic capacity for all types of pollution control and waste treatment will support the probable consolidation of the domestic environmental protection industry. Nevertheless, enforcement problems at the local level will continue as long as the economic and bureaucratic balances of power—both between local- and central-government officials, and between regions and ministries—create conflicts of interest for enforcers.

To gain some insight into the future regulatory framework investors will face in China, it is important to examine other factors, such as the role of the public in driving environmental compliance and the Tenth Five-Year Plan (FYP, 2001-05), which the National People's Congress (NPC) will negotiate this summer. New legislation in the pipeline and the market-based instruments such as taxes and tariffs that are coming into force are also key factors.

Trends and driving forces

The Yangtze River, the Yellow River, and the Bohai Sea will be major environmental focuses of the Tenth FYP, according to the China Council for International Cooperation on Environment and Development (China Council), the high-level advisory body to the Premier's office. The Tenth FYP will increase the number of key cities targeted for environmental protection from 47 to 100, and will also address mass-loading control limits on pollution; cleaner production; ecological and agricultural environmental protection; and environmental protection in the energy sector. For the first time, the FYP will include "environmental industries," such as environmental protection equipment manufacturing, conservation and resource development enterprises, and environmental engineering and consulting services, and the major focus will shift away from an end-of-pipe approach toward measures that contribute to sustainable development. A December 1999 State Development Planning Commission (SDPC) report cites development of advanced production capacity for urban sewage treatment, hazardous industrial sewage treatment, computer control and automation, desulfurization and denitrification for large power plants, modern sanitary landfills, monitoring and detection devices, and large-scale incinerators as priority areas.

In the push for sustainable development, China will also identify more environmental projects as priorities. Companies will face stiffer regulations, but foreign firms may also be increasingly able to find ways to make more specific policy suggestions. The China Council and other organizations—such as the Professional Association for China's Environment (PACE), which counts over 600 American, Chinese, and international environmental officials and professionals as members—are compiling a list of issues they will recommend for discussion during the preparation of the Tenth FYP.

Perhaps the most important shift will come if the State Environmental Protection Administration (SEPA) succeeds in convincing the State Council to shift administrative control over local environmental protection bureaus (EPBs) to higher-level provincial and municipal EPBs. The provincial and municipal governments, which provide most EPB funding, still appoint most local EPB directors. (EPBs must distribute 80 percent of emissions fees and fine revenues back to enterprises for pollution prevention investments, but may keep the remainder.) As new and revised legislation proliferates, enforcement will vary considerably depending on a given local EPB's capabilities.

Local EPBs in major cities like Beijing; Guangzhou, Guangdong Province; Qingdao, Shandong Province; and Shanghai tend to be more capable than those in less-developed cities because they have had better training, interact

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with foreign enterprises more regularly, have more government money at their disposal, and are located in areas where the environment is already a public-policy priority.

EPBs will, however, still be responsible to local governments, which control overall local investment policy and environmental quality administration. It remains to be seen if more stringent reporting and greater accountability will be delivered to higher-level EPBs. It will be important for investors to understand varying local capacities for enforcement, and local administrators will need advice and training to understand and implement concepts that they may be administering for the first time.

Despite its elevation to ministry-level status in 1998, SEPA's Beijing staff was dramatically reduced, and many of its research or policy institutes are facing greater pressure to become financially self-sufficient. Thus, to strengthen their reach into the provinces, central authorities will increasingly encourage public participation as a regulatory tool. Qu Geping, the influential chairman of the NPC's Environmental and Resources Protection Committee (ERPC), has stated that public participation in project approval, as well as consumer and investor interest in clean enterprises, will be encouraged.

In addition, the Chinese media is increasingly assuming the role of arbiter and protector of consumer rights. In 1999, the *Beijing Science and Technology News*, *Xiamen Evening News*, and CCTV all produced stories on the direct impact of pollution on health. For instance, the *Guangdong-Hong Kong Daily* reported that Shougang (Capital) Iron and Steel of Beijing was a major polluter and health threat to citizens. For this reason it might be moved outside of Beijing, possibly to Shandong Province. Although no foreign company has yet been subject to widespread national attention, it is fair to say that the media's interest in violations of environmental regulations will grow in number and intensity.

Laws in the pipeline

Currently, the State Council and the NPC are reviewing revisions to the air and water pollution laws; the Implementation Guidelines to the Solid Waste Law (which should also include key provisions on hazardous waste); and a new Chemical Management Law (*see* Table). These are likely to be finalized this year or next. An environmental impact assessment law and a cleaner production law are waiting in the wings. Both laws, though now only in preliminary stages, would bring forward environmental considerations on industrial facility and infrastructure project-development timelines.

One of the highest-priority and most-debated laws is the **Air Pollution Prevention and Control Law**, delayed from its original 1999 completion date to a third NPC review in March of this year. Since the law's 1995 amendment, public and governmental awareness of pollution control has intensified. SEPA has now drafted revisions that outline more detailed requirements and stiffer penalties for violators. Among the key points are

- Mass-loading targets for each enterprise, which will involve zoning criteria and procedures, emissions volume verification methods, and emissions trading. Mass-loading targets are based on the maximum amount of pollution from all facilities discharging into a local environment that can be received and naturally degraded or diluted to regulatory levels by that environment;
- Specific permit requirements and follow-up monitoring and management systems such as monthly reports, site inspections, public supervision, and training systems;
- Discharge fees that will apply to the total volume of pollutants rather than emission concentrations, as is currently the case;
- Broader definitions of pollution sources to cover non-industrial areas such as domestic boilers and straw-burning in rural areas.

The Chinese media is increasingly assuming the role of arbiter and protector of consumer rights.

Soil-Quality Standards

The Risk Assessment Baseline of Soil Environmental Quality for Industrial Enterprises (HJ/T 25-1999), effective August 1, 1999, was developed, on the basis of potential human risk, for industrial enterprises in the PRC. China's first step toward regulating industrial-site cleanup was drafted in response to the requests of multinational companies operating in the country. During the process of formulating the standard, SEPA worked for the first time with multinationals, which offered international experience and advanced technical methods in risk assessment. SEPA encourages both domestic and international enterprises to work with it in formulating environmental standards.

Key points of the standard

- The standard includes almost all US Environmental Protection Agency (EPA) priority pollutants. (Previous soil-quality standards, developed for soil-use designations, covered only eight heavy metals and two pesticides.)
- Each chemical has a value for soil exposure due to direct contact/intake, and another for exposure to soil contamination through migration to groundwater.
- The standard specifies the formulas to be used to calculate the baseline soil values. To facilitate the use of the formulas, the standard lists exposure factors, toxicological reference values, and degradation/dilution factors. For sites in northern and southern China there are two different sets of values based on an estimated higher level of exposure in warmer southern climes.
- The formulas have, in effect, provided a framework for more detailed calculation, selection, and modeling to determine future exposure and degradation/dilution factors.
- The prescribed method calculates a soil value based on a groundwater reference value given in the standard. As a result, the method can potentially be expanded to address groundwater impact.
- Groundwater use in the standard refers not only to present use but also to potential future use.

Cooperation with and impact on foreign firms

The standard, primarily drafted as a technical reference, is not yet compulsory. Therefore, it is up to individual companies to decide whether or not to comply with it during site assessment. However, it may become effectively mandatory, if cited in a court judgment in case of dispute or referenced in environmental impact assessment reports developed for sensitive projects. In any case, this standard is expected to become a requirement eventually.

The numerical values in the new standard, in general, exceed comparable international standards by at least three orders of magnitude. As a result, few sites are expected reach contamination levels above the standard. Nevertheless, the introduction of the standard is an indication that future soil remediation requirements in China are likely to develop in line with international practice.

—Jim Stover

Key PRC Environmental Laws and Initiatives Past, Present, and Future

By Richard J. Ferris Jr. (*rferris@bdlaw.com*), Beveridge & Diamond, P.C.

Year	Focus of Initiative(s)	Description
1979	Environmental Protection and Natural Resource Conservation	• Environmental Protection Law adopted on trial implementation basis* • Forestry Law adopted on trial implementation basis
1980	Environmental Protection	• Circular issued on Strict Implementation of the "Three Synchronizations" Policy With Respect to Capital Construction and Technical Innovation Projects
1981	Environmental Protection and Natural Resource Conservation	• National People's Congress (NPC) issues decision on Strengthening Environmental Protection Work During the Period of National Economic Readjustment
1982	Natural Resource Conservation and Consumer Protection	• Food Hygiene Law adopted on trial implementation basis • Marine Environmental Protection Law adopted
1983	Environmental Protection	• China's central government established environmental protection as a "fundamental strategy" (later memorialized by Li Peng in an article published in the *Xinhua Yuebao*, January 1984)
1984	Environmental Protection, Natural Resource Conservation, Worker Health and Safety	• Forestry Law adopted • Water Pollution Prevention and Control Law adopted • Fire Protection Regulations promulgated • National Environmental Protection Agency (NEPA) established
1985	Natural Resource Conservation	• Grasslands Law adopted
1986	Environmental Protection and Natural Resource Conservation	• Fisheries Law adopted • Land Administration Law adopted • Mineral Resource Law adopted • Management Methods for Environmental Protection in Construction Projects promulgated (environmental impact assessment [EIA] regulation) • Regulations for Environmental Management of Foreign Economic Development Zones promulgated on trial implementation basis
1987	Environmental Protection	• Air Pollution Prevention and Control Law adopted • Regulations on Management of Municipal Radioactive Waste promulgated
1988	Natural Resource Conservation	• Land Administration Law amended • Water Law adopted • Wildlife Protection Law adopted
1989	Environmental Protection	• Environmental Protection Law amended
1990	Environmental Protection	• Management Procedures for Environmental Protection in Construction Projects promulgated (EIA regulation) • Regulations on Prevention and Control of Pollution Damage to the Marine Environment from Land-Based Sources promulgated
1991	Natural Resource Conservation	• Water and Soil Conservation Law adopted • Management Methods on Environmental Radiation promulgated
1992	Worker Health and Safety	• Mine Safety Law adopted
1993	Environmental Protection, Natural Resource Conservation, and Consumer Protection	• Agriculture Law adopted • Law on Protection of Consumer Rights adopted (including provisions upholding right of consumers to obtain truthful information on purchased commodities and services) • Genetic Engineering Safety Management Measures adopted • Management Methods on the Certification of Environmentally Friendly Products (Labeling Methods) adopted • NPC creates supervisory program to enhance environmental law implementation (Environmental Protection and Natural Resource Conservation Committee established)
1994	Environmental Protection, Natural Resource Conservation, Worker Health and Safety, and Consumer Protection	• Advertisement Law adopted (including provisions whereby advertisements are prohibited where, among other things, they will "hinder protection of the environment or natural resources" and where they may "mislead consumers") • Labor Law adopted • Regulations for Environmental Management of the First Import of Chemicals and the Import and Export of Toxic Chemicals promulgated • State Council approved "Agenda 21—White Paper on Population, Environment and Development"
1995	Environmental Pollution and Consumer Protection	• Air Pollution Prevention and Control Law amended • Food Hygiene Law adopted • Law on Prevention of Environmental Pollution Caused by Solid Waste (Solid Waste Law) adopted
1996	Environmental Protection and Natural Resource Conservation	• Coal Law adopted • Environmental Noise Pollution Control Law adopted • Mineral Resource Law amended • Water Pollution Prevention and Control Law amended • Regulations on the Protection of Wild Plants promulgated • Provisional Regulations on Environmental Management of Waste Imports promulgated

Year	Focus of Initiative(s)	Description
1996	Environmental Protection and Natural Resource Conservation *(continued)*	• List of Wastes Subject to Importation Restrictions promulgated as Annex to Provisional Regulations on Environmental Management of Waste Imports • Circular on Adding Wastes to the List of Wastes Subject to Importation Restrictions promulgated • Regulations banning or requiring recycling of certain fast-food containers promulgated in Wuhan, Hubei Province and Xiamen, Fujian Province** • China Technical Supervision Bureau announces adoption of ISO Standards (14001, 14004, 14010, 14012) as national environmental management standards (effective in 1997) • Chinese government launches a nationwide campaign to close down major polluting township and village enterprises affecting sensitive watercourses
1997	Environmental Protection and Natural Resource Conservation	• Criminal Law amended (to include provisions on environmental crimes) • Energy Conservation Law adopted • Flood Prevention Law adopted • Beijing Regulation Requiring Recycling of Certain Nonbiodegradable Fast-Food Containers promulgated • Dalian, Liaoning Province, issued Regulation Promoting the Use of Biodegradable, Durable Plastic Bags • Guangzhou, Guangdong Province, and Qiqihar, Heilongjiang Province, promulgated Recycling Provisions or Material Restrictions Applicable to Manufacture, Sale and Use of Certain Nonbiodegradable Fast-Food Containers • Shijiazhuang, Hebei Province, Recycling Provisions or Material Restrictions Applicable to Manufacture, Sale and Use, or Recycling of, Certain Nonbiodegradable Fast-Food Containers promulgated • ISO Standards (14001, 14004, 14010, 14012), adopted as national environmental management standards in 1996, now "effective" (as voluntary standards) for China • Chinese government announced that phase-out of leaded gasoline will be completed by 2000 (Beijing; Guangzhou, Guangdong Province; and Shanghai announced leaded gasoline phase-out by end of 1997)
1998	Environmental Protection, Natural Resource Conservation, and Related Administrative Reform	• Forestry Law adopted • Land Administration Law adopted • State Council Circular on Acid Rain and Sulfur Dioxide Pollution Control Zones issued • National Environmental Protection Agency (NEPA) promulgated a Dangerous ("Hazardous") Waste List stipulating wastes the import of which is restricted under the Solid Waste Law • NEPA elevated to ministry status and renamed State Environmental Protection Administration (SEPA) • SEPA promulgated new Construction Project Environmental Management Regulations • Administrative restructuring of central government initiated; entities such as the Ministry of Chemical Industry absorbed by new or reorganized ministry-level entities
1999	Environmental Protection	• NPC adopted the amended Marine Environmental Protection Law [December] • SEPA issued the Construction Project Environmental Impact Assessment Qualifications Certificate Management Measures [March] • SEPA issued Amended Chemicals List pursuant to the Regulations for Environmental Management of the First Import of Chemicals and the Import and Export of Toxic Chemicals [April] • SEPA also issued a Circular announcing the Construction Project Environmental Classification Management List [April] • SEPA promulgated Environmental Standards Management Measures [April] • SEPA promulgated the Hazardous Waste Transport Manifest Management Measures [May] • SEPA issued Pollution Control Standards for Hazardous Substances in Motor Vehicle Fuel [June] • SEPA issued Environmental Quality Risk Assessment Criteria for Soil (and groundwater) at Manufacturing Facilities [July; effective August 1] • SEPA issued Environmental Protection Administrative Penalty Measures [July] • SEPA promulgated a "broad spectrum" decision amending several environmental regulations, including those affecting mining, food processing, environmental impact assessment, and waste import activities [July] • SEPA promulgated new Hazardous Waste Incinerator Standards [December; publication delayed until 2000]
2000-	Environmental Protection and Natural Resource Conservation	• SEPA issued circular announcing import ban on certain waste electronics [January; effective April 1, 2000] • NPC is working on drafts of a number of pieces of key environmental protection and natural resource conservation legislation, including: 1) Desertification Law; 2) Environmental Impact Assessment Law; 3) amended Air Pollution Prevention and Control Law; 4) Radioactive Pollution Prevention and Control Law; 5) amended Water Law; and 6) Clean Production Law. These drafts might be finalized and enacted during the 2000-2003 period.

NOTES: This table highlights landmark legislative developments and related initiatives, and is not meant to be comprehensive.

*China generally "adopts" laws, regulations, and standards on a particular date that may be different from the "entry into force" date for the same law, regulation, or standard (or other legal norm-creating document). Chinese laws, regulations, and standards often do not differentiate, as is the practice in the United States, between the terms "adopt," "promulgate," and "announce." Hence, English translations of these laws, regulations, and standards may include any of these terms to refer to the date that the official version of the law, regulation, or standard was approved by the government and published for public inspection.

**These and subsequent local ordinances are included to highlight the recent growth of packaging-material controls.

The Environmental Impact Assessment (EIA) law is expected to encourage the consideration of EIA requirements closer to the project inception and planning stage, and mandate that EIAs assess the local socioeconomic impact for a wider area around proposed projects. The law may even go as far as to require EIAs for economic policies and urban development as well as for construction projects.

The Environmental Economics Program at SEPA's Policy Research Center for Environment and Economy, however, has cautioned that the coexistence of a permit-trading system and a discharge-fee system in the revised draft—a situation that does not exist in the West—may be counterproductive. The Center is urging the NPC to reevaluate the impact of using both mechanisms under the revised law. Simultaneous implementation of the command-and-control discharge-fee system and a market-based instrument such as permit-trading might dilute the effectiveness of either. Ultimately, failure to provide appropriate incentives to reduce emissions could discourage investments in pollution-control equipment. NPC delegates may approve the law nonetheless.

In separate moves, PRC authorities raised vehicle emissions standards to meet Western early 1990s levels as of January 1, 2000. Fuel standards will be raised by July 1, 2000. Beijing Municipality is planning to meet Euro II standards for vehicle emissions by 2004.

The **Water Pollution Prevention Control Law**, adopted in 1984 and amended in 1996, is also scheduled for revision during the current NPC term (through 2001) according to the same principles as the Air Pollution Law, though details have yet to be revealed.

The revised **Marine Environmental Protection Law of the People's Republic of China**, approved by the NPC Standing Committee on December 25, 1999, will take effect on April 1, 2000. The amendments focus on marine ecological protection, prevention of pollution in maritime construction projects, and tougher penalties for violations. The revised law also names SEPA, the State Marine Administration, and the Ministry of Communications Maritime Affairs Department as the three agencies under the State Council responsible for marine environmental protection.

The revised law will mandate discharge applications and fees for all pollution discharges, as well as add mass-loading control provisions, an emergency system for pollution accidents, systems for civil compensation and insurance, and a stipulation that local coastal governments be held responsible for local marine ecological conditions. Zhang Haoruo, vice chairman of the NPC Natural Resources and Environmental Protection Committee, had noted that the old law failed to define clear and specific standards for the marine environment, favored decentralized administration, and hindered comprehensive and effective enforcement and scientific research.

Completion of a new **environmental impact assessment (EIA) law** is also a priority during this NPC term. The detailed provisions outlined in the Management Protocol on Construction Projects, which SEPA released in November 1998, are seen as precursors to this more comprehensive law. The EIA law is expected to encourage the consideration of EIA requirements closer to the project inception and planning stage, and mandate that EIAs assess the local socioeconomic impact for a wider area around proposed projects. The law may even go as far as to require EIAs for economic policies and urban development as well as for construction projects. It will probably emphasize cost-benefit analysis, detailed compliance requirements, fines for non-compliance, and legal liabilities.

SEPA's Chemical Research Center (CRC) has indicated that the new **Chemical Pollution Prevention and Control Law**, although drafted, may not be finalized until later this year or next. Apparently, the law will be based largely on the US Toxic Substances Control Act. It is unclear, however, how the new law will deal with potential domestic or import registration or notification requirements.

There are currently three government bodies involved in developing a **cleaner production law**: SEPA, the Ministry of Science and Technology, and the NPC's ERPC. ERPC has unofficially commissioned SETC to draft the law, which is unlikely to be completed within this NPC term. Among the obstacles are a lack of regulations from other countries to use as reference and the related fact that ERPC, SETC, and SEPA lack a clear idea of what the basic contents and guidelines should be. Existing pollution-prevention and -control laws include not only end-of-pipe control aspects but also some cleaner production (CP) concepts. SEPA is exploring a system whereby enterprises could be certified by an independent CP auditing body, much like the current ISO14001 management system, which could exist independently of a law.

SETC has already taken steps to promote the concept of cleaner production by issuing the **Catalogue of Outdated Production Capacities, Equipment, and Products** in February 1999. The Catalogue lists a "First Group" to be eliminated by 2000, made up of 114 items across 10 sectors—coal mining, metallurgy, non-ferrous metals, petrochemicals, light industry, textiles, construction materials, paper making, cement, and power supply. It targets enterprises that illegally manufacture goods, produce inferior products, cause severe pollution, or are heavy energy consumers. SETC plans to update the catalogue annually. International investors would be wise to investigate proposed joint-venture projects and suppliers to make sure they are not in violation of the catalogue and thus subject to closure.

Regulations and standards

Other policy moves to lay groundwork for future lawmaking include a new soil-quality standard and **hazardous waste (HW)** regulations. The NPC enacted the first standards for determining industrial site contamination on August 1, 1999, a first step toward regulated industrial site cleanup (*see* p.49).

Regulation and treatment of hazardous waste are still in their infancy, however. HW regulation did not exist at the national level until general provisions came into effect in 1996 under the Solid Waste Pollution Prevention and Control Law (Solid Waste Law), which mandates responsible treatment of HW and establishment of one site per locality for HW management. SEPA has completed a final review of the Implementation Guidelines to the Law on Solid Waste Pollution Prevention and Control (Implementation Guidelines) and is currently waiting for the State Council to put them on the legislative agenda. They could be issued this year. The Tenth FYP will budget about ¥7.5 billion ($904 million) for construction of five to seven regional waste and HW treatment centers, to be developed by SEPA. Shenyang, Liaoning Province, the site of a World Bank HW project, will likely be a primary location.

The Implementation Guidelines will include regulations on HW management, be based heavily on the results of the implementation of the Shanghai Hazardous Waste Management Regulations, and likely include input from the Nanjing EPB. The Implementation Guidelines will also feature an HW transfer manifest and business license, provisions restricting the importation of HW, and a nationwide symbols and labeling system. Because local regulations may be inconsistent with the new national Implementation Guidelines, localities will likely have to amend local laws.

The **Management Regulation for Hazardous Waste Transfer Manifests**, which took effect on October 1, 1999, applies to all enterprises that transport hazardous waste within China. The regulation institutes a five-copy transfer manifest that must be completed by and shared among the waste producer; the EPB governing the producer; the transporter; the treatment, storage, or disposal (TSD) facility; and the EPB that governs the TSD facility. It also represents one piece of an incipient "cradle-to-grave" approach to HW management. Producers must apply for approval of Hazardous Waste Transfer Plans and notify the local EPBs prior to the transfer of the hazardous waste.

Taxes and tariffs

Tariffs on water supply, wastewater treatment, and solid-waste disposal remain too low to provide national and municipal authorities the revenue they need to take on new infrastructure projects. If adequate rates of return cannot be created through changes to the regulatory and policy framework, long-term strategic investments in projects like waste incineration will remain elusive.

This is beginning to change, however. Following the leads of Chengdu, Sichuan Province; Nanjing, Jiangsu Province; Shenyang, Liaoning Province; and Zhuhai, Guangdong Province, Beijing in October 1999 became the fifth city to establish a sanitary waste disposal fee collection system for residents. Local families now pay ¥3 ($0.36) per month. Those without permanent Beijing residential registration will be required to pay ¥2 ($0.24) per month. This policy is similar to the effort behind the **Management Regulation for Urban Supplied Water Prices**, passed in 1998 by the Ministry of Construction and SDPC with the assistance of the Asian Development Bank. This regulation detailed a more comprehensive pricing scheme for water charges in municipalities. The Ministry of Construction is still struggling to implement the policy in trial cities, largely because municipal governments have not sufficiently supported the installation of the pricing scheme and requisite administrative reform. Success of both of these programs will be important indicators for long-term investment and development.

SDPC, the Ministry of Construction, and SEPA jointly announced the **Notice on Increasing Wastewater Treatment Fees and Establishment of Centralized Urban Wastewater Treatment Systems**, mandating that centralized civil wastewater-treatment fees be collected nationwide, subject to local conditions, beginning on November 1, 1999. Wastewater-treatment plants must run as enterprises, keep separate accounts, take full responsibility for profits and losses, and pay taxes. Municipal public utility companies will collect wastewater-treatment fees, which will be allocated to wastewater-treatment companies monthly.

In the priority "Three Rivers and Three Lakes" areas (the Huai, Hai, and Liao rivers, and the Tai, Dianchi, and Chao lakes) and in significantly polluted cities, rates must completely cover the maintenance and operation costs of facilities. In cities without centralized wastewater-treatment plants, the wastewater-treatment fee, with the approval of the local government, may be used to supplement civil wastewater-treatment plant construction. To prevent misuse of funds, wastewater-treatment plants must be completed and operational within three years from the date the local government starts fee collection.

According to the State Administration of Taxation, the government aims to convert most ad hoc fees and tariffs into official taxes. The fuel tax, which the NPC approved at the end of October 1999 as part of the Highway Law, is an example of this. And officials and academics are already talking about the merits of an environmental tax.

These taxes, along with a city-maintenance tax, a land-usage tax, and an agriculture tax, may all be introduced over the next decade. If so, central authorities will be able to support policy initiatives with greater financial might and enforce policies more thoroughly nationwide. The issue is apparently a top priority at the Ministry of Finance, but implementation of any plan will be complicated by political conflicts, both among government agencies and between central and local authorities.

According to the State Administration of Taxation, the government aims to convert most ad hoc fees and tariffs into official taxes. The fuel tax, which the NPC approved at the end of October 1999 as part of the Highway Law, is an example of this. And officials and academics are already talking about the merits of an environmental tax.

As the long delay in passage of the fuel tax shows, completing and enacting new reforms can be difficult and slow, especially regarding issues that mask central versus local (i.e. provincial or municipal) control. The fuel tax was delayed largely because of fears that farmers, who buy gasoline for use in farm vehicles, would be unfairly penalized, as they do not use public roads. Local governments also feared the loss of administrative revenue, as provincial price bureaus will give up much of their power to the central tax authorities.

A cleaner future

The emerging regulatory framework will be quite complex, largely because it is being formulated all at once and is being driven by different government actors. Local EPBs will administer mass-loading targets for individual facilities. Municipal construction bureaus will impose higher wastewater- and solid-waste-treatment fees, while Beijing will likely direct a new environmental tax. With tougher new standards, responsible companies will be caught between wanting to do the right thing and being able to plug in to a capable infrastructure. The forthcoming Implementation Guidelines to the Solid Waste Law may require safe disposal or incineration of waste, for example, but with an almost complete lack of modern landfills and incinerators, companies may still be left with no better option than temporarily storing waste on site. Hazardous-waste treatment and disposal may not have many near-term solutions, but China will need to construct domestic capacity as soon as possible.

In another example, if a company wants to introduce advanced pollution-prevention technology into its production process, it would do well to explain the technology's impact on local conditions to local EPBs. Doing so in advance may help harness EPBs' support in negotiating import-duty, tariff, or tax reductions.

The government is strengthening its push to commercialize the market and is increasingly acting as a regulator and creditor—and less as an equity-holder—in environmental-protection projects and infrastructure investments. It is doing this by supporting the development of the domestic environmental protection industry, pushing to raise municipal tariffs, and encouraging market-based instruments such as finance and tax policies. Where solutions do not readily exist, the ability of companies to forge a strong local support network with environmental officials and regional planners through training; sharing of corporate environmental, health, and safety practices; and community education should prove fruitful.

In the end, companies cannot afford to take an approach to environmental compliance that is anything but strict, for two reasons. First, the legislation is increasingly comprehensive and based on international standards. And second, as international companies are perceived to have more resources and experience with environmental issues than domestic firms, they are often subject to more stringent enforcement.

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Continued from page 47

The US-China bilateral agreement, not yet publicly released, reportedly does not specifically address environmental concerns, but import tariffs on most goods will probably drop. Currently, Chinese import duties on most environmental protection equipment range from 14 to 17 percent (though industrial scrubbers are assessed a hefty 37 percent); 17 percent VAT is issued on top of that. Although some projects receive preferential treatment to import such equipment duty-free (i.e., certain international assistance projects receive this privilege), this is the exception rather than the rule.

Companies wishing to provide environmental services may find some restrictions on establishment eased, but such liberalization may not necessarily translate into greater market share. Control by local environmental protection bureaus over the approval process for environmental impact assessments will make it very difficult for foreign firms to break through the web of entrenched personal connections that guide the selection of design institutes and technology. Most foreign environmental consultants, therefore, will find their services largely restricted to foreign multinationals and internationally financed projects for the foreseeable future.

It is not yet clear whether foreign insurance providers will be allowed to offer environmental liability coverage in China after it accedes to the WTO, as details under the US-China bilateral agreement are still being worked out. Even if foreign firms are allowed to offer such coverage, however, it is not clear they will desire to do so.

Before US firms can gain any benefits from China's WTO membership, the US government will have to solve the thorny problem of permanent Most Favored Nation status, known in US law as Normal Trade Relations (NTR), for China. WTO rules stipulate that all members grant each other the equivalent of permanent NTR status. But under current US law, the President must renew China's NTR status each year. If Congress does not amend US law, China may, under WTO rules, refrain from applying WTO treatment to US companies.

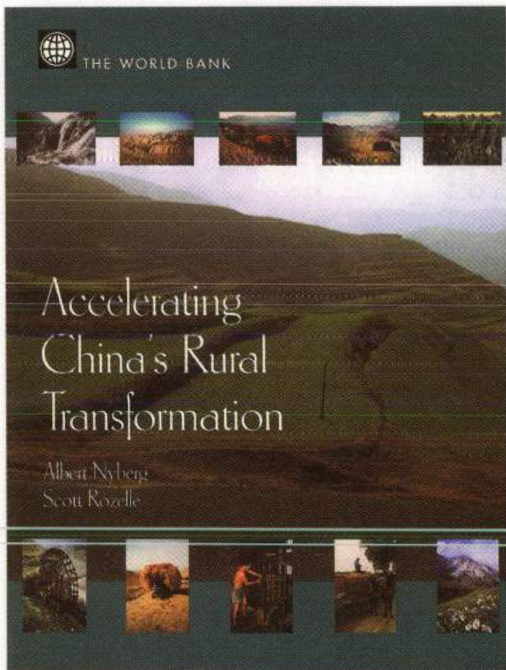
Environmental issues likely will be an element of the debate on Capitol Hill when the Clinton Administration proposes that China be granted permanent NTR. A number of environmental groups have already stated their intention to persuade Congress to reject, or at least qualify, PNTR for China. Their opposition stems from dissatisfaction over the US-China bilateral agreement concluded last November, their belief that the WTO as a whole does not heed environmental concerns, and/or (depending on the group) the fear that a WTO with China in its ranks will be even more closed to environmental concerns than it is at present.

As *The CBR* goes to press, it is not yet clear whether the environmental community will adopt a unified stance on PNTR, nor how much support it can muster amongst the public or Congress for its views.

No matter the outcome of the debate in the United States, however, Chinese environmental markets are likely to remain dependent on inexpensive domestic equipment. Companies from countries with aid programs will have an important competitive advantage over other players. However, as the Chinese government tightens its regulatory regime, bolsters enforcement (thereby making transgressions more costly) and gradually introduces more realistic pricing policies, market forces will play a greater role in driving investment in the environmental sector. Further financial reforms, including the creation of Chinese venture-capital funds, should also help spur investment in environmental technologies.

books

Accelerating China's Rural Transformation



by Albert Nyberg and Scott Rozelle. Washington: The World Bank, 1999. 132 pp. $30 softcover.

Despite the fact that China's early reforms lifted a huge portion of humanity out of extreme poverty in a short period, China must still implement a variety of infinitely more difficult reforms if it is to have any hope of narrowing the gaping—and widening—rural-urban divide. In *Accelerating China's Rural Transformation*, Albert Nyberg of the World Bank's East Asia and Pacific Region, Rural Development and Natural Resources Sector Unit, and Scott Rozelle, a World Bank consultant, identify obstacles to rural progress in China and suggest long-, medium-, and short-term policies and actions to overcome them.

The book is divided into three parts. Part I, "The Rural Sector Challenge," lays out the issues affecting this sector, such as credit and finance, employment opportunities, and natural resources. Part II, "An Enabling Environment for Rural Development," delves into these issues more deeply, addressing income and rural-urban linkages; public finance; credit and finance; the development of markets; and how international trade and foreign capital flows affect the rural sector. Part III, "Managing Rural Development," deals with cultivated land, water resources, technical change and technology transfer, industry, poverty reduction, natural resource management, and the environment.

In most of these areas, the authors conclude that the state must liberalize its policies—remove barriers to migration, deregulate interest rates, and enact World Trade Organization (WTO) accession policies, for instance. At the same time, however, the authors stress that the government must be prepared to cushion the negative effects of liberalization in poor areas, by, for example, better targeting poverty-alleviation efforts and encouraging the development of township and village enterprises (TVEs) in areas where they have comparative advantage. Standardized quarantine and phytosanitary inspections, certificates, and shipping documents—applied equally across all provinces—as well as a more rational tax system and fewer arbitrary fees at the local level are just a few suggestions that the authors believe could benefit rural dwellers and the agricultural sector.

But all of these suggestions are closely tied to banking-sector and state-owned-enterprise (SOE) reform. Unless policy lending is significantly reduced, credit for agriculture and TVEs will remain scarce, the authors argue. Without successful SOE reform and a private sector strong enough to absorb not only laid-off SOE workers but surplus agricultural laborers, excess labor will be stuck on the farm, or perhaps worse, swell the growing ranks of increasingly discontented migrant workers—raising the threatening specter of unrest.

An interesting thread running through Nyberg and Rozelle's conclusions is the need for accountability in local government. In many areas, local government is currently more of a burden than a help to rural dwellers because of its tendency to impose arbitrary and illegal taxes, fees, and fines. The authors propose consolidating some powers at the county level or higher, not only to save resources, but to avoid egregious abuses of power at lower levels.

Reinforcing the recommendations at the end of each chapter in parts II and III, the policy and action matrix at the end of the book lists specific problems facing the rural sector and actions the government could take to address them. Well organized and written in plain English, *Accelerating China's Rural Transformation* gives the reader insight into the magnitude of problems facing China's rural sector, where nearly three-quarters of the country's population still lives. This alone makes the book a thought-provoking guide to problems that foreign business sometimes overlooks—but that affect it nonetheless.

—Virginia A. Hulme

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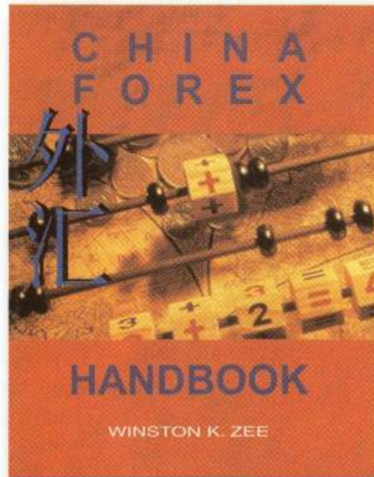
China Forex Handbook



by Winston K. Zee. Hong Kong: Asia Information Associates Ltd., 1999. 306 pp. $100 softcover.

In his book, *China Forex Handbook*, Winston K. Zee, a Hong Kong-based partner with Baker & McKenzie, provides a solid overview and analysis for businesspeople of China's foreign-exchange system. The book is especially helpful for companies still facing foreign-exchange problems resulting from China's 1998 efforts to tighten loopholes. The first third of the book explains China's foreign-exchange procedures. The rest of the book is an excellent compilation of China's major laws and regulations governing foreign-exchange transactions in both English and Chinese.

The book opens with a snapshot of China's foreign-exchange system and legislative framework as it has developed since 1994. Zee defines terms and explains various aspects of the system, including its currency system. One chapter details how China controls the supply and demand of foreign exchange, including a particularly clear and concise overview of the types of transactions and loopholes in the system. Zee illustrates how these transactions work on both the capital and current accounts and offers separate discussions of how the process works for foreign-invested enterprises, representative offices, and individuals. The book also addresses the separate requirements for imports and exports, as well as for bonded zones, royalties and assignment fees, and loans.

Zee intersperses discussion of various procedures and regulations with analysis of what motivated China to adopt particular measures. The concluding chapter on penalties offers fresh and interesting insights by explaining how the key changes in 1998 were not so much new regulations as a stricter enforcement of laws already in place. One key policy change in 1998 made banks liable for the foreign exchange they issued, while a series of Supreme Court decisions sent a conservative lending chill throughout the banking community.

—*Karen M. Sutter*

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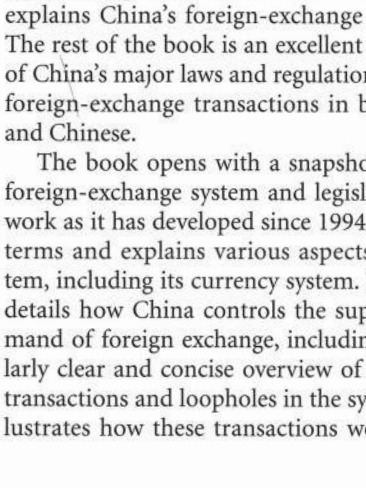
Directory of Chinese Government and Organizations (Year 2000 Edition): Who's Who in the Chinese Government



edited by George J. Liu. Washington, DC: PacifiCom, Inc., 1999. 288 pp. $75 softcover.

Directory of Chinese Government and Organizations is a handy, one-volume reference of contact information for Chinese government departments and organizations. The first part of the directory, on the central government, is divided into sections about the administration, the National People's Congress, the Chinese People's Political Consultative Conference, and the Chinese Communist Party (CCP). The second part of the book focuses on local governments, and contains information on municipalities, provinces, autonomous regions, and special administrative regions. In the final section, the book turns to key national corporations and organizations and Chinese missions abroad.

Starting at the top of the PRC's government hierarchy, the book gives basic biographical information about China's president, vice president, and members of the State Council. Contact information in both English and Chinese for ministries and bureaus, as well as their departments, under the State Council follows. Most of the ministry entries include a photo and brief bio of the minister. The CCP section lists all members of the 15th Central Committee.

The local-government section provides basic facts about each area, and lists each local government department, its phone number, and, occasionally, fax number. The section on key national corporations and organizations gives contact information and the names of the top people in each organization.

While the last two sections of the directory could benefit from the inclusion of the names and addresses of department heads, fax numbers, and—as more and more Chinese organizations get online—website and e-mail addresses, *Directory of Chinese Government and Organizations* is clearly laid out and easy to use. Each section is in alphabetical order according to the English names, with Chinese printed directly underneath. For those unfamiliar with the Chinese language, the first appendix offers pronunciation tips and some key telephone phrases. The second appendix features a list of Chinese holidays and a brief explanation of the significance of each one.

—*Virginia A. Hulme*

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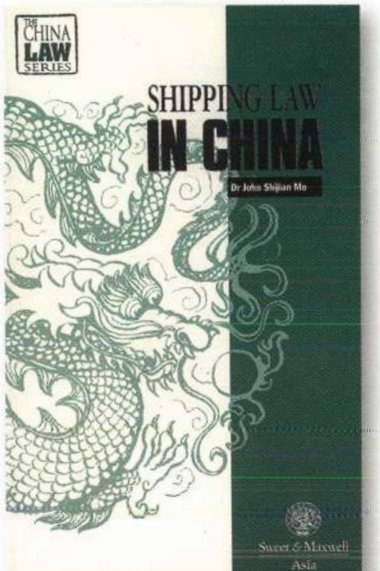
Shipping Law in China



by John Shijian Mo. Hong Kong: Sweet & Maxwell Asia, 1999. 280 pp. $150 softcover.

Nearly 90 percent of China's trade is carried out by sea, making shipping an important issue for US business in China. But until now there has been relatively little written on this topic in English. John Mo's book, *Shipping Law in China*, offers Western readers an important resource. Based on a shorter Chinese version published in 1998, *Shipping Law in China* provides a detailed and technical analysis of the ins and outs of the 1993 Maritime Law of the People's Republic of China.

The book covers the history of shipping in China, China's participation in international maritime law, vessels and property rights, rights and obligations of charter parties, insurance liability, and maritime disputes. Especially helpful is Mo's reliance on emerging case law in China to offer interpretations of various aspects of the law. He also identifies areas in which PRC interpretation and application of the law remain contradictory or vague.

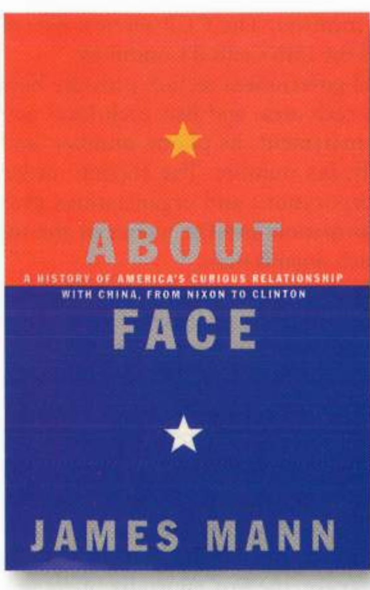
The publication of this book is particularly timely—the US-China bilateral maritime agreement lapsed in late 1998, and the US Federal Maritime Commission (FMC) is currently investigating unfavorable shipping conditions in US-China trade resulting from Chinese shipping rules and practices. Among the FMC's concerns are licensing of vessel calls at China's ports and port-access restrictions, including those imposed on foreign vessels seeking to move cargoes between ports in China and Taiwan. PRC authorities have also denied US carriers' requests to increase the limited number of branch offices they are presently permitted to operate. This prevents US carriers from performing branch-office functions at inland locations or ports where they transship cargoes. Branch offices perform a wide range of functions, including booking cargo space, accepting goods, issuing bills of lading, soliciting business, negotiating freight changes, and providing customer service. US firms must utilize the services of subsidiaries of Chinese shipping companies that compete with US carriers.

While the book does not address these issues directly, it provides companies and US government negotiators with the information they need to work with China to gain greater market access.

—*Karen M. Sutter*

Karen M. Sutter is the director of Business Advisory Services at The US-China Business Council in Washington, DC.

About Face: A History of America's Curious Relationship with China, from Nixon to Clinton



by James Mann. New York: Alfred A. Knopf, 1999. 433 pp. $30 hardcover.

Jim Mann, diplomatic correspondent and foreign affairs columnist for the *Los Angeles Times*, has produced an entertaining review of US-China relations from the Kissinger breakthrough in 1971 through the Clinton trip to Beijing in the summer of 1998. American veterans of the entire 25-year trek will find much to remember. Less-decrepit readers may well enjoy the tales of political intrigue, silliness in high places, and self-delusion that color the pages of this highly readable book.

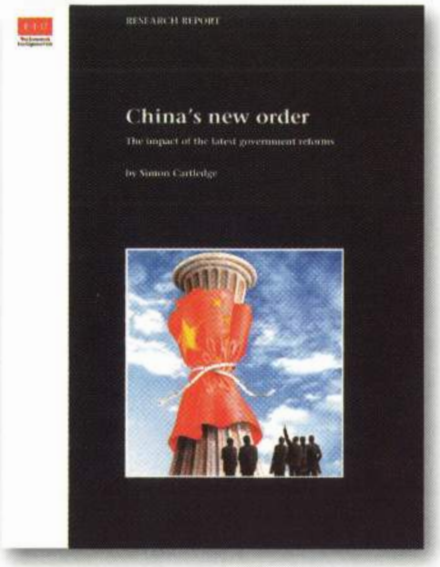
To the extent that Mann presents a theme, it is this: American approaches to the relationship with China have been characterized by a lamentable secrecy, which has perpetuated a pattern of bilateral relations that could not have withstood public exposure in the United States. Furthermore, Americans have generally failed to deal with China according to the wisdom of the old Chinese maxim, "Know yourself, know the adversary/in a hundred battles, a hundred victories." Instead, American policymakers and politicians pursued pipe dreams, often deceiving themselves and others, while succumbing to the clever manipulations of the sophisticated Chinese, for whom the old game of inducing one's adversary to defeat himself with little or no effort of one's own was a hallowed and perfected tradition. Thus, American policy toward China has been characterized by reversals of course, suggestive of a fundamental lack of self-knowledge. Along the way, the author heavily implies, American values have taken a troubling beating.

Mann's picture of US behavior toward China is not a pretty one. His glancing portrayals of China itself are no more elevating. Like so many contributions to the endless American debate about China, the China of *About Face* seems to serve as a rather pallid stage set for the colorful enactment of a US domestic drama of villains, knaves, and stout fellows. *About Face* leaves very few American figures smelling good. And even those that come out smelling good somehow don't smell *convincingly* good: Mann likes some of his characters more than others, but readers may not share his assessments of the members of the cast.

At bottom, this is a brave journalistic attempt at the writing of history. The book does not pretend to theoretical or comparative or

Continued on page 60

China's New Order: The Impact of the Latest Government Reforms



by Simon Cartledge.
Hong Kong: The Economist Intelligence Unit Ltd., 1999. 106 pp. $675, softcover.

China's New Order: The Impact of the Latest Government Reforms confidently leads the reader through the maze of China's government restructuring over the last year. Simon Cartledge, former editor-in-chief for EIU Asia, draws on his lengthy experience working with China to explain the latest round of government restructuring.

The slim volume starts by explaining the need for reform, describing how the late Deng Xiaoping, and President Jiang Zemin, and Premier Zhu Rongji have approached reform, and the alliances that have allowed them to maintain stability while undertaking such momentous changes. Cartledge details the goals of this latest reform, particularly the separation of the state and the economy, and looks into the forces behind these goals. The author also describes how the Chinese government works and the roles of different institutions and players, including the Chinese Communist Party and the People's Liberation Army.

Chapter 4 explains the structure and leadership of the major ministries and commissions one by one. The State Planning Commission (SPC)'s transformation into the State Development Planning Commission (SDPC) is one excellent example. Cartledge argues that the SPC was an increasingly marginal player before restructuring. Beijing's goal of separating the state from the economy seemed to doom the new SDPC from the start. However, because the SDPC became less hampered by details after the government reduced its responsibilities, it became a more powerful policymaker after reforms.

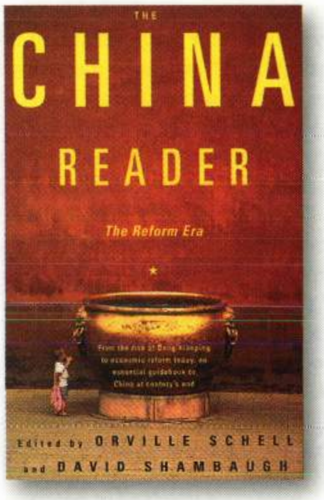
One of the most valuable features of the report is the description of any given leader's links with other important players. The reader gains a glimpse of the behind-the-scenes patronage, machinations, rivalries, and alliances within the Chinese government. This in turn explains why the reforms are progressing as they are, and in which direction a particular ministry or commission may be headed. In the case of the SDPC, the author mentions the connections of Minister Zeng Peiyan to Jiang's Shanghai-based clique, as well as Zeng's policy relations with both Jiang and Zhu.

The book concludes with a chapter that advises foreign firms on *guanxi*—the glue of most deals in China—and how to find help through various types of organizations. The *guanxi* section includes case studies and examples drawn from major foreign companies' experiences in China. The appendix contains contact information for selected ministries, commissions, bureaus, embassies, business organizations, and consulting firms.

China's New Order is well-organized and clearly written. It could, however, benefit from a comprehensive chart of the new government, as it is difficult to grasp the entire government organization. Brief biographies of the leaders of the various ministries and departments add to the reader's understanding of the Chinese government and how it works.

Lissa Michalak is the publications assistant of *The CBR.*

The China Reader: The Reform Era



edited by Orville Schell and David Shambaugh. New York: Vintage Books, 1999, 535 pp. $16 softcover.

The China Reader: The Reform Era presents in one handy volume some of the most important documents, articles, interviews, and statements in China's recent history. In putting together this anthology, Orville Schell—dean of graduate studies in journalism at the University of California, Berkeley—and David Shambaugh—political science and international affairs professor at George Washington University and former editor of *The China Quarterly*—have carefully selected documents to illustrate the great paradox of China's reform era: "development on the one hand and the Communist Party's attempts to maintain its hegemonic grip on political power on the other."

The China Reader begins with a section on the politics of reform, divided into chapters on inner-party and outer-party politics. This section features what is arguably the most important document of the entire era: the Communiqué of the Third Plenary Session of the 11th Central Committee of the Communist Party. The Third Plenum marked the beginning of Deng Xiaoping's dominance, set the stage for economic and political reforms, and authorized diplomatic relations with the United States. The volume also includes Deng's famous interview with the Italian journalist Oriana Fallaci, in which he confided that, particularly during the Cultural Revolution, Mao "made mistakes—and they were not minor ones—which brought many misfortunes upon our Party, our state, and our people."

The chapter on outer-party politics concentrates almost exclusively on student activities and the democracy movement. It includes Wei Jingsheng's *Democracy: The Fifth Modernization* and a number of essays on the 1989 Tiananmen massacre. Yan Jianli, at the time a University of California doctoral student who witnessed the events at Tiananmen Square on the night of June 3-4, 1989, offers a chilling first-person account of the tragic event.

The second section on education, media, and culture presents a number of pieces from both Chinese and foreign observers on how these key institutions are changing as part of and in response to the broader reforms. The issues covered include the role of the press in the 1980s, the place of religion in communist society, and the "battle for cyberspace."

Drawing together material on the social consequences of reform, another section presents pieces on inequality, the floating population, the environment, and crime. Sections on the economy, security, and foreign relations feature contributions by Barry Naughton, Bill Clinton, the Dalai Lama, and Jiang Zemin.

Despite the wide range of selections and great number of topics covered, *The China Reader* is more than a patchwork of documents. Its elements are bound together by the editors' introductions and commentaries, which are brief and for the most part useful. They are not long enough, however, to make this volume an effective introduction for those entirely unfamiliar with recent Chinese history.

For those who have at least a basic knowledge of the PRC's reform period, *The China Reader* is a wonderful resource, offering the opportunity to explore various interpretations of events and dig into primary resources. It also provides contemporary commentary, enabling the reader to gain a deeper understanding of the enormous and perplexing changes set in motion by Deng's reforms.

—*Dominik Treeck*

Dominik Treeck is a Business Advisory Services intern at The US-China Business Council in Washington, DC.

About Face:

Continued from page 58

even analytical depth; it is, instead, a lively narrative around the twin themes of secrecy and folly. Its sources (very responsibly cited) are Freedom of Information Act government documents, interviews, memoirs of participants, and contemporary news reports. With such sources, it is understandable that the role of individuals and the power of their biases and temperaments bulk large. Armed with this colorful material, and with a nimble pen able to paint complex human situations with one or two rapid strokes, the author presents US-China relations largely as a modern day March of (American) Folly.

Along the road, however, *About Face* at times seems abundantly willing to attribute to its subjects hidden motives and mental states that in fact can only be guessed at; to assert unprovable causal relationships and infer revealing patterns among events without proving their existence; and to imply the author's indignation over his subjects' actions without simply coming out and detailing the charges.

In the end, this is a provocative and jaunty journey through a cluttered and sometimes still-smoldering landscape, which contemporary American businesspeople continue to tread. But in its dogged determination to portray patterns of deceit and self-deception, and to uncover the full dimensions of American moral obtuseness on China, the ingeniously titled *About Face* sometimes labors hard in the no-man's land between journalism and history.

—*Robert A. Kapp*

Robert A. Kapp is the president of The US-China Business Council.

trends & issues

ENCRYPTION

Foreign Firms Struggle with New Rules on Encryption Products

The State Council issued new encryption guidelines (Order Number 273, Commercial Use Cryptography Management Regulations) on October 7, 1999, and an interim implementation rule on November 10, 1999 (Public Announcement No. 1), which could affect the way foreign companies in China protect their commercial information.

The regulations establish a new organization—the State Encryption Management Commission (SEMC)—as the PRC encryption regulator in the following areas: domestic research and development; production, sales, and distribution; usage and import/export; and penalties. It is unclear which PRC government body oversees SEMC activities.

The interim regulations are, perhaps deliberately, vague and broad. For example, the regulations do not specify what key length or strength might be covered, nor do they exempt mass-market products. Three aspects of the regulations are particularly relevant to foreign companies in China:

- **Enduser registration requirements** The regulations required companies possessing encryption software to register their products with SEMC by January 31, 2000. A subsequent Application for Use form is also required, but as *The CBR* goes to press, SEMC has yet to announce the submission deadline for this form.
- **Inspections** The regulations and the Application for Use form contain provisions that grant SEMC the right to inspect the use of a company's encryption products. SEMC has yet to clarify how it will apply these provisions, however.
- **Market access** The regulations appear to call for a ban on the sale and distribution of foreign encryption products in China, though as with the provisions on inspection, application of this provision remains unclear.

Possible motivations

The proposed regulations appear to stem from a convergence of commercial interests and national security concerns within the PRC government. Absent a national legal framework, various government agencies have been jockeying for regulatory control over the Internet in China and the lucrative opportunities associated with regulating e-commerce (*see* p.tk). The ease of online communication and the vulnerability of government websites to hackers have raised concerns about the Internet's effect on China's political stability. This concern has been augmented by a widespread belief in China that foreign encryption products used in China include "back doors" that make China's online communications networks permeable to outsiders.

The waiting game

China generally treats the first few months of a rule's existence as a comment period during which relevant officials draft more specific implementing rules. Thus, analysts expect SEMC to assess the results of the January 31 registration process before moving forward on the Application for Use form and other procedures. The subsequent implementing regulations should indicate how SEMC will apply the regulations to foreign companies, though the registration process is likely here to stay.

In the meantime, foreign companies in China are working with local business organizations—including The US-China Business Council—and SEMC and other relevant government bodies, to devise a solution that takes into account China's national security concerns and the needs of both foreign and domestic companies for confidentiality in their business dealings.

—*Karen M. Sutter*

Karen M. Sutter is director of Business Advisory Services at The US-China Business Council in Washington, DC.

short takes

Beer Ballistics

The days of China's exploding beer bottles are numbered. More than a thousand complaints in 1999 alone were logged at the China Consumer Association (CCA)—and the CCA estimates these to be only a fraction of the actual occurrences. Bursting beer bottles have caused injuries and even death in one case, prompting CCA Secretary General Wu Gaohan to announce, according to Agence-France Presse, that he is launching a campaign against detonating drinks. The campaign will introduce new regulations to strengthen bottles, among other efforts. He also warned beer drinkers to avoid potentially projectile pints sold in recycled soy-sauce or vinegar bottles—which are unable to withstand the carbonation pressure—by less-than-trustworthy beer manufacturers.

Shanghai Education: Worth the Price?

For those in search of an American- or European-style education for their children overseas, China may not be the bargain you expect. According to an ECA Windham study of international schools, the Shanghai American School places in the top five most expensive schools surveyed worldwide. The Shanghai school, at $12,550 per year in the primary grades, keeps company with schools in Belgium, Japan, Brazil, and France and beats out London ($12,300) and Frankfurt ($11,600).

E-Commerce to Bloom at Spring Fair

Beijing will host the Fourth China International E-Commerce Fair on April 6-8 in Beijing. The Ministry of Information Industry, the State Economic and Trade Commission, and the China Council for the Promotion of International Trade will co-sponsor the fair, which will be the biggest yet, both in size and number of participants.

E-Banking Hits China

Bank of China and China Construction Bank now offer online banking services, and their competitors are not far behind. China Merchants Bank has signed a contract with China Telecom, China Southern Airlines, and Sina.Net to provide secure online transactions. In Gansu Province, Lanzhou Commercial Bank cooperated with Beijing Yichu Electronic Technology on construction of a province-wide network. The bank's resulting system will soon provide instant payment anywhere in Gansu Province, paving the way for future online banking services.

Taiwan Earthquake Shakes Up Chinese PC Market

Memory chip prices in China shot up more than 200 percent after the September earthquake in Taiwan—the price of an average 64-megabyte SDRAM chip rose from $45 to $157. The quake disrupted chip production by causing blackouts and dust contamination in sensitive work areas.

Council Bulletin

Upcoming Events

March 8
The US-China Business Council Capitol Hill Reception, Washington, DC

March 15
China Operations 2000
Beijing
Topics: PRC Government Plans for WTO Implementation; PNTR: The View From Washington; IPR Protection: Chinese and Foreign Case Studies; and Investment Options Under WTO

March 16 Issues Lunch, Washington, DC

Please Save The Dates!

Thursday, June 1, 2000
Gala Dinner & Program

Friday, June 2, 2000
27th Annual Membership Meeting

Council Posts Information Online About China, the WTO, and PNTR

Visit the Council's PNTR/WTO web page (*www.uschina.org/public/wto*) for Council resources and other links on China's World Trade Organization (WTO) membership and the US debate over Permanent Normal Trade Relations (PNTR) for China, including information on the US-China trade balance, and explanations and analysis of key issues.

Council Helps Clarify New PRC Import Packaging Requirements

The Council has been meeting with the US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) and PRC State Administration for Entry-Exit Inspection and Quarantine (SAIQ) officials to clarify the timing and details of PRC inspection requirements for wood-packing material used to ship goods to China from the United States.

Late last year, SAIQ, the Ministry of Foreign Trade and Economic Cooperation, and the General Administration of Customs jointly issued a circular to eliminate bugs (pinewood nematodes) discovered in conifer wood-packing materials. The bugs can destroy pine, spruce, hemlock, fir, and other evergreens. The November 1999 regulations apply to wood-packing materials including cases, crates, drums, pallets, and spools. According to both PRC and US estimates, roughly one-third of US exports to China could be affected by the new ruling.

The circular requires shipments from the United States to have APHIS certification that the wood-packing material has been treated or kiln dried, or documentation that the shipment does not contain conifer wood or wood-packing material. Non-complying shipments may be heat treated, detained, destroyed, or returned to the United States. The APHIS certification form can be found at *www.aphis.usda.gov*.

Council Works With Companies, PRC Government on Encryption Issue

The State Encryption Management Commission (SEMC) has clarified, somewhat, its position on its regulation requiring registration of products with encryption capabilities (State Council Order No. 273). In a series of discussions with the Council, SEMC revealed details about the procedure that companies will have to go through to complete the Application for Use required under the new regulation (*see* p.61).

Members can find out more on the Council's members-only website *(www.uschina.org/members)*.

Event Wrap-Up

Council Holds Snowy Forecast 2000

Despite a foot of snow and resulting government shutdown, more than 100 Council members gathered in Washington, DC, on January 26 for the annual Forecast meeting. After Council President Robert Kapp's opening remarks, Shanghai Office Director Sheila Melvin led off the first session, on investment, with China Operations Chief Patrick Powers.

The panel on China's economy featured Joseph Battat of the World Bank and International Finance Corp.'s Foreign Investment Advisory Service; John Frankenstein of Columbia University's East Asia Institute; and Edward Steinfeld of the Massachusetts Institute of Technology.

US Secretary of Commerce William Daley gave the keynote address. He outlined the battle over permanent Normal Trade Relations status for China, stressing the importance of grassroots campaigning. The ability of companies to communicate the importance of PNTR to their workers and local communities will be crucial to generating support in Congress for PNTR.

China Business 2000: Trends and Market Opportunities

The Council's China Operations Chief Patrick Powers and Shanghai Office Director Sheila Melvin headlined roundtable meetings in Boston, San Francisco, and Silicon Valley on January 28 and 31, and February 1, respectively. Discussion focused on the current business climate and company strategies in the context of China's impending World Trade Organization accession.

Washington

January

Issues Lunch: Congressional Prospects for PNTR and the Business Issues Entailed in the PNTR Effort Featured Ira Wolf, senior advisor for International Trade Policy to Sen. Max Baucus (D-MT).

February

Legal Interest Group Meeting: Commercial Arbitration in China Featured James M. Zimmerman, Esq., Morrison and Foerster LLP; and Morton Holbrook, Council on Foreign Relations, and US and Foreign Commercial Service.

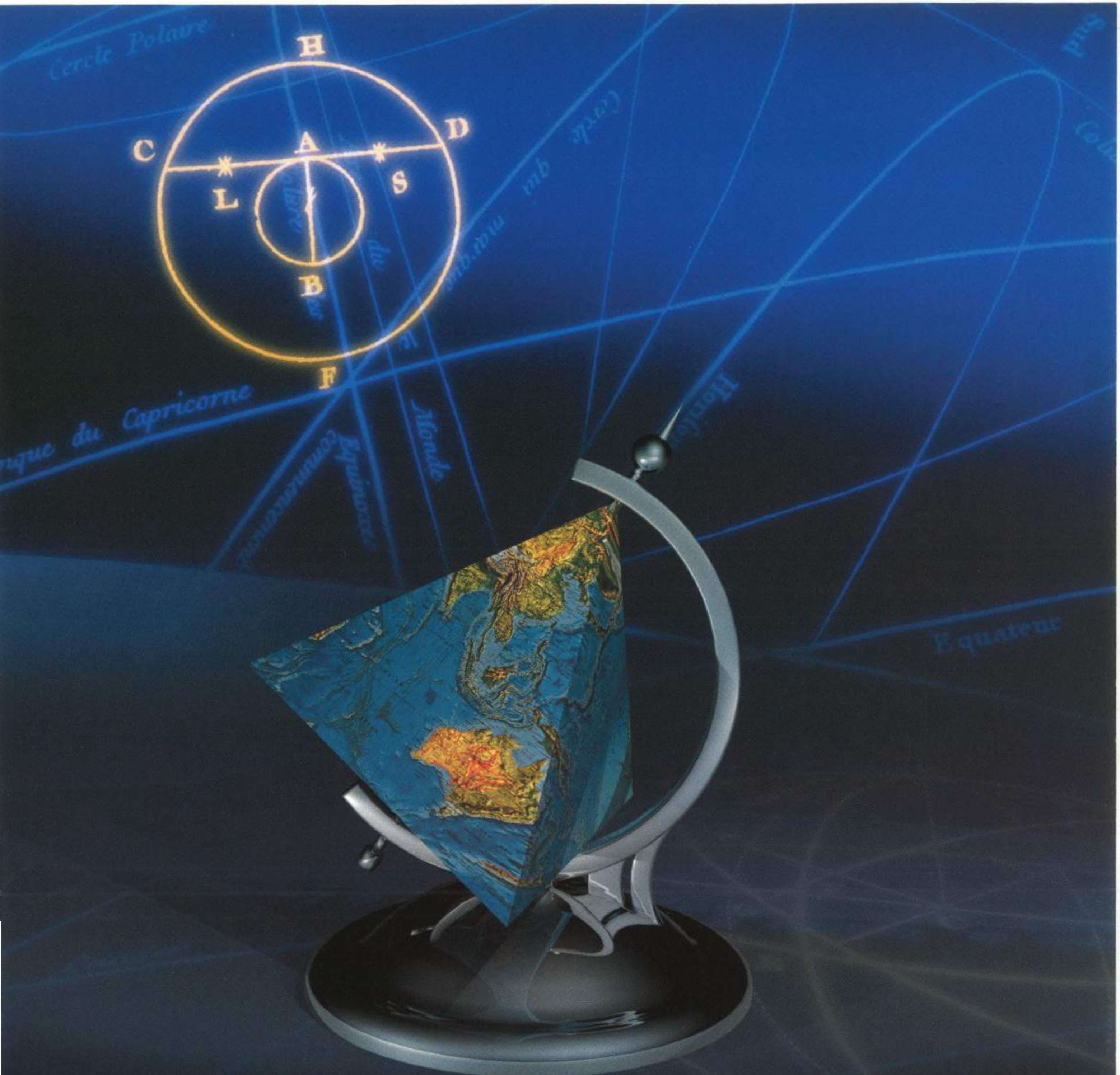
Roundtable Discussion: Japanese Corporate Strategy in China Featured Susumu Kitazawa, general manager, Government Relations Division, and assistant general manager, Office of Industrial Plans and Policy, NEC Corp.

Issues Lunch: China and the 2000 US Presidential Campaign Featured Steven Mufson, *The Washington Post*.

Briefing: Debriefing and discussion of a recent congressional delegation visit to China Featured Rep. Matt Salmon (R-AZ).

Legal Interest Group Meeting: Legal Developments in China in 1999 and Prospects for 2000 Featured Tao Jingzhou, Esq., Beijing office of Coudert Brothers.

MOFTEC Luncheon Meeting Featured Ministry of Foreign Trade and Economic Cooperation Vice Minister Sun Zhenyu.



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DOW

What good thinking can do.

Letter from the President

Continued from page 8

into law in the Geary Act of 1892 and impelled both by demands from labor organizations and by widespread hostility in American life toward the Chinese and their alien ways.

The leader of the American Federation of Labor published a pamphlet on the subject in 1902: "Some Reasons for Chinese Exclusion, Meat vs. Rice, American Manhood Against Asiatic Coolieism: Which Shall Survive?" The US Commissioner-General of Immigration and former head of the Knights of Labor, Terence Powderly, said in 1901, "No graver danger has ever menaced the workingmen of America than that which faces them when the possibility of lowering the bars at our seaports and border-lines to the Chinese is presented." Senator Teller of Colorado weighed in: "If I knew the passage of a proper exclusion bill would destroy every dollar's worth of trade between us and China, I should vote for the exclusion bill. I know that the trade between here and China is not worth the admission of Chinese hordes into this country, and if I had to choose between the two I should take the exclusion."

The PNTR Debate of the year 2000 is not about "Oriental exclusion," as the Americans of 100 years ago called it. But it is nonetheless eerily similar in the degree of emotionalism, the intensity of the antagonism, and the complexity of the multiple domestic agendas again surrounding a China policy issue within our country. Our ambiguity toward China is unchanging, reflected again in the booming assaults now under way against the humble decision facing the Congress: to continue without threat of revocation a standard, non-discriminatory tariff regime for Chinese products entering the United States.

On the merits, PNTR brings equality of commercial and economic opportunity to the United States; without it we forego those chances. Both sides in this debate know that. This simple truth, and the facts discussed above, will ultimately prevail over the carefully crafted misstatements and diversions of PNTR's well-armed opponents. But it is clear from the escalating conflict over PNTR that now confronts us that this truth and these facts cannot be restated often enough.

Legal Dos and Don'ts

Continued from page 27

remains doubtful. In the early 1980s, the authorities tried to force all foreign companies to register their telephones and fax machines, but the rule was largely ignored and eventually repealed.

The definition of state secrets remains vague, and even information that has already been published in the foreign press may be designated a state secret. Since the new rules prohibit the storage, handling, or transmission of state secrets over the Internet, one wonders what one risks by carrying traces of news stories on sensitive subjects such as Falungong, for instance, into China on a portable computer.

Prohibiting websites from employing their own journalists or from publishing information without official approval seems to contravene the International Covenant on Civil and Political Rights, which China has signed but not yet ratified. Article 19 of the Covenant protects a person's "right to seek, receive, and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing, or in print, in the form of art, or through any other media of his choice."

The requirement that all encrypted applications used in China be produced in China appears objectionable mostly on economic grounds. Whether such a prohibition can stand after China's entry into the World Trade Organization (WTO) may become a subject of heated controversy. In fact, most treaties, including the WTO and the International Covenant on Civil and Political Rights, contain "state security" exceptions. Given the Chinese Communist Party's predilection for classifying seemingly anodyne matters as touching upon "state security," the Chinese authorities will no doubt lend a broad meaning to such national security exceptions.

The case of encryption software is particularly sensitive for the Chinese because the government itself relies heavily on imported encryption technology. Considering that China's trading partners, especially the United States, are now loosening their restrictions on exports of encryption software precisely to promote foreign expansion of their national champions, a clash between China and its trading partners seems inevitable.

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NOVEMBER 15, 1999 – JANUARY 15, 2000

Compiled by Jessica Huang

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.

Accounting and Insurance

INVESTMENTS IN CHINA

John Hancock Mutual Life Insurance Co. (US)/Tian An Insurance Co. (Shanghai)

Will set up a joint-venture life insurance company. $24.2 million. 12/99.

Prudential Plc (UK)/CITIC

Formed a life-insurance joint venture in Guangdong Province. (UK:50%-PRC:50%). $24.1 million. 12/99.

Advertising and Public Relations

INVESTMENTS IN CHINA

City Power Services Ltd., a unit of Kin Don Holdings Ltd. (Hong Kong)/Beijing Li Yang Advertising Co. Ltd.

Formed a television-advertising joint venture. (Hong Kong:48%-PRC:52%). 12/99.

American Champion Entertainment (US)/Great Wall International Sports Media Co. (Beijing)

American Champion will acquire 80% of Great Wall. 11/99.

Agricultural Commodities and Technology

OTHER

World Bank

Granted loan to assist China in raising beef cattle in Henan, Hebei, and Anhui provinces. $93.5 million. 1/00.

Banking and Finance

OTHER

etang.com Inc. (Shanghai)

Generated venture-capital financing from US companies, J.W. Seligman & Co. and Sycamore Partners, for its Chinese-language website. $40 million. 1/00.

Sinobull.com, a unit of The Hartcourt Co. Inc. (US)

Sinobull.com will acquire 50% of Guo Mao, a financial data provider in Shanghai. 12/99.

International Data Corp. (US)

Will provide China Travel Service $2.5 million in venture capital to develop online travel services. 11/99.

Chemicals, Petrochemicals, and Related Equipment

CHINA'S IMPORTS

ABB Lummus Global Inc. (US), Toyo Engineering Corp. (Japan)/Yangzi Petrochemical Corp. (Nanjing)

Signed a contract to expand Yangzi's production capacity. $507 million. 11/99.

INVESTMENTS IN CHINA

Pilkington Plc (UK)

Doubled stake in its Chinese joint venture, Shanghai Yaohua Pilkington. $5.9 million. 1/00.

Consumer Goods

CHINA'S INVESTMENTS ABROAD

Wittis Group (Hong Kong)/Konka Group Co. Ltd. (Shenzhen)

Formed Konka Electronics India Ltd., a joint venture that will manufacture color televisions and washing machines in India. $115 million. 12/99.

INVESTMENTS IN CHINA

Electra Consumer Products (Israel)

Will buy Whirlpool Corp.'s 20% stake in a Chinese air-conditioner plant, increasing its overall stake to 95%. 1/00.

Electronics and Computer Software

CHINA'S IMPORTS

GENICOM Corp. (US)

GENICOM will supply laser printers to Start Computer Group of Fujian Province. 1/00.

Computer Associates International, Inc. (US)

Will update and manage ticket-ordering system of the Ministry of Railways. 12/99.

NetFront (US), Chinadotcom Corp. (Hong Kong)

NetFront will provide online security and authentication services to Chinadotcom's official Macau Government website. 12/99.

Abbreviations used throughout text: ADB: Asian Development Bank; BOC: Bank of China; CAAC: Civil Aviation Administration of China; CNAIEC: China National Automotive Import-Export Corp.; CATIC: China National Aero-Technology Import-Export Corp.; CITIC: China International Trust and Investment Corp.; CITS: China International Travel Service; CNOOC: China National Offshore Oil Corp.; CNPC: China National Petroleum & Gas Corp. ETDZ: Economic and Technological Development Zone; ICBC: Industrial and Commercial Bank of China; MII: Ministry of Information Industry; NA: Not Available; NORINCO: China North Industries Corp.; P&T: Posts and Telecommunications; PBOC: People's Bank of China; SEZ: Special Economic Zone; SINOCHEM: China National Chemicals Import-Export Corp.; SINOPEC: China National Petrochemical Corp.; SINOTRANS: China National Foreign Trade Transportation Corp.; SPC: State Planning Commission; UNDP: United Nations Development Program; UNICOM: China United Telecommunications Corp.

CHINA'S INVESTMENTS ABROAD

Hunan Computer Co. Ltd.

Hunan Computer will invest $3.5 million in Weiyong-Great Wall Circuits Co. Ltd., a joint venture of Weiyong Technology Co. Ltd. of Singapore. 1/00.

INVESTMENTS IN CHINA

Bentley Communications Corp. (US)/NA

Agreed with Chinese manufacturer to sell electronic communication devices directly from PRC factory on its new website, buynetonline.com. 1/00.

Dynamics Technology Inc. (US)/Cyber City Holdings Ltd. (Shenzhen)

Formed a joint venture to establish China Innovation Center, a resource for information technology start-up companies in China. 1/00.

Zoran Corp. (US)/Amoisonic Electronics Co. Ltd. (Fujian)

Will partner to provide solutions for DVD and SVCD markets in China. 1/00.

Computer Associates International, Inc. (US)/Fudan Guanghua Co. (Shanghai)

Formed a joint venture to develop software for Chinese small and medium-sized businesses. 12/99.

IntZ.com (Korea)/NA (Beijing)

Formed a joint venture to promote IntZ.com's portal and advertising sites in China's Internet market. (Korea:49%-PRC:51%). $1.16 million. 12/99.

Softbank Corp. (Japan)

Will invest $300 million in Chinese firms capable of turning into online enterprises. 12/99.

Chinadotcom Corp. (Hong Kong)/Dr. Jay Tian

Formed a joint venture, Beijing Digital Ark, to develop e-commerce computer technologies for the China market. 11/99.

eCommerce.com (US)/1China.net

eCommerce.com acquired 1China.net to enter China's Internet market. 11/99.

Financial Telecommunications Ltd. (Hong Kong)/UAC Online Stock Trading Inc. (Beijing)

Merged to form Sinobull.com, a Chinese financial Internet portal. 11/99.

IBM Corp. (US)/China Great Wall Computer Group Co. (Shanghai)

Formed a leasing-finance joint venture to assist Chinese IBM hardware and software customers. (US:80%-PRC:20%). $20 million. 11/99.

Kinzan.com (US)/MeetChina.com (Beijing)

Partnered to enable Chinese merchants to sell directly over the web in global markets. 11/99.

Lotus Pacific Inc. (US)/Shanghai Online

Lotus will provide Shanghai Online with AuctionLive, its flagship online auction service. 11/99.

OTHER

Chinadotcom Corp. (Hong Kong)

Expanded the multimedia service of its China portal with software provided by RealNetworks Inc. of the United States. 1/00.

Chongqing Word Technology Co. Ltd., a mainland partner of Tianrong Internet Products and Services, Inc. (US)/China National Commodity Exchange Center

Formed a partnership to develop e-commerce programs. 1/00.

eGlobe Inc. (US)

Will form il.com, an Internet-based application that will allow Chinese businesses to handle online transactions. 1/00.

Sino-i.com (Hong Kong), IBM Greater China Group, a unit of IBM Corp. (US)

Formed a partnership to develop an e-commerce platform for China. 1/00.

TurboLinux Inc. (US)

Made TurboLinux Certified Engineer training courses available in China. 1/00.

ChinaMallUSA.com Inc. (US)/City of Qingdao, City of Yucheng (Shandong)

Agreed that Qingdao and Yucheng will use ChinaMallUSA.com as the website for local businesses to publicize projects seeking foreign investment and to conduct international commercial transactions. 12/99.

Compaq Computer Corp. (US)/Shanghai Information Investment Inc.

Formed a strategic alliance to develop Internet opportunities in China. 12/99.

MaxPlanet Corp. (US)

Announced the launch of MaxPlanet-China, an information and entertainment portal for the Chinese market. 12/99.

MyWebInc.com (US)/China Internet Network Information Center

Will develop a unified system to audit web traffic in China. 12/99.

Viewtex Investment Ltd., a subsidiary of Righteous Holdings Ltd. (Hong Kong)/Shenzhen Yuanheng Liquid Crystal Display Industry Development Co. Ltd.

Viewtex will buy 35% interest in Yuanheng Liquid Crystal Display. $900,000. 12/99.

ABN Amro Asia Capital Investment Ltd., a unit of ABN Amro NV (the Netherlands), GE ECXpress, a venture of GE Information Services, a unit of the General Electric Co. (US)

Formed an alliance to bring e-commerce capabilities to China. 11/99.

ec-Finance.com (US)/MeetChina.com

MeetChina.com will offer an online Letter of Credit developed by ec-Finance.com on its online international payment-processing platform. 11/99.

Oriole Systems Inc. (Canada)

Oriole will acquire 51% of Hong Kong's Succeed Technology and implement the company's e-commerce projects in China. $5 million. 11/99.

Engineering and Construction

INVESTMENTS IN CHINA

Great Wall New Building Systems, a subsidiary of Eagle Capital International Corp. (US)/Shuanglong Cement Works (Beijing)

Formed joint venture to supply building block and materials to the Chinese market. (US:55%-PRC:45%). 11/99.

NatSteel Electronics Ltd. (Singapore)/Pacific City International Group (Beijing)

Formed a joint venture to construct build-to-order assembly plants in Guangdong Province and Shanghai. (Singapore:50%-PRC:50%). 11/99.

Environmental Technology and Equipment

INVESTMENTS IN CHINA

Central Software Corp. (S. Korea)/Huashui Hydropower Development Corp. (Beijing)

Formed joint venture to operate a flood-forecast and -warning system in China. (Korea:50%-PRC:50%). 11/99.

Food and Food Processing

INVESTMENTS IN CHINA

PepsiCo, Inc. (US)
Launched PepsiCo Foodstuff (China) Co. Ltd. in Shanghai to produce snack foods. $30 million. 12/99.

Kikkoman Corp. (Japan), Uni-President Enterprises Corp. (Taiwan)
Formed a soy-sauce joint venture in Jiangsu Province. (Japan:50%, Taiwan:50%). $11 million. 11/99.

PepsiCo Investment China Ltd., a unit of PepsiCo, Inc. (US)/Tianjin Development Holdings Ltd.
Set up a soft-drink production and distribution joint venture in China. 11/99.

Sanhe Meile Soft Drinks Co. Ltd., joint venture of Calcol Inc. (US)/China National Food Industry Corp.
Will build a soft-drink bottling plant and a concentrate-finishing facility. 11/99.

Machinery and Machine Tools

CHINA'S IMPORTS

Caterpillar China Ltd., a unit of Caterpillar Inc. (US)
Will supply China National Technical Import Corp. with 122 Caterpillar hydraulic excavators. 1/00.

CHINA'S INVESTMENTS ABROAD

Corporate Solutions (South Africa)/Fujian Machinery and Equipment Import and Export Corp.
Formed Corporate Electrical Technologies, a joint venture, to manufacture and distribute fluorescent bulbs in South Africa. $1 million. 12/99.

INVESTMENTS IN CHINA

General Bearing Corp. (US), NN Ball and Roller, Inc. (US)/Jiangsu Lixing Steel Ball Factory Group
Established a joint venture to manufacture steel balls and rollers in Jiangsu Province. (US:60%-PRC:40%). 1/00.

Pratt & Whitney (Canada)/China National South Aero-Engine Co.
Jointly opened a manufacturing plant in Zhuzhou, Hunan Province. (Canada:49%-PRC 51%). 12/99.

OTHER

Pohang Iron and Steel (S. Korea)
Will merge its two joint-venture steel plants in Jiangsu Province. $250 million. 12/99.

Medical Equipment and Devices

CHINA'S IMPORTS

GE Hangwei Medical Systems Co. Ltd., a joint venture of the General Electric Co. (US)
GE will transfer research, development, and production technology to its Chinese joint venture in Beijing to produce CT scanners. 12/99.

Metals, Minerals, and Mining

CHINA'S INVESTMENTS ABROAD

Gelar Metal Industry Co. (Ethiopia)/Wuhan Steel Group
Will jointly establish a steel plant in Ethiopia. $2.2 million. 11/99.

Miscellaneous

CHINA'S INVESTMENTS ABROAD

Government of Fiji/Government of the PRC
The PRC will build a multipurpose sports complex in Suva, Fiji. $3.5 million. 11/99.

INVESTMENTS IN CHINA

Celestial Asia Securities Holdings Ltd. (Hong Kong)/Chinese Academy of Scientific & Technical Development
Formed a joint venture to provide corporate-finance consulting services to science and technology projects in China. $1.3 million. 1/00.

2bSURE.com (Singapore)/Field Force Group (Beijing)
Formed a strategic alliance to facilitate 2bSURE's expansion into the mainland voice messaging, e-mail, and fax services. 12/99.

Bekaert Group (Belgium)/Jiangsu Fasten Co. Ltd.
Set up joint venture to produce steel wires and cables for energy and telecommunications transmission. $22.4 million. 12/99.

China Sports Program Syndicating (Hong Kong)/China Educational Television (Beijing)
Entered into an eight-year agreement to launch China Sports Broadcasting Network, the first mainland all-sports channel. 11/99.

Gemzboh Holdings Ltd. (Bermuda)/China Northeast Ultrafine Powders Manufacturing Co. Ltd., China Academy of Launch Vehicle Technology Corp.
Set up a joint venture to develop and manufacture ceramic products. $3.6 million. 11/99.

Hong Thai Travel Service Agency (Hong Kong)/Guangzhilu International Travel Service Co. (Guangdong)
Formed the Guangzhou Hong Thai International Travel Service Agency, a joint venture to operate a mainland tourism agency. (Hong Kong:49%-PRC:51%). 11/99.

Packaging, Pulp, and Paper

OTHER

UPM-Kymmene Group (Finland)
Opened a representative office in Beijing. 1/00.

Pharmaceuticals

CHINA'S IMPORTS

Rocky Mountain Fuzhou Drug Co. Ltd., a unit of Rocky Mountain Ginseng, Inc. (Canada)
Will supply ginseng root for Quanzhou Da Tong Medicine Co. Ltd. stores in Fujian Province. $500,000. 11/99.

CHINA'S INVESTMENTS ABROAD

China Development Industrial Bank
Invested $2.4 million in Conjuchem Inc. of Canada to develop pharmaceuticals. 1/00.

OTHER

Celera Genomics, a unit of PE Corp. (US)
Acquired 47.5% equity in Shanghai GeneCore BioTechnologies Co. Ltd. 1/00.

Ports and Shipping

INVESTMENTS IN CHINA

DHL-Sinotrans, a unit of DHL Worldwide Express
Will expand its Chinese business through installation of automatic sorting and handling equipment. $1.2 million. 12/99.

PSA Corp. (Singapore)/Port of Dalian Authority
Formed a joint venture to operate a container depot in Dayaowan, Liaoning Province. 12/99.

FDX Corp. (US)/Da Tian W. Air Service Corp. (Tianjin)
Formed a joint venture to provide international express transportation services to and from China. 11/99.

United States Postal Service/State Postal Bureau
Will jointly develop new international services. 11/99.

Property Management and Development

INVESTMENTS IN CHINA

Wah Nam Group (Hong Kong)/Summit Mass (Guangdong)
Wah Nam Group acquired Summit Mass and will use its land assets for commercial and residential development. $100 million. 11/99.

OTHER

Sun Hung Kai Properties Ltd. (Hong Kong)/Trans-Ocean Housing Technology Ltd., a joint venture of Trans-Ocean International and the Shanghai Municipal Housing Department Bureau.
Sun Hung Kai bought 9.9% stake in Trans-Ocean Housing Technology in Shanghai. 11/99.

Telecommunications

CHINA'S EXPORTS

Shanghai Bell Co.
Will supply Bangladesh Telegraph and Telephone branch equipment for a digital telecommunications network. $213.5 million. 11/99.

CHINA'S IMPORTS

Andrew Corp. (US)
Supplied antenna products to Beijing Telecom Great Wall Mobile Communications Ltd. to expand CDMA technology. 1/00.

Harris Corp. (US)
Will supply equipment for UNICOM's GSM network. $22 million. 1/00.

Newbridge Networks Corp. (Canada)
Expanded Guangdong P&T Administration's telecommunications network. 1/00.

LM Ericsson AB (Sweden)
Will expand network capacity of Sichuan Mobile Communications Co. $100 million. 11/99.

LM Ericsson AB (Sweden)
Will help UNICOM construct an international gateway-switching project in Guangdong Province. $1.7 million. 11/99.

LM Ericsson AB (Sweden)
Will supply equipment to help UNICOM expand GSM services in Anhui Province. $24.5 million. 11/99.

Texas Instruments China Inc., a unit of Texas Instruments Inc. (US)/ Government of the PRC
Will assist and supply equipment for the development of ADSL services in China. 11/99.

INVESTMENTS IN CHINA

LHS Group Inc. (US), Alcatel (France)
Will assemble a joint team, integrated with Alcatel's Shanghai subsidiary, to address billing and customer services in China. 1/00.

Oy Nokia AB (Finland)
Launched Nokia (Suzhou) Telecommunications Co. Ltd. to manufacture cellular network products in Jiangsu Province. $50 million. 1/00.

Oy Nokia AB (Finland)/Sohu.com (Beijing), Beijing Mobile Communications Corp.
Will partner to develop mobile Internet services and applications for wireless terminal users in China. 1/00.

Concept Industries Inc. (Canada)
Will develop and operate a new Internet data center in China for Beijing Jitong Telecommunications Corp. 12/99.

LG Information and Communications Ltd. (S. Korea)/Guangzhou P&T Equipment Co., Guangdong Telecommunication Academy of Science and Technology
Formed LG-TOPS Communication Technologies Co., a joint venture to manufacture and market CDMA equipment in China. $160 billion. 12/99.

LM Ericsson AB (Sweden)/Panda Electronics Group (Nanjing)
Jointly produced a mobile handset, Panda GM518, designed for lower-income Chinese consumers. 12/99.

NKF Holding NV (the Netherlands)/Wuhan Changjiang Telecommunications Group, Changfei Optic Fiber and Cable Co. (Hubei)
Formed a joint venture in Hubei Province to produce cables for mobile telecommunications. $17 million. 12/99.

T&L, a joint venture of TCL International Holdings (Hong Kong), Lotus Pacific Inc. (US)
Signed a 15-year agreement with Shanghai's Radio, Film, and Television Bureau to provide Internet access to households through Shanghai's cable network. 12/99.

OTHER

StarHub Pte Ltd. (Singapore)/China Telecommunications Co. Ltd.
Signed an agreement to allow direct voice and data links between Singapore and China. 1/00.

Transportation

CHINA'S IMPORTS

Atlas Air Inc. (US)
Will lease a Boeing 747 freighter to China Southern Airlines under an aircraft, crew, insurance, and maintenance arrangement. 1/00.

Hawker Pacific Aerospace (US)
Signed a five-year landing-gear service contract with China Southern Airlines. $5.7 million. 11/99.

INVESTMENTS IN CHINA

Hyundai Group (Korea)/Jiangsu Yueda Co.
Formed a joint venture to build cars in Jiangsu Province for the Chinese market. $15 million. 12/99.

Bombardier Inc. (Canada)/Government of the PRC
Formed a joint venture to manufacture high-speed trains in Shandong Province for the Chinese market. (Canada:50%-PRC:50%). 11/99.

Isuzu Motors Ltd. (Japan)/Guangzhou Automobile (Guangdong)
Will jointly invest in the production of deluxe buses. $30 million. 11/99.

NRMA Ltd. (Australia)/China Automobile Assist (Beijing)
Formed a joint venture to expand China's automobile insurance market. 11/99.

Toyota Motor Corp. (Japan)/Tianjin Xiali Automotive Co.
Formed a joint venture to develop a new model of sedan for the Chinese market. $91 million. 11/99.

OTHER

Rolls-Royce Plc (UK)/Aviation Industry Corp. (Beijing)
Agreed to establish a joint-engineering team to carry out research on aircraft engines. 1/00.

last PAGE

UFOs On the Horizon

Reports have run rampant in the Chinese media of UFOs (*buming feixingwu*) and flying saucers (*fei die*) appearing in the skies over China. According to daily papers, residents of the southern and eastern parts of the country have reported several sightings, and UFOs have been spotted as far west as the Tibet Autonomous Region. Is it a hoax? A government conspiracy? Below is *The CBR's* attempt to seek truth from facts.

Two recent major sightings occurred on December 2, 1999, in Shanghai and nine days later in Pusalu, a small village an hour north of Beijing. The Pusalu UFO made it into the Western papers. Witnesses say that two red- or yellow-colored objects rose slowly into the sky. The Shanghai UFO was a cylindrical object with a flaming orange tail that also moved slowly across the sky. While several Chinese newspapers have quoted a series of experts, who stated that the Shanghai flying saucer could have been anything from a patch of clouds to a special model of aircraft, no theories have been advanced yet on the Pusalu sighting.

Several groups, such as the Beijing UFO Research Society, study UFOs in China. These societies are selective, and often require a college degree and published research for membership. Both the government and members of UFO research societies maintain that the study of flying saucers is both scientific and potentially useful. Official news programs have been showing UFO documentaries and clips, and some papers have taken the opportunity to contrast the PRC government's openness about UFOs with the "notorious secrecy" of its US counterpart.

China's history of UFOs reaches farther back than this year. In October 1998, for example, a PRC fighter pilot pursued a UFO that he described as having a domed top and a flat bottom covered in rotating lights. And extraterrestrial visitors may have visited the Middle Kingdom much earlier. A *Beijing Evening News* article, translated by SinoFile Information Services, Ltd., reported that a green-faced terra cotta warrior was recently discovered in Xi'an, Shaanxi Province. Coincidence? We think not.

Other Last Page News:

But did it have a big nose?

A hunter reported to scientists his sighting of a tall, red-haired monster in Hubei Province's Shennongjia Nature Reserve last fall. The scientists' investigation turned up gnawed corncobs, brown hair, and 16-inch footprints.

Beijing Bus Wars

The Yuntong Co. No. 106 bus, launched on December 25 last year on a route along Beijing's Jingcheng Highway, faces fierce competition from its rival for the same route, the No. 808 bus. After several clashes between the employees of the two companies, some No. 808 employees took matters into their own hands and made off with 34 of the Yuntong No. 106's route signs. Leaders of the No. 808 team maintain that this was a private action of the individuals involved.

Bringing Home the Bacon

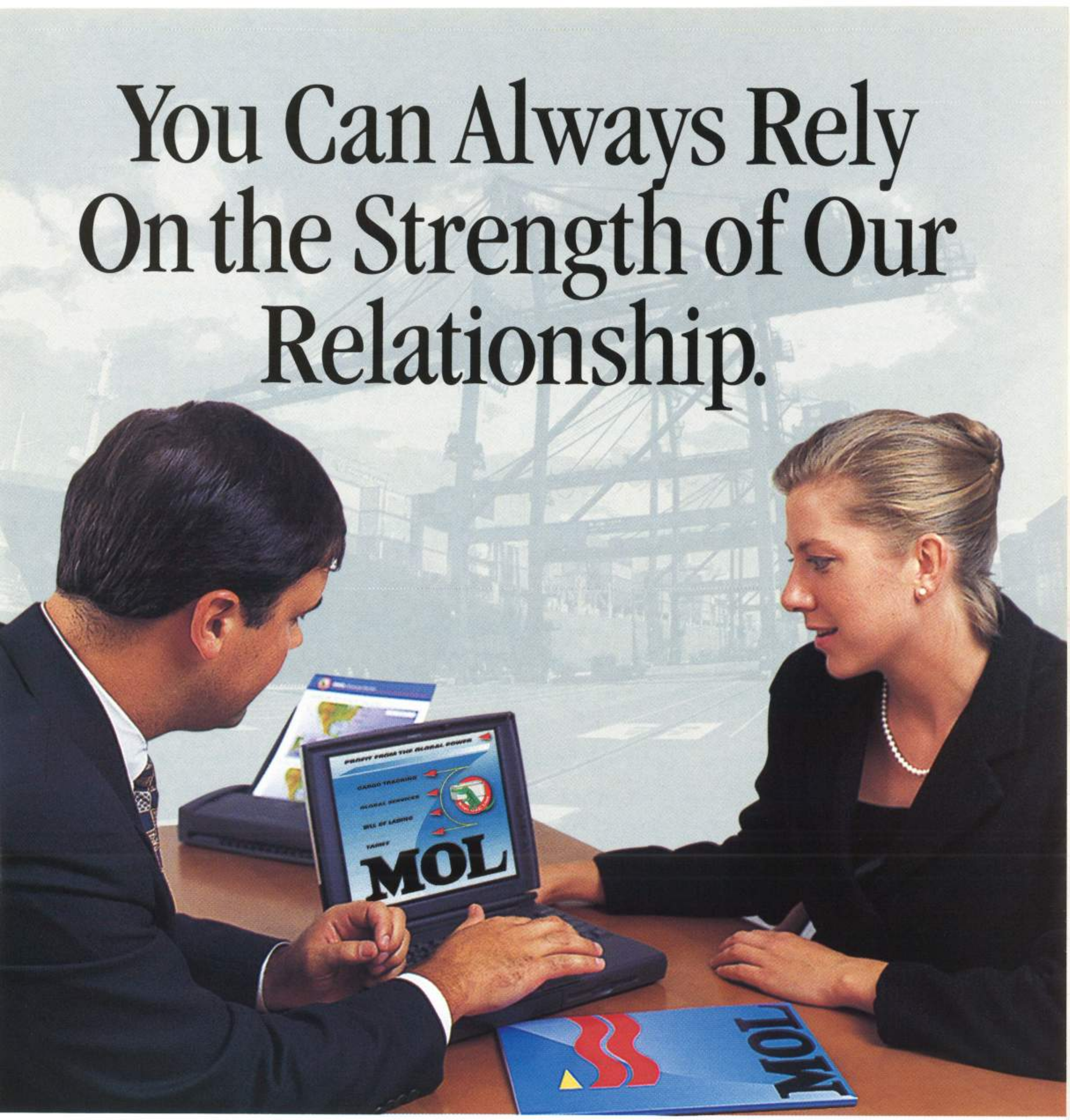
A Shanghai man who broke his foot running into a stray pig while bicycling brought a suit against the pig's owner—and won. The court found the owner, as well as the market involved, guilty of failing to control the animal, and awarded the injured man ¥12,000 ($1,449). Muzi Lateline News reports that the pig made its dash for freedom as the owner, a farmer, tried to unload it and 10 of its companions at the gate of the Songjiang district market.

Asia's Hello Kitty Riots

McDonald's Corp.'s latest Happy Meal premium in Asia, a series of Hello Kitty dolls, has sparked long lines, scuffles, and riots across the region as consumers rush to obtain the toys. Hello Kitty and Dear Daniel, her boyfriend, appear in various traditional wedding costumes including a "romantic" Western-style outfit and "Millennium" wedding space suits. In response to several serious riots in Singapore, McDonald's released an announcement that to obtain the Chinese wedding dolls, the last in the series, customers could purchase an unlimited number of vouchers for the toys during the full 15 days of Chinese New Year.

—*Lissa Michalak*

Lissa Michalak is publications assistant at *The CBR*.



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Together, these two characters mean "tomorrow." Separately they mean "bright" and "day."

Americans have long wondered about tomorrow's China. Strong or weak? Successful or unsuccessful? In step with the world or marching to its own music?

China's people, living with rapid change, have their eyes fixed on tomorrow as well, a tomorrow of modernity, prosperity, and world respect.

Now, as the new century dawns, China and America stand at the edge of tomorrow.

China will almost certainly enter the World Trade Organization in the year 2000, pledging to live by the rules and standards that the world's trading nations (led by the United States) have created.

The US stands to reap the benefits of our successful, principled negotiations with China. More open markets, lower trade barriers, greater adherence to law and transparent government decision-making are just a few of China's commitments as it approaches WTO membership.

But this brighter tomorrow also asks us for one step not yet taken: extension of Permanent Normal Trade Relations to China. To win the fruits of China's WTO membership commitments for Americans, we must establish full WTO member treatment for China as well.

A long-awaited tomorrow is at hand. Let's seize the moment. The time for PNTR is today.

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